



2018 Regional Transportation Plan

# Regional Transit Strategy

*A strategy for providing better transit service in the greater Portland region*

**December 6, 2018**

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Regional Transportation Plan website: [\*\*oregonmetro.gov/rtp\*\*](http://oregonmetro.gov/rtp)  
Regional Transit Strategy web site: [\*\*oregonmetro.gov/transit\*\*](http://oregonmetro.gov/transit)

The preparation of this strategy was financed in part by the U.S. Department of Transportation, Federal Highway Administration and Federal Transit Administration. The opinions, findings and conclusions expressed in this strategy are not necessarily those of the U.S. Department of Transportation, Federal Highway Administration and Federal Transit Administration.

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF ADOPTING THE 2018	)	RESOLUTION NO. 18-4892
REGIONAL TRANSIT STRATEGY AND	)	
REPLACING THE 2009 REGIONAL HIGH	)	Introduced by Chief Operating Officer Martha
CAPACITY TRANSIT SYSTEM PLAN	)	Bennett in concurrence with Council
	)	President Tom Hughes

WHEREAS, in 2009 the Metro Council adopted the Regional High Capacity Transit System Plan via Resolution No. 09-4025, which identified the location of potential future investments in light rail, bus rapid transit and rapid streetcar in the greater Portland region; and

WHEREAS, in 2014 the Metro Council adopted the Climate Smart Strategy via Ordinance No. 14-1346B, which calls for increased investment in our regional transit system in order to help meet state-required targets for reducing greenhouse gas emissions from light-duty vehicles; and

WHEREAS, in 2016 Metro created a Regional Transit Work Group consisting of city and county representatives, community partners and transit providers, which was tasked with providing technical input and recommendations to Metro staff regarding development of a new coordinated vision and strategy for transit in the greater Portland region; and

WHEREAS, the Regional Transit Work Group met 19 times from 2016 through 2017 and provided input to Metro staff regarding the development of a new Regional Transit Strategy (RTS) to be adopted concurrently with the 2018 Regional Transportation Plan (RTP); and

WHEREAS, the 2018 RTS includes a regional transit vision to make transit more frequent, convenient, accessible and affordable for everyone, and adopts new and updated transit-related policies aimed at creating an efficient and seamless regional transit system in the greater Portland region; and

WHEREAS, the 2018 RTS includes updates to the Regional Transit Network map to include the 2009 high capacity transit lines, new enhanced transit concept corridors, streetcar and future transit service identified by TriMet's Service Enhancement Plans and Wilsonville's South Metro Area Regional Transit (SMART) Master Plan; and

WHEREAS, the 2018 RTS updates existing transit-related policies, performance measures and actions that are described in the 2014 RTP and Climate Smart Strategy; and

WHEREAS, Metro released the initial draft of the 2018 RTS for public review and comment on June 29, 2018; and

WHEREAS, Metro provided a 45-day public comment period on the draft 2018 RTS from June 29 to August 13, 2018, and received comments through September 6, 2018; and

WHEREAS, the Metro Council held a public hearing on August 2, 2018 to accept public testimony and comments regarding the draft RTS; and

WHEREAS, Metro staff invited four Native American Tribes, the Federal Highway Administration, the Federal Transit Administration and other federal, state and local resource, wildlife, land management and regulatory agencies to consult on the public review draft RTS in accordance with

23 CFR 450.316, and convened four separate consultation meetings on August 6, 14 and 21 and September 6, 2018; and

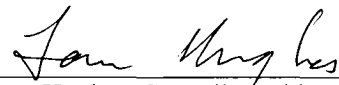
WHEREAS, the Metro Council, the Joint Policy Advisory Committee on Transportation (JPACT), the Metro Policy Advisory Committee (MPAC), the Metro Technical Advisory Committee (MTAC), the Transportation Policy Alternatives Committee (TPAC), the Federal Highway Administration, the Federal Transit Administration, TriMet, SMART, local government elected officials and staff, business and community leaders, public agencies, private and non-profit organizations and the public, assisted in the development of the 2018 RTS and provided comment on the RTS throughout the planning process conducted for the 2018 RTP update; and

WHEREAS, JPACT and MPAC have recommended approval of the 2018 RTS by the Metro Council; and


WHEREAS, the Metro Council held two additional public hearings on the 2018 RTS identified in Exhibit A on November 8 and December 6, 2018; now therefore,

BE IT RESOLVED that the Metro Council hereby adopts the 2018 Regional Transit Strategy attached to this Resolution as Exhibit A, as amended by the "Summary of Comments Received and Recommended Actions" in Exhibit B, as a component of the 2018 Regional Transportation Plan (RTP), replacing the 2009 Regional High Capacity System Plan.

ADOPTED by the Metro Council this 6th day of December, 2018.

  
\_\_\_\_\_  
Tom Hughes, Council President

Approved as to Form:

  
\_\_\_\_\_  
Nathan A. S. Sykes  
Acting Metro Attorney



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## EXECUTIVE SUMMARY

The Portland region is growing as more people are attracted to the quality of life around our region. Our robust transit system plays a critical role in the effectiveness of our transportation system and also serves as a key component to the high quality of living residents of our region experience. Significant future growth is anticipated for our region and our transit service must expand to keep pace with this expected growth. The Regional Transit Strategy (RTS) was created to highlight the region's plans for meeting our future transit goals.

### ***Regional Transit Vision***

The RTS was produced in conjunction with input from various workgroups, community feedback, and regional partnerships. With direction from these working groups the RTS developed a regional shared vision ***to make transit more frequent, convenient, accessible and affordable for everyone*** and that includes a focus on:

- Local and regional transit service improvements
- New transit enhancement strategies, such as transit signal priority, bus only lanes and queue jumps
- High capacity transit investments, such as light rail and bus rapid transit
- Capacity increases and reliability improvements on the current transit system
- Transit supportive elements such as sidewalks, crossings and complementary land uses

Regional investment across these areas will all contribute to a reliable, safe, and efficient regional transit system. The actions developed to support this vision are aimed at making transit more frequent, convenient, accessible and affordable for all. We describe the actions as follows:

- **Frequent:** Align frequency and type of transit service to meet existing and projected demand in support of adopted local and regional land use and transportation plans.
- **Convenient:** Make transit more convenient and competitive with driving by improving transit speed and reliability through priority treatments and other strategies. Improve customer experience by ensuring seamless connections between various transit providers, including transfers, route and schedule information and payment options.
- **Accessible:** Provide safe and direct biking and walking routes and crossings that connect to transit stops to ensure transit services are fully accessible to people of all ages and abilities. Expand community and regional transit service across the region to improve access to jobs and community places.
- **Affordable:** Ensure transit remains affordable, especially for those who depend on it the most.

The following table describes the actions our region can take to move our transit system toward our vision. The actions identified in the following table support implementing our regional transit vision. These include a wide range of actions through policy, service planning and capital investments; all intended to support our vision to make transit more frequent, convenient, accessible and affordable for everyone.

## Regional Transit Strategy Actions

Frequent	Convenient	Accessible	Affordable
<b>Actions:</b> <ul style="list-style-type: none"> <li>• Implement TriMet's Future of Transit Service Enhancement Plans.</li> <li>• Implement the SMART Master Plan.</li> <li>• Implement the Portland Streetcar Strategic Plan and expansion.</li> <li>• Implement and coordinate with C-TRAN's Transit Development Plan.</li> <li>• Implement and coordinate with state, regional, neighboring cities and rural transit providers future service plans.</li> <li>• Implement the Regional Enhanced Transit Concept Pilot Program.</li> <li>• Invest in Enhanced Transit Concept improvements.</li> <li>• Invest in High Capacity Transit corridors.</li> <li>• Implement TriMet's Coordinated Transportation Plan for Seniors and Persons with Disabilities, in conjunction with Special Transportation Fund Advisory Committee (STFAC) and service providers.</li> <li>• Coordinate transit investments with local and regional land use and transportation visions as</li> </ul>	<b>Actions:</b> <ul style="list-style-type: none"> <li>• Implement TriMet's Future of Transit Service Enhancement Plans.</li> <li>• Implement the SMART Master Plan.</li> <li>• Implement the Portland Streetcar Strategic Plan and expansion.</li> <li>• Implement and coordinate with C-TRAN's Transit Development Plan.</li> <li>• Implement and coordinate with state, regional, neighboring cities and rural transit provider's future service plans.</li> <li>• Invest in Enhanced Transit Concept improvements.</li> <li>• Invest in High Capacity Transit corridors.</li> <li>• Invest in repair and maintenance and critical transit bottleneck improvements to ensure the existing system functions effectively and efficiently.</li> <li>• Facilitate service connections between transit modes and transit providers at transit hubs.</li> <li>• Implement and coordinate the HOP Fastpass program across multiple service providers.</li> <li>• Implement the TriMet Regional</li> </ul>	<b>Actions:</b> <ul style="list-style-type: none"> <li>• Coordinate transit investments with improvements to pedestrian and bicycling infrastructure that provide access to transit as service improvements are prioritized, in line with Regional Active Transportation Plan and TriMet's Coordinated Transportation Plan for Seniors and Persons with Disabilities.</li> <li>• Provide new community and regional transit connections to improve access to jobs and community services and make it easier to complete some trips without multiple transfers.</li> <li>• Enhance transit access to jobs and other daily needs, especially for historically marginalized communities<sup>1</sup>, youth, older adults and persons living with disabilities.</li> <li>• Provide biking, walking, shared ride and park-and-ride facilities that help people access the transit system.</li> <li>• Test and evaluate new mobility services like microtransit, ride hailing services and car/bike sharing to improve connections to</li> </ul>	<b>Actions:</b> <ul style="list-style-type: none"> <li>• Expand existing reduced fare program to low-income families and individuals in line with Metro/TriMet Low Income Fare Task Force recommendations.</li> <li>• Integrate transit payment options (e.g., electronic e-fare cards) to increase affordability and convenience.</li> <li>• Expand student pass program</li> </ul>

<sup>1</sup> Historically marginalized communities areas with high concentrations (compared to regional average) of people of color, people with low-incomes, people with limited English proficiency, older adults and/or young people.

<p>service improvements are prioritized</p> <ul style="list-style-type: none"> <li>• Test and deploy connected vehicle technologies that help transit operate more efficiently, such as transit signal priority.</li> <li>• Design transit streets to prioritize curb access for transit vehicles and minimize conflicts with other modes.</li> </ul>	<p>Transit Signal Priority Study recommendations, especially in congested corridors to improve on-time performance and reliability.</p> <ul style="list-style-type: none"> <li>• Provide programs and adopt policies that help increase transit usage and reduce drive alone trips, such as travel options information and support tools (e.g., trip planning services, wayfinding signage, bike racks at transit stops), individualized marketing, commuter programs (e.g., transit pass programs), and actively managing travel in downtowns and other mixed-use areas.</li> <li>• Improve the availability of transit route and schedule information and integrate information on first and last-mile transportation options.</li> <li>• Coordinate efforts between transportation providers to increase information sharing and ease of use (e.g., transfers and payment integration).</li> </ul>	<p>high-frequency transit when walking, bicycling, or local bus service isn't an option.</p> <ul style="list-style-type: none"> <li>• Coordinate and link transit-oriented development strategies with transit investments.</li> <li>• Coordinate transit investments with the regional Equitable Housing Initiative.</li> <li>• Coordinate and link transit investments with local and regional land use and transportation visions as service improvements are prioritized.</li> <li>• Explore and pilot test technologies such as automated vehicles and dynamic routing to provide better transit in communities that currently lack frequent service.</li> <li>• Explore and pilot test the potential of new mobility services to provide more convenient and cost-effective paratransit and human service transportation.</li> </ul>	
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## CHAPTER 1 INTRODUCTION

The 2018 Regional Transit Strategy (RTS) sets regional transit policy and provides a framework for working towards implementing a regional transit system that supports our 2040 Growth Concept.

The Regional Transit Strategy provides a comprehensive assessment of our transit priorities for the greater Portland region. The Regional Transit Strategy supports and provides the transit modal component of the 2018 Regional Transportation Plan update.

**Figure 1. 2018 RTP Update Modal and Topical Areas of Focus**



This Introduction provides geographic and planning context for the RTS, including Metro's role in transit planning; the policy framework that was used to define the overall regional transit strategy and vision, relation to other plans, the planning process and public engagement and the organization of this document.

### 1.1 Geographic setting

The Portland-Vancouver metropolitan region is part of the broader Pacific Northwest region, also called Cascadia. As shown in **Figure 2**, the Pacific Northwest encompasses most of British Columbia, Washington, Oregon and adjoining parts of Alaska, Montana and California.

**Figure 2. Portland-Vancouver Metropolitan Region Geographic Context**

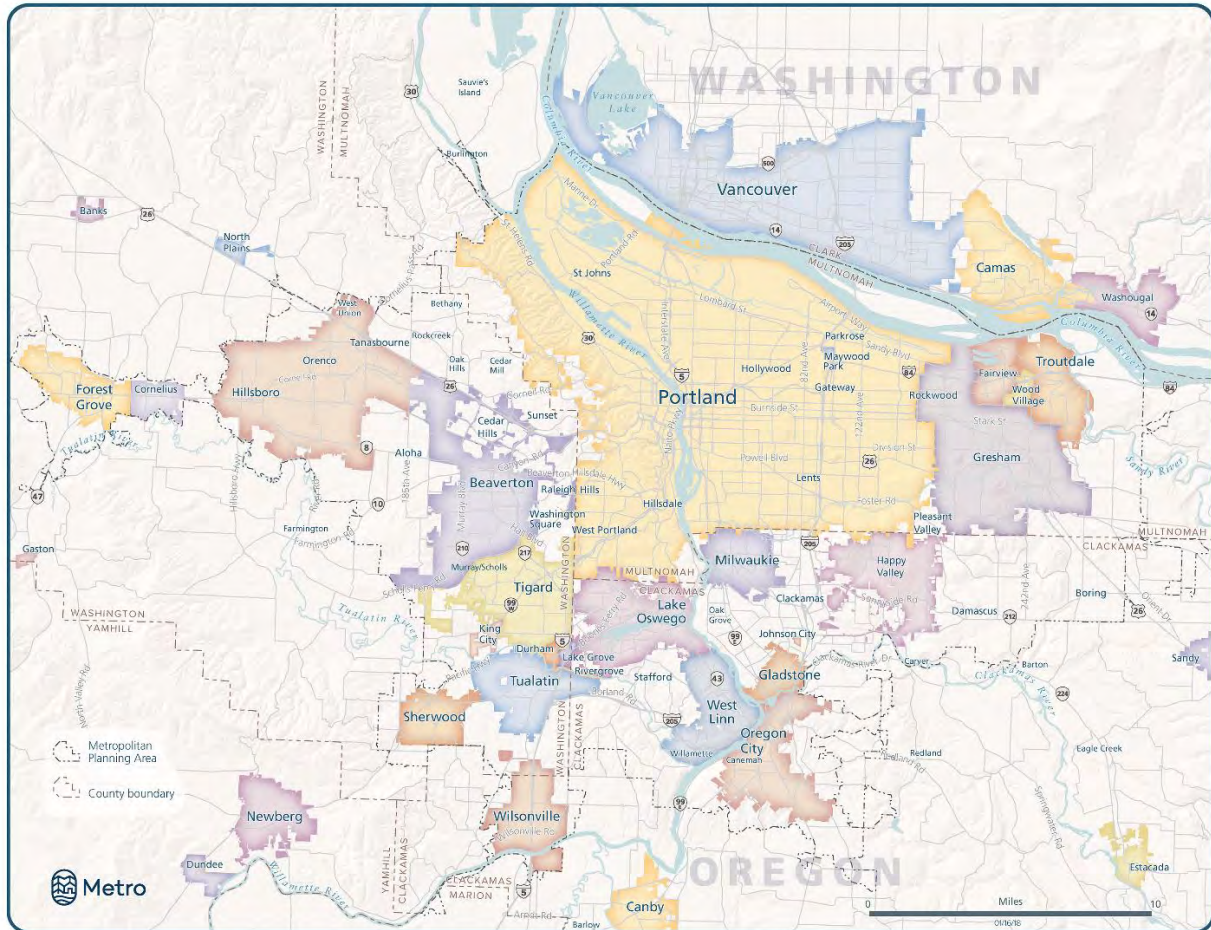


The Portland region is situated at the northern end of the Willamette Valley, a fertile river valley surrounded by dramatic natural features - the Coast Range to the west, the Cascade Range to the east, and the Columbia River to the north (including the Columbia River Gorge National Scenic area). Several snow-capped mountains are visible from different vantage points in the region – including Mt. Hood, Mt. St. Helens, Mt. Rainier and Mt. Adams. Within the region, rivers, streams, wetlands, buttes, forest lands, meadows and rolling to steep hillsides dominate the natural landscape. Outside the urban growth boundary, agricultural lands and other natural landscape features influence the sense of place for the greater region.

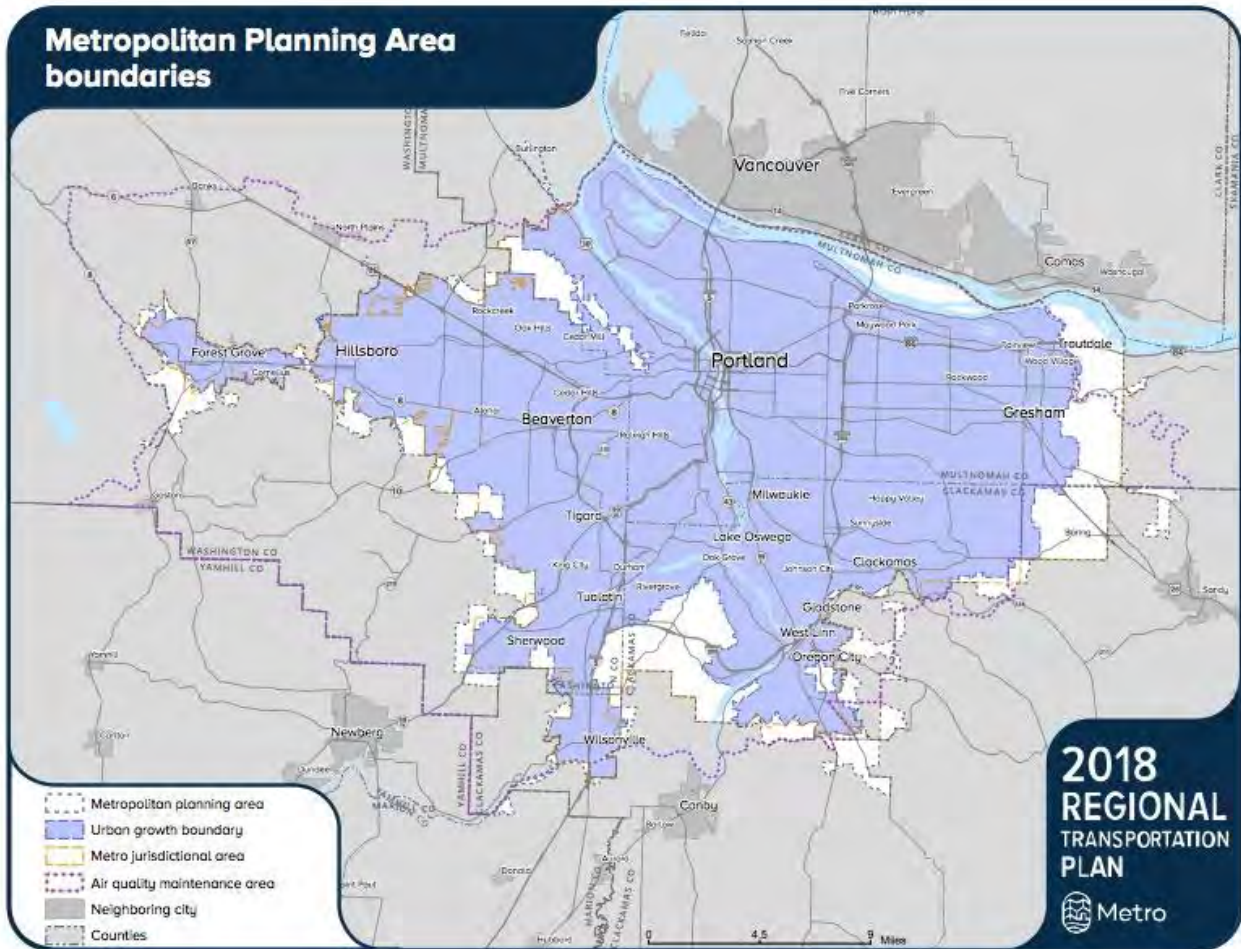
The Portland metropolitan region serves more than 1.5 million people in Clackamas, Multnomah and Washington counties and encompasses 24 cities, as shown in **Figure 3**. Metro's urban growth boundary and jurisdictional boundaries are shown in **Figure 4**.



**Figure 3. Cities and counties of the Portland-Vancouver metropolitan region**



**Figure 4. Metropolitan Planning Area boundary**



## 1.2 Metro's role

As the region's metropolitan planning organization (MPO), Metro has a variety of roles in transportation transit planning, including:

- setting regional transit vision, policies, targets, and performance measures
- reporting on annual transit targets and performance measures
- planning for high capacity transit projects, environmental planning, and project development leading to a locally preferred alternative
- convening jurisdictions and agencies to achieve better coordination
- encouraging best practices in transit planning and design
- supporting and introducing transportation legislation
- supporting local and state efforts
- allocating federal transportation funding

The 2018 RTS provides the regional transit vision for the Portland metro region: to make transit more frequent, convenient, accessible and affordable for everyone.

## 1.3 Policy context

The planning context and policy framework for the Regional Transit Strategy is dependent upon a variety of regional and state plans that determine and shape key policies and goals.

### 1.3.1 State policy and planning context

The following section describes the relevant statewide plans and policies.

The **Oregon Transportation Plan (OTP)** is the long-range transportation system plan for the state. It establishes a vision and policy foundation to guide transportation system development and investment. The OTP and its mode and topic plans guide decisions by the Oregon Department of Transportation and other transportation agencies statewide and is reflected in the policies and decisions explained in local and regional plans.

The **Oregon Public Transportation Plan (OPTP)** is the transit modal plan for the OTP and is currently being updated. The OPTP provides a statewide vision for the public transportation system as well as policy foundation to assist transportation agencies in make decisions.

The OPTP vision is: “In 2045, public transportation is an integral, interconnected component of Oregon’s transportation system that makes Oregon’s diverse cities, towns, and communities work. Because public transportation is convenient, affordable and efficient, it helps further the state’s quality of life and economic vitality and contributes to the health and safety of all residents, while reducing greenhouse gas emissions.” The OPTP includes goals and policies regarding:

- mobility – public transportation user experience
- accessibility and connectivity – getting from here to there
- community livability and economic vitality
- equity
- health
- safety and security
- environmental sustainability
- land use
- strategic investment
- communication, collaboration, and coordination

In addition to the OPTP, there was a need for the **Oregon Transportation Options Plan** in response to increasingly diverse transportation needs of Oregon residents and the need to plan for a multiplicity of new transportation modes and programs being introduced by public and private sector providers. The Oregon Transportation Options Plan identifies opportunities to



The **Transportation Planning Rule (TPR)**, Chapter 660, Division 12 of the Oregon Administrative Rule, implements the statewide planning goals for transportation. The rule includes requirements for how local governments and Metropolitan Planning Organizations (MPOs) in metropolitan areas coordinate planning for land use and transportation systems to increase transportation choices.

The following section describes the relevant regional plans and policies.

### Figure 5. Metro 2040 Growth Concept Map



The **Regional Framework Plan**, adopted in 1997, identifies regional policies to implement the 2040 Growth Concept. The Plan has been amended over time, most recently as part of the adoption of the Climate Smart Strategy in 2014. The policies in this plan aim to implement the 2040 Growth Concept and guide the RTS:

- protect the economic health and livability of the region
- improve the safety of the transportation system
- provide a transportation system that is efficient and cost-effective, investing our limited resources wisely
- make the most of the investments the region has already made in our transportation system through system and demand management strategies, such as expanding the use of technology to actively manage the transportation system and providing traveler information and incentives to expand the use of travel options
- make **transit** convenient, accessible, and frequent
- provide access to more and better choices for travel in this region and serve special access needs for all people, including youth, older adults and people with disabilities and people with low income
- provide adequate mobility for people and goods within the region
- protect air and water quality, promote energy conservation, and reduce greenhouse gas emissions
- provide transportation facilities that support a balance of jobs and housing
- make biking and walking the most convenient, safe and enjoyable transportation choices for short trips
- limit dependence on drive alone travel, and increase biking, walking, carpooling, vanpooling and the use of **transit**
- make streets and highways safe, reliable and connected to provide for the movement of people and goods through an interconnected system of street, highway, air, marine and rail systems, including passenger and freight intermodal facilities and air and water terminals
- integrate land use with automobile, bicycle, pedestrian, freight and public transportation needs in regional and local street designs
- limit the impact of urban travel on rural land through use of green corridors
- manage parking to make efficient use of vehicle parking and land dedicated to vehicle parking
- demonstrate leadership on reducing greenhouse gas emissions

The **Regional Transportation Plan** is a blueprint to guide investment and identify the region's priorities for all forms of travel – motor vehicle, transit, bicycle and walking– and the movement of goods and freight throughout the Portland metropolitan area. The plan identifies current and

future transportation needs, investments needed to meet those needs and what funds the region expects to have available through 2040 to make those investments a reality. The plan is a key step for these projects to qualify for potential regional, state and federal funding.

In 2009, Metro adopted a 30 year **Regional High Capacity Transit (HCT) System Plan** to guide investments in light rail, commuter rail, bus rapid transit and rapid streetcar in the Portland metropolitan area. The HCT Plan identified 16 corridors (see Figure 6) and ranked those corridors into four regional priority tiers, creating a framework for future system expansion prioritization. The four tiers are:

1. near term regional priority corridors that are most viable for implementation in the next four years
2. next phase regional priority corridors that are ripe for HCT investments if other planning and policy actions are implemented
3. developing regional priority corridors where future land uses and projected ridership potential are not supportive of HCT, but have a long term potential based future visions
4. regional vision corridors where future land uses and projected ridership potential are not supportive of HCT implementation

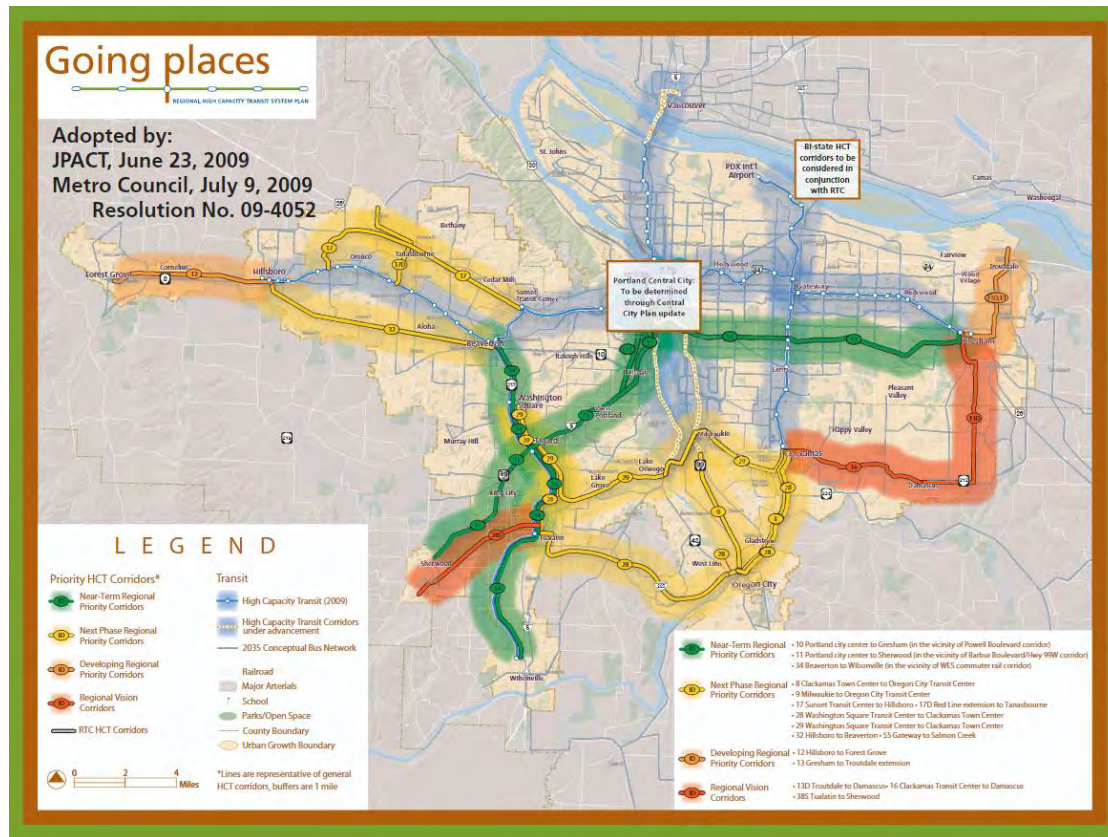
The near term regional priority corridors included three projects:

1. Portland city center to Gresham (in the vicinity of the Powell Boulevard corridor)
2. Portland city center to Sherwood (in the vicinity the Barbur Boulevard/Highway 99 corridor)
3. Beaverton to Wilsonville (in the vicinity of the WES Corridor)

Two of these projects are moving forward. The Portland city center to Gresham is now called the Division Transit Project. The Division Transit Project is a 14-mile project that will increase transit capacity and improve travel time as well as transit reliability between Downtown Portland, Southeast East Portland and Gresham. This project is currently in “project development” and seeking Small Starts funding under the Federal Transit Administration (FTA) Capital Investment Grant program.



Figure 6. 2009 High Capacity Transit System Plan Map



The Portland city center to Sherwood is now known as the Southwest Corridor Project. The Southwest Corridor Project proposal is a new 12-mile MAX line from Downtown Portland to Tigard and Bridgeport Village in Tualatin, along with numerous walking, biking and roadway projects to help people access stations. Metro is working with TriMet, local partners and the FTA to develop the Southwest Corridor Environmental Impact Statement, in compliance with the National Environmental Policy Act, in anticipation of seeking New Starts funding through FTA's Capital Investment Grant program.

These projects continue to move forward and have been updated are by Metro and TriMet in coordination with regional partners as part of this effort.

Another aspect of the HCT Plan is the **System Expansion Policy** framework to advance high capacity transit project to regional priority. The framework:

- identifies which corridors should move into the federal project development process
- establishes a process for other corridors to advance toward development
- measures a corridor's readiness for investment using targets such as transit supportive land use policies, ridership development plans, community support and financial feasibility

The system expansion policy is updated as part of the RTS and discussed further in Chapter 6: Implementation of this strategy.

The **Regional Active Transportation Plan** (ATP) provides a vision, plan and policies for communities in our region to increase transportation options and support economic development, healthy active living, and equity. The primary recommendation policy of the ATP is the completion of the active transportation network with a specific focus on providing access and connection to transit options. Holistic transportation planning considers more than one mode of transportation and the ATP clearly highlighted the importance of integrating active transportation and access to transit options.

The **Climate Smart Strategy**, a 2009 mandate by the Oregon Legislature, sets policies, strategies and near-term actions to guide how the region moves forward to integrate reducing greenhouse gas emissions by 20 percent by 2035 with ongoing efforts to create the future we want for our region. The Climate Smart Strategy, adopted by Metro in 2014, affirmed the region's commitment to provide more transportation choices, keep our air clean, build healthy and equitable communities, and grow our economy – all while reducing greenhouse gas emissions. The Climate Smart Strategy will achieve a 29 percent reduction in per capita greenhouse gas emissions by 2035, if fully implemented. Transit plays a key role in achieving these reductions.

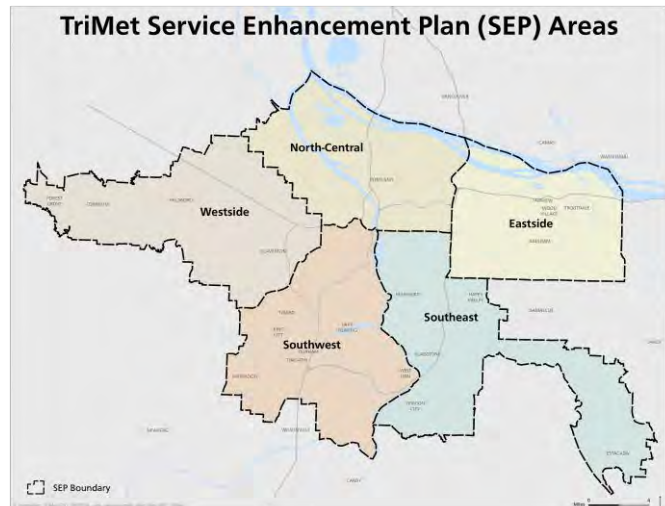
As part of Metro's code, the **Regional Transportation Functional Plan** contains policies and guidance to help local jurisdictions implement the policies in the Regional Transportation Plan and its modal plans that include active transportation, freight and high capacity transit.

The **Urban Growth Management Functional Plan**, within the Functional Plan, provides guidance, under **Title 6: Centers, Corridors, Station Communities and Main Streets**, to cities and counties regarding actions they must perform to be eligible for any regional investments. To be eligible for a regional investment, projects must be included in the RTP. In addition, cities or counties shall:

- establish boundaries for the Center, Corridor, Station Community or Main Street
- perform an assessment of the Center, Corridor, Station Community or Main Street (including specific assessments to be included in this assessment)
- adopt a plan of actions and investments to enhance the Center, Corridor, Station Community or Main Street

TriMet, the region's largest transit provider, has been working with riders, residents, neighborhood groups, governments, schools and businesses to create a shared vision for the future of the local bus network through **TriMet's Service Enhancement Plans** ([www.trimet.org/future](http://www.trimet.org/future)).

Starting in 2012, TriMet began taking a fresh look at how bus service and access to transit could be improved. TriMet used available data on travel patterns, population and employment projections, analyses of existing gaps in the transit network, and demographic information to identify potential changes and additions to the local bus network. Throughout the process, TriMet also conducted substantial outreach to transit riders, businesses, neighbors, high schools, colleges, and universities, and other major institutions such as hospitals and event centers to understand the needs of stakeholders throughout the service district. In order to tailor the plans to meet differing communities' needs, the Service Enhancement Plans were developed for each of five geographic subareas, covering the entire region with TriMet's service district (in the order developed: West, Southwest, North-Central, Eastside and Southeast). As they were being developed, TriMet planners were careful to coordinate across these sub areas where the proposed network crosses those boundaries in order to form a coherent vision for the transit system. Each Service Enhancement Plan identified bus routes that would be prioritized for additional frequency and new bus routes or amendments to existing routes that would add coverage in places that currently lack bus service.



These long-range plans (covering approximately a 20-year planning horizon) form the basis of the future service plans for the local bus network reflected in the Regional Transit Strategy and the 2018 Regional Transportation Plan update.

In 2017, Oregon legislature passed Oregon House Bill Keep Oregon Moving (HB2017) requiring TriMet to conduct a study on service for the region. This work is currently underway.

The 2016 update to **TriMet's Coordinated Transportation Plan for Elderly and Persons with Disabilities (CTP)** builds upon the foundation of the 2012 CTP as well as the 2009 update, known as the Tri County Elderly and Disabled Transportation Plan (EDTP), both of which described the region's vision of a continuum of transportation services that takes into account people's abilities as they transition through various stages of age and disability.

The guiding principles of the CTP are to guide transportation investments toward a full range of options for seniors and persons with disabilities. This vision is accomplished through:

- coordination
- innovation and collaboration
- community involvement
- improving the service foundation

- integrating land use and transportation decisions
- improving customer convenience
- improving safety
- measuring performance

### 1.3.3 Local planning context

The following section describes the relevant local plans and policies, from local transit providers. Cities and counties have policies, programs and project related to transit in their Transportation System Plans (TSPs) not listed in detail.

The Portland Streetcar is owned by the City of Portland and operated by the Bureau of Transportation (PBOT) in partnership with TriMet (the regional transit agency) and Portland Streetcar, Inc. (PSI), a non-profit that provides management support and private sector involvement in planning and operations. The **Portland Streetcar Strategic Plan 2015 – 2020** outlines the priorities over the next five years. The vision for Portland Streetcar is to:

- support and encourage growth in residential and commercial development in the central city, consistent with the City's Comprehensive Plan
- provide comfortable, convenient connections between housing, employment, educational institutions, services, and recreation

More generally, the streetcar system was built to drive development toward the high-density neighborhoods identified in city and regional planning documents, and to provide a quality transit connection for those developments. This plan is meant to focus the partnership's work plan and resources on key areas of improvement for Portland Streetcar. Implementing the identified strategies will result in a more reliable and cost-effective streetcar system that is recognized within the community as a critical component of Portland's present and future

The City of Wilsonville operates a transit service for the City of Wilsonville and connections outside the city called South Metro Area Regional Transit (SMART). The **Wilsonville Transit Master Plan** (TMP) (see <http://ridesmart.com/327/Transit-Master-Plan-2017>) provides a broad look ahead to the type of transit system and supportive transportation options required to meet Wilsonville's mobility needs. This is accomplished by providing proposals for improved transit service as well as strategies to reduce single-occupancy vehicles. With its combined transit and transportation options approaches, the TMP will guide future decision-making for SMART for the next five to seven years.

Cities and counties develop local transit plans and policies as well as development of their **Transportation System Plans (TSPs)**. The TSP identifies local needs and modal priorities, including transit. Cities and counties also develop localized plans, policies and incentives around transit.

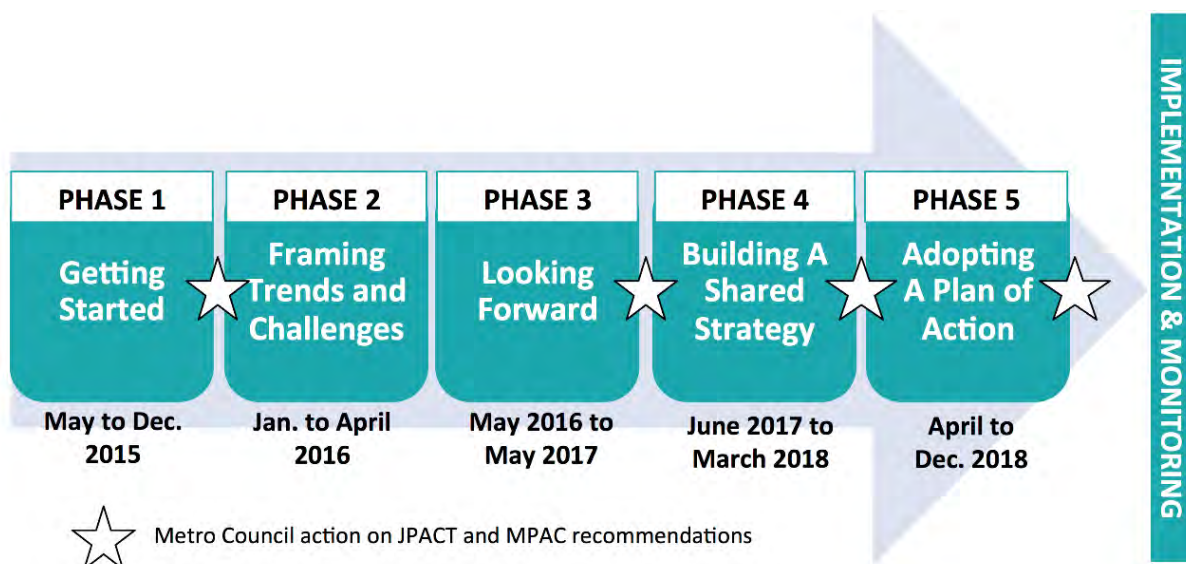


Building upon our existing transit investments, policies and plans, **the Regional Transit Strategy vision is to make transit more frequent, convenient, accessible and affordable for everyone.** The transit strategy will coordinate the operational, capital and transit supportive elements to make transit work more efficiently and effectively for everyone. The Regional Transit Vision is in response to the community needs and is as much about improving operations and ensuring a state of good repair as it is building new connections and supporting our 2040 Growth Concept and our Climate Smart Strategy.

## 1.4 Planning and public engagement process

The Regional Transit Strategy was developed in coordination with and as part of the update of the Regional Transportation Plan. From May 2015 to December 2018, the Metro Council and staff engaged the public, community and business leaders and local, regional and state partners to update the Regional Transportation Plan and develop the Regional Transit Strategy as well as strategies for freight, safety and emerging technology in five phases as shown in **Figure 7**.

**Figure 7. Timeline and process for development of the 2018 Regional Transportation Plan and Regional Transit Strategy**



Throughout the planning process, transit and travel options were repeatedly identified as key elements to meeting and achieving our regional and local goals for the region. The Regional Transit Strategy also updates and replaces the Regional High Capacity Transit System Plan adopted in 2009.

Technical work groups and other engagement and planning activities were organized to address the regional challenges that come with a growing region with a focus on implementing the 2014 Climate Smart Strategy and updating the plan to address these policy topics:



**Transit**



**Transportation equity**



**Finance**



**Freight**



**Transportation design**



**Transportation safety**



**Performance**



**Emerging technology**

### **1.4.1 The Regional Transportation Plan and Regional Transit Strategy process and public engagement**

#### **Phase 1: Getting started | May to December 2015**

Beginning in summer 2015, the first phase consisted of engaging local, regional, state, business and community partners to prioritize the regional challenges to be addressed in the update and the process for how the region should work together to address them. This engagement included:

- interviews with 31 stakeholders
- discussion groups in partnership with Metro's diversity, equity and inclusion team with communities of color and youth on priorities and issues related to racial equity
- a partnership with PSU's Center for Public Service and 1000 Friends of Oregon to explore components of inclusive public engagement to develop an approach to better reach underrepresented communities
- a public involvement retrospective that summarized previous feedback from communities of color on transportation planning and project development



- an online survey with more than 1,800 participants to help identify the top transportation issues facing the greater Portland region

This phase concluded in December 2015 with JPACT and Council approval of the work plan and public participation plan for the update. In addition to implementing the 2014 Climate Smart Strategy, the adopted work plan identified seven policy topics for the Regional Transportation Plan update to focus on – safety, equity, freight, transit, finance, performance, and design. Metro staff formed seven technical work groups to advise staff.

## **Phase 2: Framing trends and challenges | January to April 2016**

The second phase began in January 2016 and concluded in April 2016. In this phase, Metro engaged the public, jurisdictional partners and business and community leaders to document key trends and challenges facing the region as well as priority outcomes for investment in the region’s transportation system. This included:

- an online survey with more than 5,800 participants
- a Regional Snapshot on transportation, published in April 2016

Also in April 2016, the Metro Council convened members of MPAC, JPACT, state legislators, community and business leaders and other interests from across the region to discuss the key trends and challenges facing the region during the first of four regional leadership forums.

Metro staff also worked with ODOT’s economist and jurisdictional partners, individually and through a technical work group, to forecast a budget of federal, state and local funds that the greater Portland region can reasonably expect by 2040 under current funding trends.



## **Regional leadership forums**

To address the challenges and trends facing our region, the Metro Council convened a series of four regional leadership forums to shape development of the 2018 Regional Transportation Plan.

Forum participants included members of MPAC, JPACT, state legislators, and community and business leaders from throughout the greater Portland region. Working side-by-side, local, regional and state leaders brought the perspectives of their communities and constituents to the conversation around the challenges we are facing, our vision for the future and potential solutions for moving forward together. The discussions shaped the update to the plan’s vision, goals, policies and projects.

- 1 Exploring Big Ideas for Our Transportation Future** 4/22/16
- 2 Building the Future We Want** 9/23/16
- 3 Connecting Our Priorities to Our Vision** 12/2/16
- 4 Finalizing Our Shared Plan for the Region** 3/2/18

### **Phase 3: Looking forward | May 2016 to May 2017**

From May 2016 to May 2017, technical work and public engagement activities continued to focus on finalizing a shared vision statement for the plan. They also developed draft strategies for safety, transit and freight and updated the evaluation framework and measures for evaluating the plan performance.

The engagement for this phase included:

- a round of follow up discussion groups in partnership with Metro's diversity, equity and inclusion team with communities of color and youth to review actions and priorities for the agency's racial equity strategy
- focus and discussion groups on transportation priorities for communities of color and strategies to improve engagement with underrepresented groups
- an online survey to determine the priorities for communities of color
- an online survey with more than 2,600 participants on investment priorities and funding
- another round of discussion groups with communities of color on hiring practices and priorities related to the Planning and Development department-specific equity plan

Metro Council also hosted its second and third regional leadership forums. In regional leadership forums 1 and 2, there was consensus that a bold vision and more funding are needed to build a 21st century transportation system. In forum 3, leaders discussed a shared vision for the future transportation system and potential near-term priorities to address regional transportation challenges in ways that supported the vision. Participants also identified actions to build a path to future funding.

Staff compiled background information and online resource guide maps to support jurisdictional partners as they updated their investment priorities for further evaluation and public review in the subsequent Phase 4. In addition, staff launched the RTP Project Hub – an online visual database – for jurisdictional partners to use to update project information and collaborate with other jurisdictions. Phase 3 concluded with Metro Council directing staff to release a Call for Projects to update the region's transportation near- and long-term investment priorities to support regional goals for safety, congestion relief, affordability, community livability, the economy, social equity and the environment.

### **Phase 4: Building a shared strategy | June 2017 to March 2018**

The fourth phase began in June 2017 with release of a second Regional Snapshot on transportation and the call for projects for jurisdictional partners to update the plan's regional transportation project priorities. Agencies were asked to identify projects that address regional needs and challenges, reflect public priorities and maximize progress toward the region's agreed upon vision and goals for the future transportation system.

Local jurisdictions and county coordinating committees worked within a constrained budget and capital funding targets to determine the project priorities to put forward for inclusion in the plan

in collaboration with Oregon Department of Transportation (ODOT), Metro, SMART and TriMet. All project submissions were required to have come from adopted plans or studies that provided opportunities for public input.

In summer 2017, Metro analyzed three funding scenarios: 10-year constrained project priorities, 2040 constrained project priorities and 2040 strategic project priorities. The analysis tested new and updated outcomes-based system performance measures to evaluate performance of the transportation system as a whole for each scenario to help inform finalizing the plan's project priorities in Phase 5.

Metro staff also prepared an interactive map of proposed projects that was made available on the project website for the public and partners to use to learn more about the projects under consideration. Safety, transit, freight and emerging technology strategies continued to be developed on parallel tracks. Jurisdictions also piloted project-level evaluation criteria on 50 projects; the pilot project evaluation will be advanced during the next RTP update.

The results of the analysis were released in November 2017. Engagement on the Call for Projects included:

- a community leaders' forum for feedback on the results
- Metro Councilor briefings to business and neighborhood groups
- an online survey with more than 2,900 participants.

The analysis was also summarized in a larger discussion guide for decision-makers that relayed key issues and the results of the Call for Projects. A fourth and final Regional Leadership Forum was held in March 2018 to discuss findings and recommendations from the technical analysis and public engagement efforts thereby contributed to finalizing the plan during Phase 5. Leaders participated in table discussions to recommend ways for jurisdictions to refine their draft project lists to better meet the region's shared goals. The recommendations were:

1. **Make more near-term progress on key regional priorities** – equity, safety, travel options, Climate Smart implementation and congestion. Advance projects that address these outcomes to the 10-year list to improve people's lives by making travel safer, easing congestion, improving access to jobs and community places, attracting jobs and businesses to the region, saving households and businesses time and money, and reducing vehicle emissions.
2. **Make more near-term progress to reduce disparities and barriers that exist for historically marginalized communities.** Advancing projects that improve safety and expand travel options to the 10-year list to reduce disparities and barriers, especially for people of color and lower-income households.



3. **Prioritize projects that focus on safety in high injury corridors. Advance** projects in high injury corridors to the 10-year list and ensure all projects in high injury corridors address safety to reduce the likelihood and severity of crashes for all modes.
4. **Accelerate transit service expansion.** Increase transit service as much as possible beyond Climate Smart Strategy investment levels. Focus new and enhanced transit service to connect transit to underserved communities to jobs and community places, in congested corridors and in areas with more jobs and housing.
5. **Make more near-term progress to tackle congestion and manage travel demand.** Advance lower cost projects to the 10-year list that use designs, travel information, technologies, and other strategies to support and expand travel options and maximize use of the existing system. This will help ease congestion and keep people and goods moving safely and reliably. It will be important to ensure that lower income households are not financially burdened by strategies to make road use more efficient.
6. **Prioritize completion of biking and walking network gaps in the near-term.** Advance projects that fill gaps for biking and walking in high injury corridors or that provide connections to transit, schools, jobs and 2040 centers to the 10-year list.
7. **Continue to build public trust through inclusive engagement, transparency and accountability.** Continue engaging the region's diverse communities in the planning and implementation of projects to achieve desired outcomes, including equity, safety, reliability affordability and health. Report back whether projects deliver (or don't deliver) anticipated outcomes and adjust course as needed. Improved participation, transparency and accountability with our investment decisions will help build broad support for more investment in our communities.

The Metro Council directed jurisdictional partners to use these seven recommendations to review and refine their project lists to the extent practicable to help make more progress on these near-term regional priorities – equity, safety, Climate Smart Strategy implementation and congestion. The Metro Council also directed jurisdictional partners to focus their adjustments in the equity focus areas and high injury corridors identified in the RTP.

The RTP financially constrained funding assumptions were updated to reflect new revenues anticipated as a result of House Bill 2017. Jurisdictions worked through coordinating committees in response to the Metro Council's request for project list updates to make more progress on key regional priorities. The recommended projects are described in more detail in Chapter 6. Lists of the recommended projects are in **Appendices A, B and C**.

## **Phase 5: Adopting a plan of action | April to December 2018**

The final phase of the process began in April 2018 and focused on finalizing and adopting the region's investment priorities and strategies recommended through 2040. The 2018 RTP and four strategies for safety, freight, transit and emerging technology were available for public review during a 45-day comment period from June 29 through August 13, 2018.

Engagement activities during the comment period included:

- **Notifications and notices** – Public notices of the comment period were provided to local neighborhood involvement and community outreach offices and community planning organizations in Washington County. Notices were published in the Portland Tribune, Gresham Outlook, Beaverton Valley Times, Tigard Times, Clackamas Review and on the Metro website. Notifications were sent to the RTP interested persons list (nearly 1,900 people) in addition to Metro’s four regional advisory committees, their respective interested parties and seven technical work groups that were convened to support development of the draft RTP and strategies. Metro used Facebook and other social media to announce the comment period. Partner agencies and community and business organizations engaged throughout the RTP update posted notifications of the comment period through E-newsletters and other methods to inform their members and interested parties of the comment opportunity.
- **Online survey and public review draft materials** – An online survey, an interactive map of the draft projects and public review drafts of the 2018 RTP, project lists, appendices and four strategies were posted on the 2018 RTP web page at [www.oregonmetro.gov/rtp](http://www.oregonmetro.gov/rtp). Members of the public, regional advisory committees, partner agencies and other interested parties were invited to comment on the draft materials. More than 200 emails and 50 letters were submitted. Nearly 900 people responded to the online survey.
- **Public hearing** – The Metro Council held a public hearing on August 2. Seven people testified on a range of topics.
- **Consultation** – Metro staff invited four Native American Tribes and several federal, state and local resource, wildlife, land management and regulatory agencies to consult on the public review draft RTP and strategies in accordance with 23 CFR 450.316. Metro convened three separate consultation meetings on August 6, 14 and 21. A fourth consultation meeting, with the Confederated Tribes of the Grand Ronde, was held on September 6.

All comments received through August 30 and subsequent consultation meetings are documented in a final public comment report and appendices to the public comment report. In addition, staff summarized more than 350 individual comments proposing specific changes to the draft RTP and four strategies and made recommendations to respond to the proposed changes. MPAC, JPACT and the Metro Council considered public comments received and staff recommended changes prior to taking their final action. The recommended changes adopted by JPACT and the Metro Council to respond to public comments received can be found in **Appendix U**.

MPAC and JPACT both recommended approval of the plan and strategies for safety, transit, freight and emerging technology to the Metro Council in October 2018 with the changes identified in Appendix U. Metro Council held a legislative hearing on November 8 and a final hearing on December 6.

The Metro Council unanimously adopted the 2018 Regional Transportation Plan, and strategies for safety, transit, freight and emerging technology on December 6, 2018 as recommended by MPAC and JPACT. **Appendix D** provides more information about public engagement activities that shaped the adopted plan and strategies.

## 1.5 Document Organization

The 2018 RTS is organized as follows:

**Executive summary** – Provides a short summary and key elements of the strategy.

**Chapter 1: Introduction** – Provides an introduction to and context for understanding the strategy.

**Chapter 2: Our current transit system** – Describes our current transit system, both inside and connections to our Metropolitan Planning Area (MPA).

**Chapter 3: Key trends, challenges and opportunities** – Describes the key trends, challenges and opportunities that shape our transit vision and policies.

**Chapter 4: Regional transit vision and policies** – Describes the Regional Transit Vision and associated policies.

**Chapter 5: Strategies and actions** – Describes the strategies and actions to help achieve our transit vision.

**Chapter 6: Performance, monitoring and measuring progress** – Describes performance and monitoring measures for achieving our vision.

**Chapter 7: Implementation** – Outlines how to implement the Regional Transit Vision.

**List of Partners** – Agencies, organizations, non-profits, private entities, industry and the public who will play a role in implementing the 2018 RTS.

**Acronyms** – Defines acronyms used in the document.

**Glossary** – Defines terms used in the document.

**Appendices** – Appendices are stand-alone documents that provide additional technical information for the 2018 Regional Transit Strategy.



On December 6, 2018 the Metro Council unanimously approved the 2018 Regional Transportation Plan and strategies for safety, transit, freight and emerging technology setting a new foundation for future investment and collaboration.



## CHAPTER 2 OUR CURRENT TRANSIT SYSTEM

### 2.1 Our region continues to grow and change

The greater Portland region is an extraordinary place to call home. It is known for its unique communities, a diverse and growing economy and a world-class transportation system. The region is surrounded by stunning natural landscapes and crisscrossed with a network of parks, trails and natural areas within a walk, bike ride or transit stop from home.

Every day, the region's 2.4 million people have places to go – to work, school, health care appointments, grocery stores and parks and back home again. All these trips, along with our transportation system, knit the region together – from Forest Grove to Troutdale, Vancouver and Portland to Wilsonville and every community in between.

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The region expects to welcome more than 500,000 new residents – about half from growing families – and more than 350,000 new jobs within the urban growth boundary by 2040.

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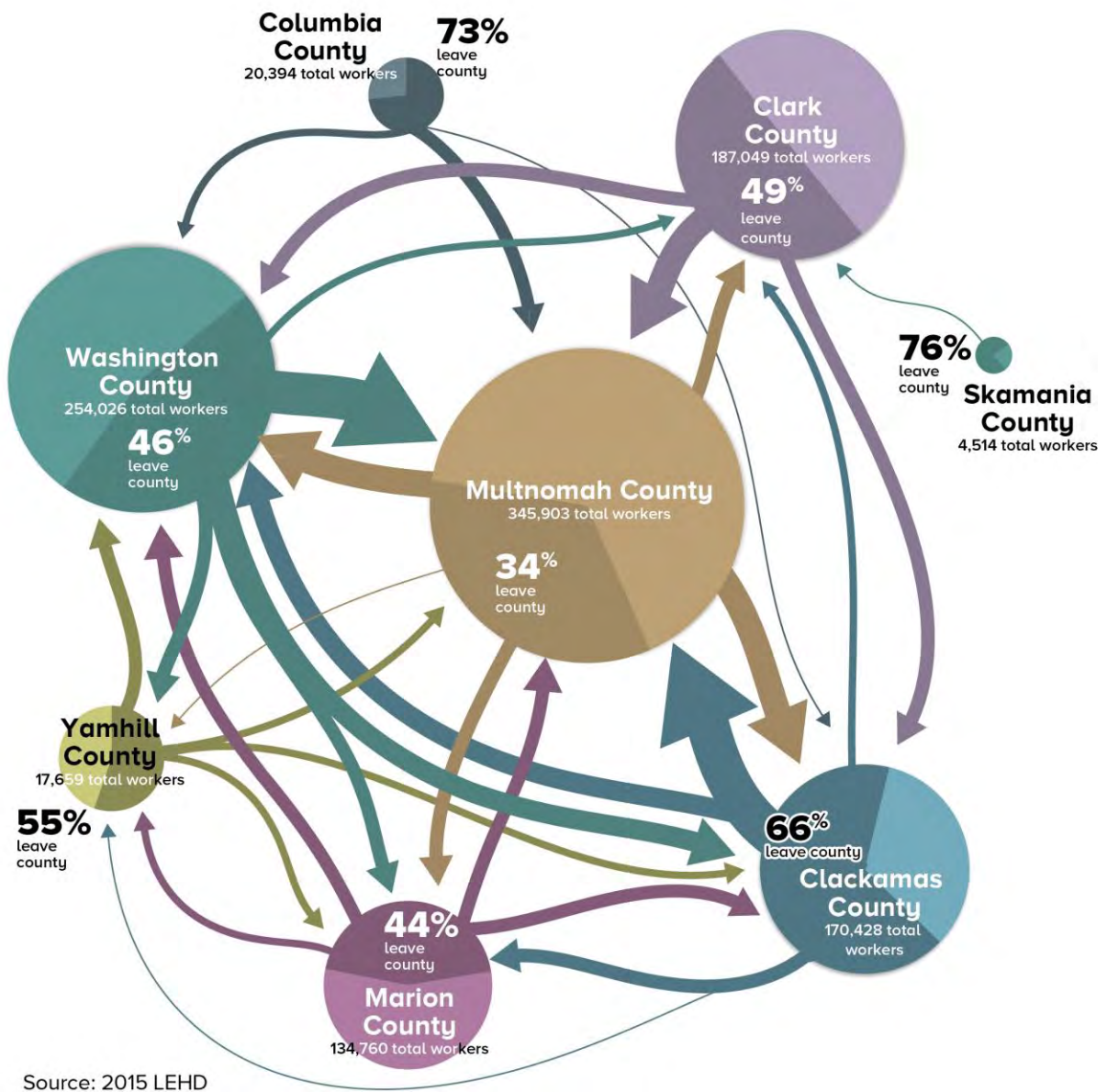
Over the years, communities throughout the region have taken a collaborative approach to planning that has helped make the region one of the most livable places in the country. Because of our dedication to planning and working together to make local and regional plans a reality, we have set a wise course for managing growth. But times are challenging. The region is growing, our economy is expanding and emerging technologies are changing how we do business and get around.

Housing affordability, climate change, racial disparities, traffic deaths and life changing injuries and traffic congestion demand new kinds of leadership, innovation and thoughtful deliberation. More importantly it calls for action to ensure our region remains a great place to live, work and play for everyone. In collaboration with city, county, state, business and community leaders, Metro has researched how land use and transportation policies and investments can be leveraged to respond to these complex and interrelated challenges at a regional scale.

While this growth brings jobs and opportunity, it also creates new challenges; more people will be using the region's transportation system to get to work, school, shopping and other daily activities.

But there are differences in where each of us goes every day, providing insight into the region's distribution of housing and jobs. Take the flow of the daily commute, for example. Multnomah County has the most working residents and the most jobs. According to data from the Census Bureau, two-thirds of working residents in Multnomah County stay in their home county for work. Of those who leave, most head into Washington County, the region's second biggest job center.

**Figure 8. Where residents work in the greater Portland region, 2015**



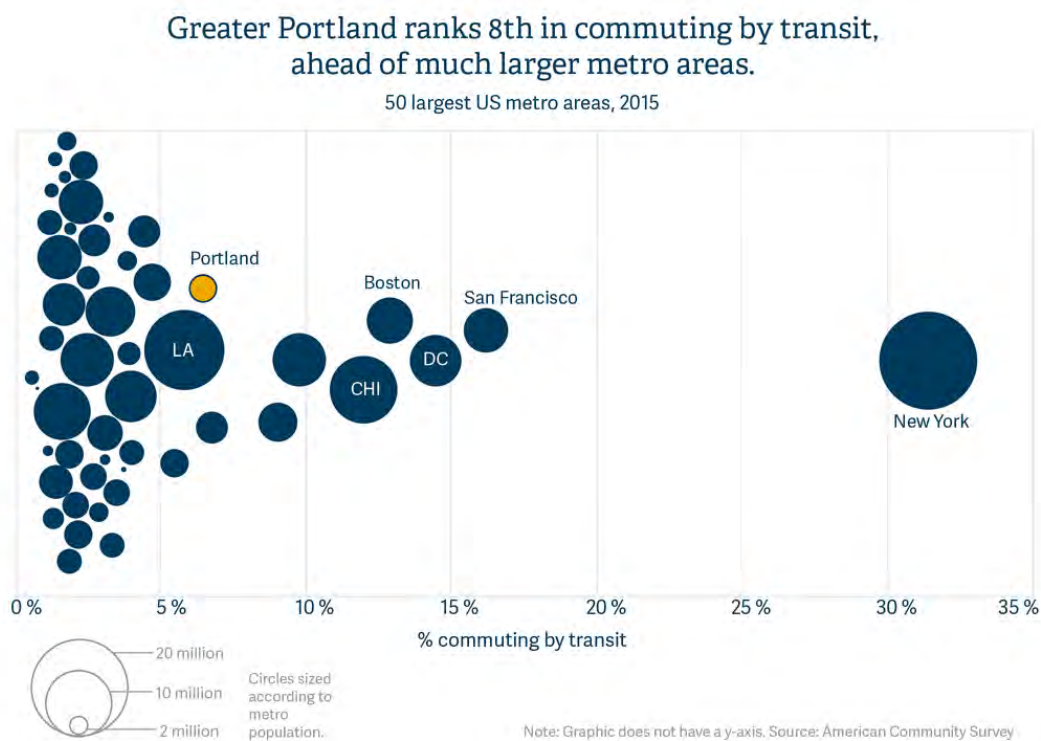
For working residents of Clark and Washington counties, it's roughly an even split between working in the county and leaving, with most workers commuting into Multnomah County. Clackamas County sees two-thirds of its working residents commute elsewhere, also mostly to Multnomah County. Washington and Clackamas counties also swap thousands of working residents each day – though not nearly as many commuters as each county send into Multnomah County.

We have options on how we get around today; we can drive, carpool, car share, bike, walk, or take transit. While this report focuses on transit, a successful transportation system is a multi-modal transportation system. For more information about travel and transportation options around the Portland metropolitan region, see Chapter 4 of the 2018 Regional Transportation Plan.

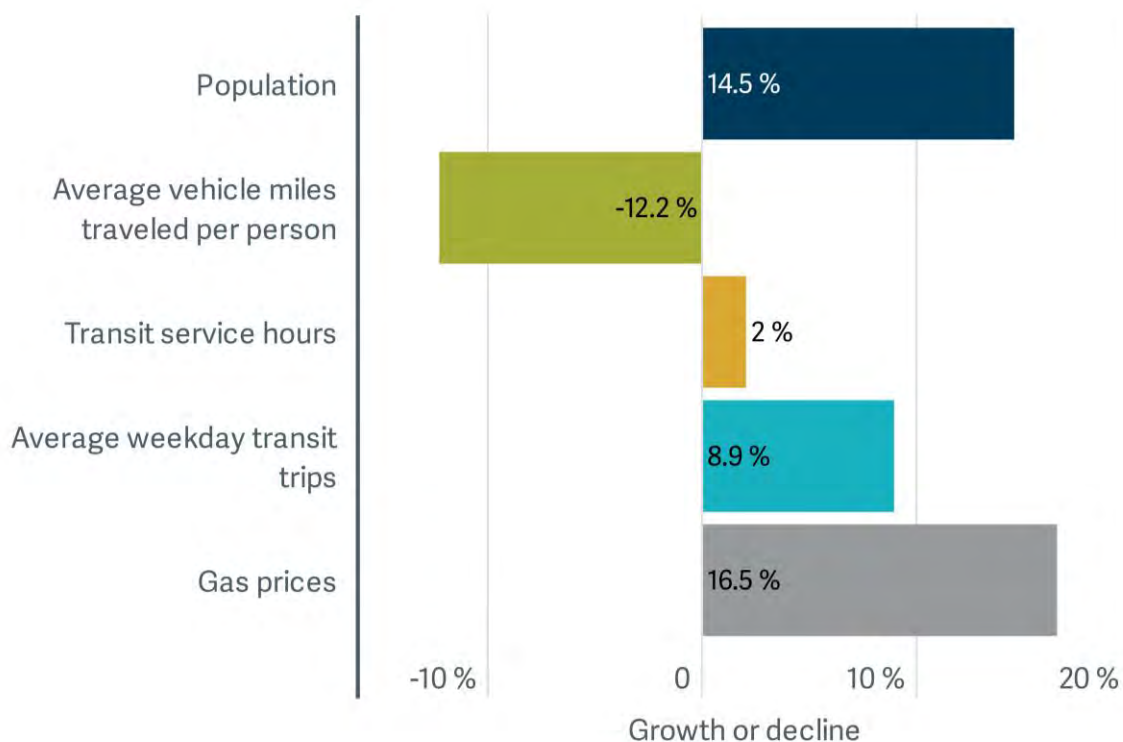
## 2.2 The role of transit in our region

MAX Light rail, WES commuter rail, bus, and Portland Streetcar and supporting infrastructure make up the current regional transit system, which has seen increased ridership. In 2014, people in the Portland region took more than 103 million rides on transit. Although ridership has fluctuated over the last 10 years, weekday transit ridership among the region's major transit services – TriMet, SMART (Wilsonville), C-TRAN (Vancouver and Clark County WA) and Portland Streetcar – has grown while the average miles each person drives daily has declined.

**Figure 9. National commuting by transit comparison, 2015**



**Figure 10. Transit ridership compared to other Portland regional trends, 2005-2015**



Sources: US Decennial Census, PSU intercensal estimates; Texas A&M Urban Mobility Scorecard; Trimet, Portland Streetcar, Inc., Aerial Tram, and SMART; AAA Fuel Gauge.

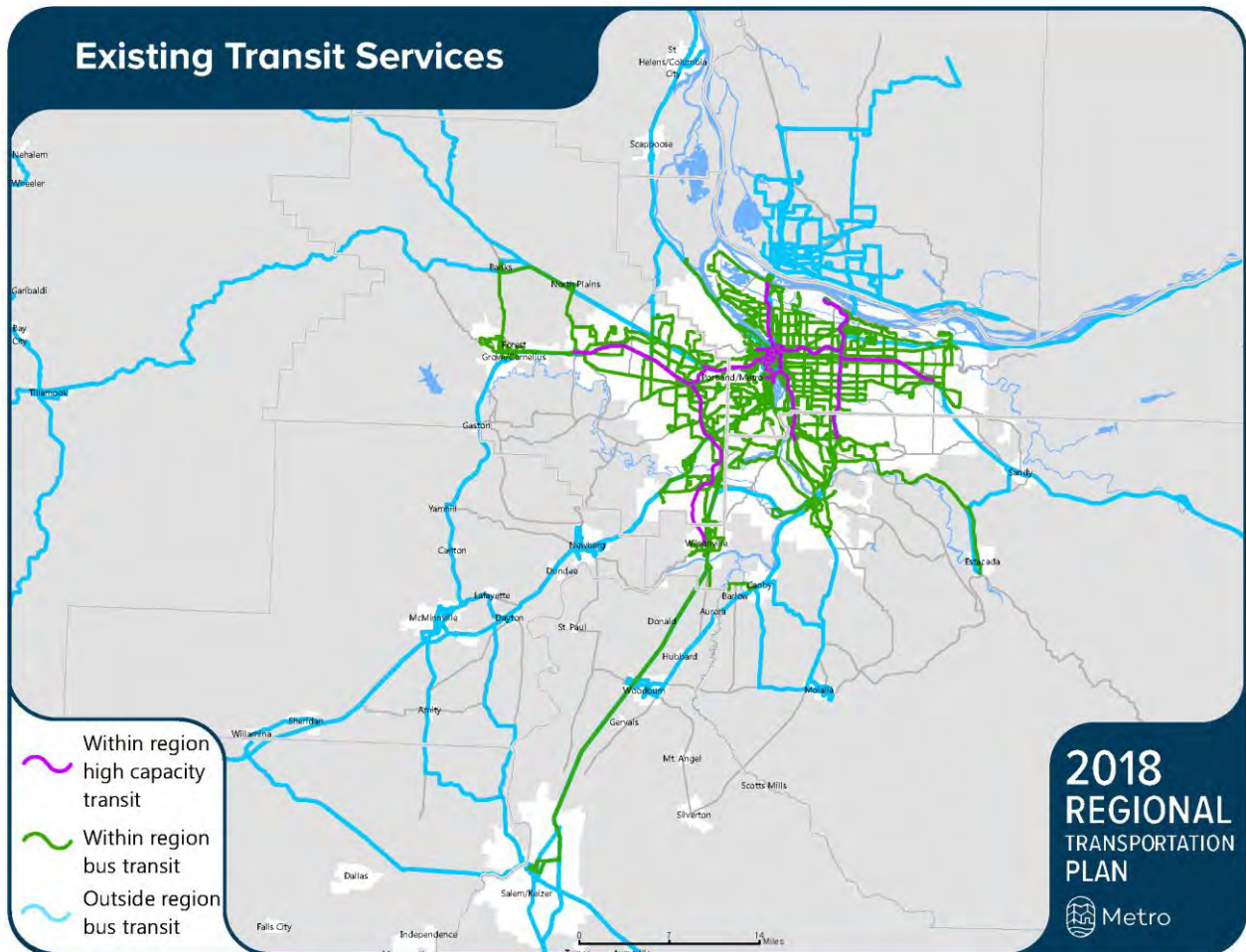
Increasing transit service is a key component of Metro’s Climate Smart Strategy for the Portland metropolitan region. The strategy identified making transit convenient, frequent, accessible and affordable as one of the most promising approaches to meet adopted targets for reducing greenhouse gas emissions from light-duty vehicles while creating healthy and equitable communities and a strong economy. To meet this goal, new performance targets to increase the number of jobs and households, including low-income households within a ¼ mile of 15-minute service or better by the year 2035 were identified. In addition, air quality-related federal laws require consistent service growth over time.

The transit system is especially important in ensuring mobility for people with low-income and people of color, who are twice as likely to be frequent transit riders from higher socio-economic class or white people. It is also critical to ensuring mobility for people who can’t drive due to age or disability, or who simply choose not to own a personal vehicle.



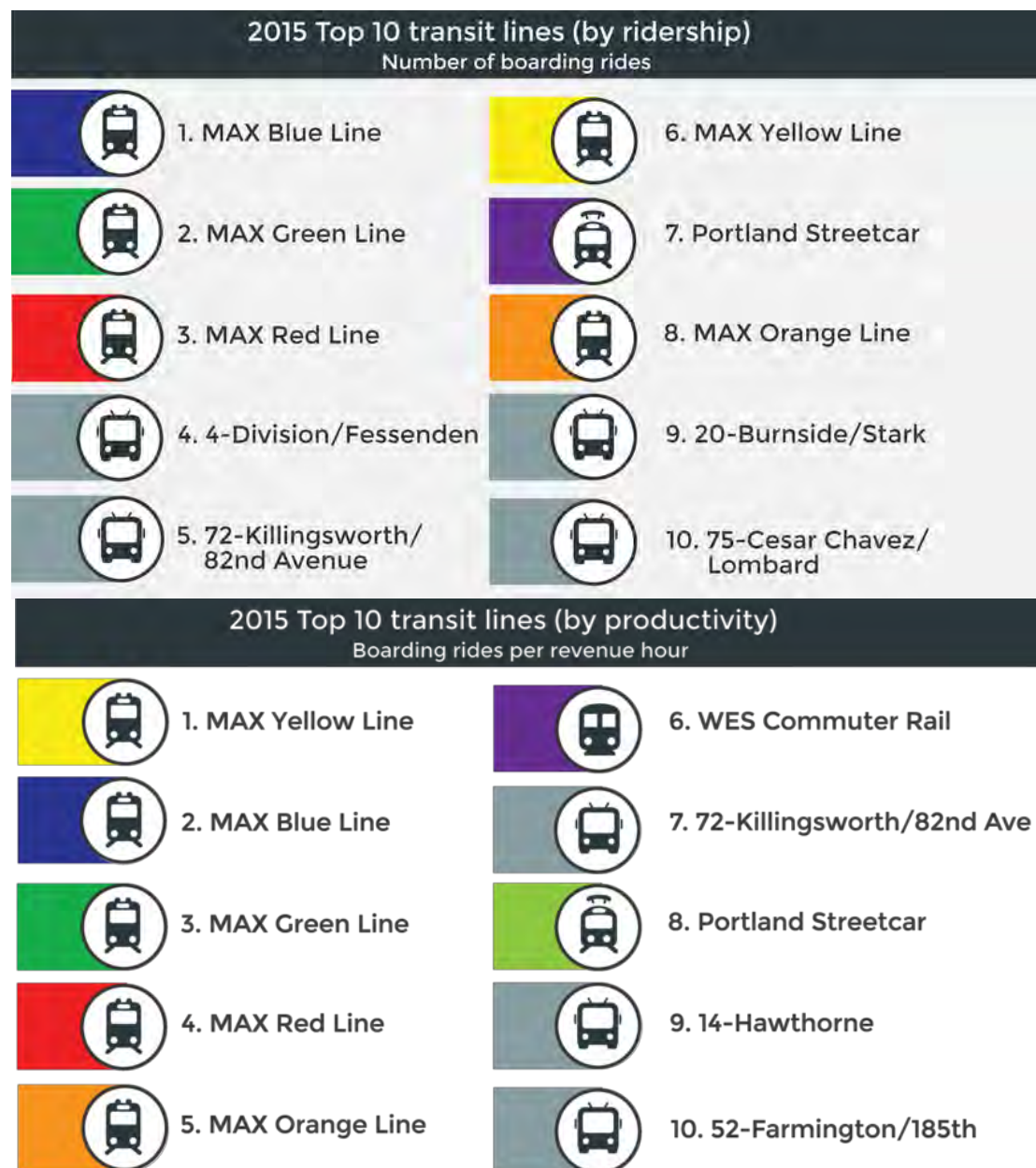
Below is a map of the region's existing transit system followed by a list of the 2015 top ten transit lines by ridership and productivity.

**Figure 11. Existing transit services in the greater Portland region and beyond**





**Figure 12. Top 10 transit lines**



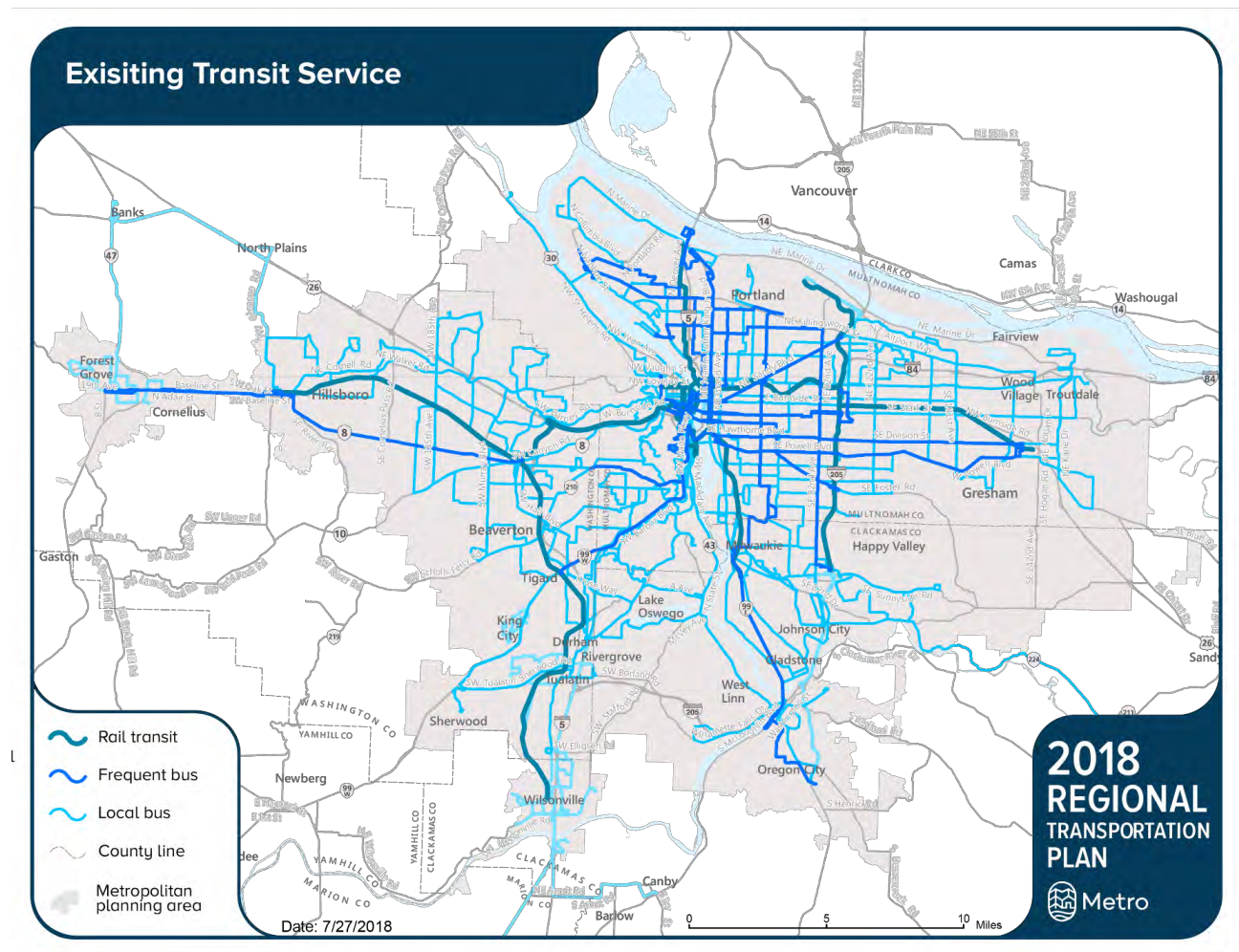
As can be seen in the figures above, rail transit (light rail, commuter rail and streetcar) carries a big share of the region's transit passengers. For example, although the MAX network only has 88 total track miles compared to the bus network's 822 miles, MAX lines carry almost two-fifths of all transit trips. The Blue MAX line alone carries nearly 60,000 people per day.

### 2.2.1 Transit service within the Metropolitan Planning Area (MPA)

The Oregon portion of our region is served locally by TriMet, Portland Streetcar Inc., the Portland Aerial Tram, Ride Connection and the City of Wilsonville SMART systems. The Southwest Washington portion of our region is served by CTRAN, a full service transit provider for Clark County Washington which provides direct connections to Portland.

The Portland metropolitan region is also served by smaller providers that mainly operate outside our region or MPA but do make connections into our region.

**Figure 13. Existing transit service, metropolitan planning area boundary**



The following section describes the transit services that operate within our MPA.

## ***TriMet***

TriMet is the largest transit provider in our region. TriMet provides bus, light rail, commuter rail and paratransit services to the Portland metro region. The bus system serves most of the region with 77 bus lines, 12 frequent service bus lines, 6,644 bus stops and 659 buses.

TriMet's light rail MAX connects our regional and town centers of Hillsboro, Beaverton, Gresham, Clackamas Town Center, Milwaukie, Portland and the Portland Airport. TriMet and the region have invested in 5 MAX lines, 97 stations, 145 vehicles and 60 miles of track.

The Westside Express Service (WES) Commuter Rail serves the cities of Beaverton, Tigard, Tualatin and Wilsonville along an existing freight rail corridor. The WES Commuter Rail serves the region with three diesel multiple units (DMUs) and one trailer, two rail diesel cars (RDCs), five stations and over 14.7 miles of track.



In addition to the bus and rail system, the LIFT Paratransit service provides door-to-door service for people with disabilities who are unable to ride regular bus or rail service. The LIFT Paratransit service is provided by 253 LIFT buses and 15 LIFT vans.



## ***City of Portland Streetcar***

The Portland Streetcar is owned by the City of Portland and operated by the Bureau of Transportation (PBOT) in partnership with TriMet (the regional transit agency) and Portland Streetcar, Inc. (PSI), a non-profit that provides management support and private sector involvement in planning and operations.

Portland Streetcar began service July 20, 2001 with a 2.4-mile alignment (4.8-miles round trip) from Portland State University to NW 23rd Avenue. Now, after 16 years, 5 extensions, and over 55 million riders, Portland Streetcar operates three lines around 16-miles of track in Portland's Central City.





### ***South Metro Area Regional Transit (SMART)***

The City of Wilsonville operates free in-town bus service in addition to inter-city connections to Salem, Canby, Tualatin, and South Portland. Known as South Metro Area Regional Transit, SMART also provides Dial-A-Ride service and an employee commuter program called SMART Options that encourages and shares resources for multi-modal commute trips. SMART operates over 35 vehicles ranging from 40-foot buses to minivans and a trolley bus.



### ***Ride Connection***

Ride Connection is a non-profit organization that works with community partners to provide and coordinate transportation options primarily for older adults and people with disabilities. Ride Connection provides a wide variety of services ranging from shuttle service to grocery stores and neighborhood centers to commuter service in rural areas not served by fixed route transit.



The following list showcases the various transport services provided by Ride Connection:

- **RideWise** provides training for older adults and people with disabilities to travel independently and safely on public transit (bus and light rail). This service is at no cost for qualified individuals.
- **Door to Door services** provides personalized transportation services for a variety of needs including medical, nutritive, shopping, supportive services, recreational and volunteer/work related needs.
- **RideAbout** provides a free service for older adults and people with disabilities who need a little extra help getting around. RideAbout bus makes regular visits to grocery stores and local neighborhood centers.
- **Washington County Bus Service** provides residents in rural Washington County a way to get around. Washington County Bus Service provides a connection from the Hillsboro Transit Center to Forest Grove via North Plains and Banks during the morning and evening commute periods.
- **Tualatin Shuttle** provides a free deviated fixed route service connecting the Tualatin WES Commuter Rail Station to employment destinations in the Tualatin area during the morning and evening peak periods.
- **GroveLink** provides a free deviated fixed route service in Forest Grove for access to employment, local destinations and regional transit services like TriMet and Washington County Bus Service from morning to evening commute periods (including mid-day).



- **North Hillsboro Link** provides a free deviated fixed route service linking the Orenco MAX Station to employment in the North Hillsboro area during the morning and evening commute periods.
- **Non Medical Transportation for OHP Members** provides transportation for non-medical travel for Oregon Health Plan (OHP) members to community services, activities and other services specified in their service plan.
- **Dahlia: Dialysis Transportation** provides a unique free transportation service to individuals who regularly receive dialysis treatments.

### ***Portland Community College Shuttle***

Portland Community College Shuttle is a free service to Portland Community College (PCC) students and staff. A current PCC ID must be shown to board the shuttle. Wheelchair lift is available on most buses.

### ***Clackamas Community College Xpress Shuttle***

The Clackamas Community College (CCC) Xpress Shuttle is a free shuttle service for students and the public. The shuttle connects from the MAX Green Line at the Clackamas Town Center to CCC in Oregon City and Harmony campuses. There are two shuttles: Shuttle 1 connects Clackamas Town Center and the CCC Oregon City Campus; Shuttle 2 also connects the Clackamas Town Center and the CCC Oregon City Campus with a stop at the Harmony Campus. The shuttles operate approximately 18 hours a day, Monday through Friday while school is in session.

## **2.2.2 Transit service outside the Metropolitan Planning Area (MPA)**

The following section describes the transit services that operate outside our MPA but provide critical connections to our region.

### ***C-TRAN***

C-TRAN offers the citizens of Clark County safe, reliable and convenient public transportation throughout the Clark County service area. They provide express commuter service to downtown Portland, Lloyd District, and Marquam Hill as well as limited bus service with connections to the Yellow Line light rail station; and three Connector service areas within the city limits of Camas, La Center, and Ridgefield.





In January 2017, C-TRAN launched the region's first bus rapid transit line, The Vine. The Vine uses larger buses, level boarding platforms and other features in order to reduce travel time, improve reliability and control costs. The Vine cost less to operate than the service it replaced and saves riders time and highlights C-TRAN as a regional leader in innovative transit infrastructure.

### ***Salem-Keizer Transit Cherriots Regional***

Salem Areas Mass Transit District, also known as Cherriots Regional, is the Salem-Keizer transit provider connecting people with places through safe, friendly, and reliable public transportation services. It enhances the quality of life for the Salem-Keizer area through better air quality, less congestion, and increased services. Cherriots make connections from Salem Transit Center to and from the Wilsonville Station at the WES between 5 a.m. and 8 p.m. each weekday. This route is a partnership between Wilsonville SMART and Cherriots, with SMART providing eight trips and Cherriots providing five trips each day. Cherriots buses do not operate on weekends or holidays.

Cherry Lift is an origin-to-destination transportation service for people whose disability prevents them from using the Cherriots buses.

### ***Columbia County Rider***

The Columbia County Rider ("CC Rider") serves Columbia County residents and visitors with timely bus service between the communities of Clatskanie, Rainier, St. Helens, Scappoose, Vernonia, PCC Rock Creek Campus and many others, including trips to Portland and Kelso/Longview, WA. CC Rider also offers a Dial-A-Ride service providing door to door transportation services for elderly, disabled and special life needs for the residents of Columbia County.

### ***South Clackamas Transportation District***

South Clackamas Transportation district (SCTD) operates three public transit service routes: Molalla to Clackamas Community College, Molalla to Canby, and Molalla City Bus. Upon request by a passenger (all passengers are eligible) using the Molalla City Bus Route, SCTD will deviate up to one-quarter mile from the established route.

### ***Yamhill County Transit Area***

The Yamhill County Transit Area (YCTA) provides bus service for everyone throughout Yamhill County with Link Routes to Hillsboro/MAX, Sherwood/TriMet, and Salem/SAM. YCTA also provides a Dial-a-Ride service for those unable to access the fixed routes due to mobility limitations or for those whose origins and destinations are not within close proximity to the fixed bus routes.

### ***Canby Area Transit***

Canby Area Transit (CAT) offers commuter bus service to Oregon City, Molalla, and Wilsonville. CAT also offers a general public Dial-A-Ride service within the Canby Urban Growth Boundary and a premium Dial-A-Ride service to eligible individuals who are unable to access the fixed route.

Canby and Wilsonville SMART coordinate to provide better connections from Wilsonville to Canby and Oregon City.

### ***Sandy Area Metro***

Sandy Area Metro (SAM) offers Gresham and Estacada commuter routes as well as a demand-response service for door-to-door trips as needed. This service acts as a feeder service to the fixed route. A higher need of assistance requiring door-to-door service outside of the service area is also available.

### ***Mt. Hood Express***

The Mt. Hood Express transit is a public bus service administered by Clackamas County and serves the communities along Highway 26, running from the city of Sandy east to Government Camp and Timberline Lodge. This service operates seven days a week as a limited stop commuter service. Seasonal service features include bike trailers and ski boxes for the convenience of riders to stow their equipment.

### ***Columbia Gorge Express***

The Columbia Gorge Express provides service to and from Portland to Multnomah Falls, linking Gateway Transit Center with Multnomah Falls and Rooster Rock State Park, thereby providing an option, other than driving, to access the Gorge. The Columbia Gorge Express operates Friday through Sunday (and federal holidays), from May through September. The bus departs Gateway Transit Center ten times each day with round trip service to Rooster Rock State Park and Multnomah Falls.

## CHAPTER 3 TRENDS, CHALLENGES AND OPPORTUNITIES

There are many trends, challenges and opportunities facing transit service in our region – from the increase in ride hailing services, including Uber and Lyft, to the abundance of transit apps, an aging population, changing demographics, decline in ridership, growing environmental concerns and many more. It's critical that our region remains proactive instead of reactive.

The following section describes the trends, challenges and opportunities that have influenced our regional transit policies and vision.

### 3.1 Implementing Climate Smart Strategy goals

As greenhouse gases continue to increase, the Climate Smart Strategy is a response to a state mandate to develop and implement a strategy to reduce per capita greenhouse gas emission from cars and small trucks by 2035. Six desired outcomes for the region were endorsed by the Metro Policy Advisory Committee and approved by the Metro Council in 2010: vibrant communities, regional climate change leadership, transportation choices, economic prosperity, clean air and water, and equity. The Climate Smart Strategy achieves a 29 percent reduction in per capita greenhouse gas emissions, but it does more than just exceed the state mandated target. Analyses demonstrate it will also support job creation and economic development, save businesses and households money, help people live healthier lives, protect our region's clean air and water, and make the most of the investments we have already made in our transportation system.

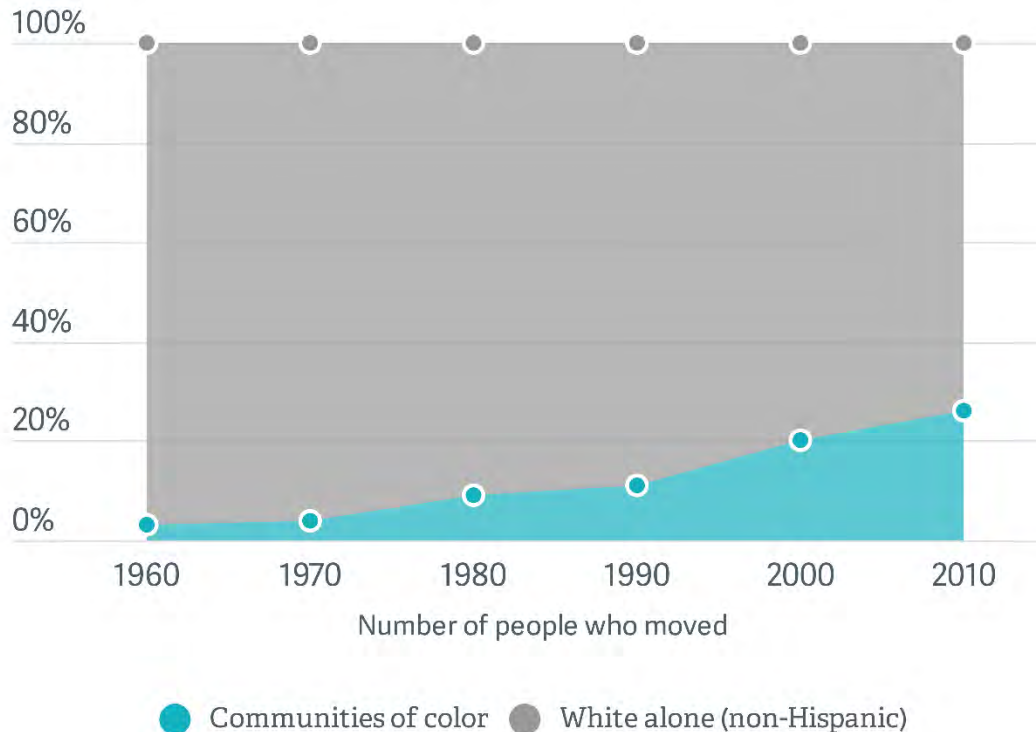
The Regional Transit Strategy strives to support the goals laid out in the Climate Smart Strategy by improving transit's accessibility, service, reliability and reach. Transportation sources account for 34 percent of greenhouse gas emissions in Oregon, the largest source of emissions in the state. Therefore, increasing use of transit, walking, biking, carpooling and an overall reduction to the number of automobiles on the road is a key way to decrease emissions and help meet the goals set out by the strategy. TriMet and SMART are actively pursuing opportunities to shift to low or no emission buses as part of their sustainability initiative to support this effort.

### 3.2 Demographic changes

Our population and communities continue to change. While the greater Portland region historically has had less racial diversity than other American cities, the region increasingly reflects the diversity of the country. However, the specific historic and systemic exclusion of and bias against African Americans is still reflected in the makeup of our population. In 2010, the population of greater Portland was 71 percent White compared to 64 percent nationally, and 4 percent African American compared to 12 percent nationally.

Also of note is the difference in Hispanic/Latinx population (10 percent for the region, 16 percent nationally) and those whose racial/ethnic identity is not easily categorized by the U.S. Census categories (those grouped as "other": 6 percent for the region, 2 percent nationally). Communities of color are growing in their share of the Portland region's population, and they are less concentrated in Multnomah County than they once were.

**Figure 14. Communities of color share of population in Portland tri-county area, 1960-2010**

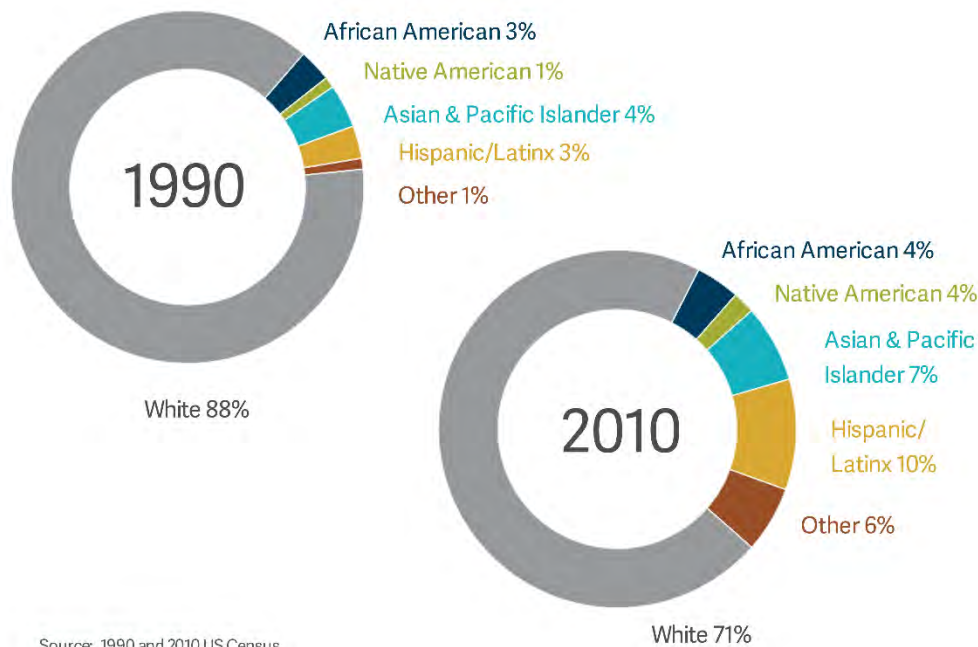


Data: US Census. Note that Census counts did not include Hispanic as a category until 1980.

In 1960, Clackamas and Washington counties had a combined population of 205,275. According to that year's Census, 153 of them were Black and 965 were neither White nor Black. In Multnomah County, about 16,000 people of the county's total population of 523,000 people were Black – the vast majority of the state's 18,000 Black residents. By 2010, Multnomah County had 530,000 White, non-Hispanic residents – about 72 percent of its total population of 735,334 residents. The Black population had grown to 41,000 residents, still the majority of Oregon's 69,000 Black residents but not the overwhelming majority it was four decades earlier.

In 2010, about 220,000 residents of Clackamas and Washington counties identified as Hispanic or a race other than White – about a quarter of their total population. In 1980, the first year the Census reliably tracked Hispanic population figures; there were about 21,000 Hispanics in greater Portland – about 2 percent of the tri-county population. By 2014, that number was estimated to be 202,000 – close to 12 percent. Overall, communities of color saw their share of greater Portland's population rise from barely 3 percent in 1960 to almost 26 percent in 2010.

**Figure 15. Race and ethnicity in the 7-county greater Portland region, 1990 and 2010**



Source: 1990 and 2010 US census

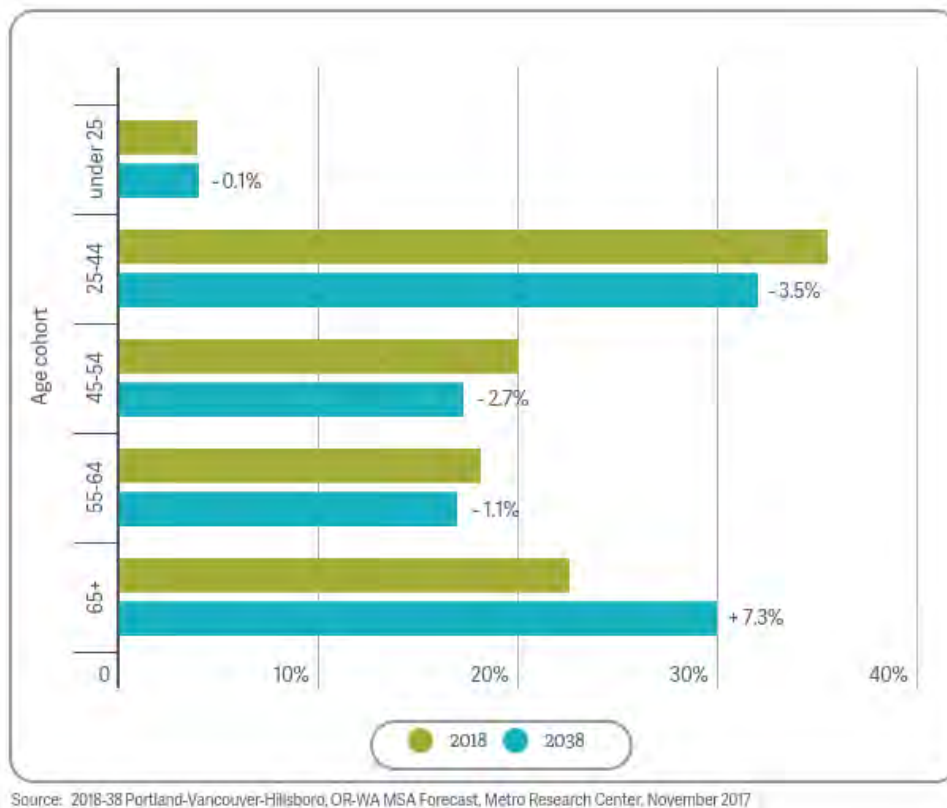
### 3.3 Aging population

Age distributions are influenced by birth rates, death rates, and migration. As the baby boomer population - the second largest generation after millennials - reaches retirement age, the proportion of people over 65 has begun to rise in both absolute numbers and percentage of the total population. The median age in the Portland region was 36.7 according to 2012 American Community Survey data, up from 34.8 in 2000.

In the seven-county Portland-Vancouver-Hillsboro metropolitan statistical area (MSA), which includes the greater Portland area, there will be a significant growth in the older adult (65+ years) population between 2018 and 2038 of over 7 percent, compared to a reduction for other age groups as shown in **Figure 16**.



**Figure 16. Age cohorts as a percentage of total population in the 7-county greater Portland region, 2018 and 2038**



### 3.4 Racial exclusion and bias leading to racial disparities

Oregon has a long and unfortunate history rooted in racial bias and exclusion, which has contributed to the greater Portland region having less racial diversity than many other metropolitan regions. The history of Oregon’s exclusionary laws dates back to 1848, when the Oregon Territory provisional government made it unlawful for Black people to live in the territory. The 1850 Donation Land Claim Act encouraged white settlers to move to the territory before any attempt was made to have the land ceded by the indigenous people – including the Multnomah, Clackamas, Tualatin and Chinook peoples of what would become the greater Portland region. In 1857, exclusionary laws were voted into the Oregon territory’s Bill of Rights. Then in 1859, when Oregon became a part of the union, it was the only state with a racial exclusion law written into a state’s constitution. The law, while no longer enforced, remained in the state constitution until 2000.

In 1862, Oregon adopted a law requiring all African American, Chinese and Hawaiian people residing in Oregon to pay an additional annual tax. The Chinese Exclusion Act was passed in 1882 with the support of the state’s full congressional delegation. Oregon’s tensions around race continued to escalate and by the 1920s, Oregon had the nation’s highest per capita membership in the Ku Klux Klan.

Through the 1940s, government policies prevented people of color from buying or renting homes outside of designated neighborhoods, while Japanese residents were relocated to internment camps during World War II. Through the 1960s and 70s – or later – real estate agents would discourage non-White clients from homes in White neighborhoods, and banks would often refuse loans for those properties when requested by a person of color. Meanwhile, banks would declare investments in homes in African American neighborhoods or other communities of color too risky and refuse loans for those properties.

Implicit and explicit practices of racial exclusion and bias extended to the development of the transportation system. People of color in Oregon had to pay additional surcharges on car insurance up until 1951. When Interstate 5 opened in the 1960s, the new freeway cut a swath through Portland’s established African American neighborhoods, destroying at least 50 square blocks of homes and creating a barrier that still exists today.

Today, communities of color continue to point to issues of racial bias and inequity in enforcement of traffic laws and transit fares. Studies have also shown that drivers in the greater Portland region are significantly less likely to stop to allow an African American pedestrian to safely cross the street. Additionally, people of color are more likely to be victims of traffic fatalities and severe injuries.

The RTP, and the RTS by extension, reflects a regional commitment to plan and invest in the region’s transportation system to reduce transportation-related disparities and barriers faced by communities of color and other historically marginalized communities, regardless of race, language proficiency, income, age or ability.

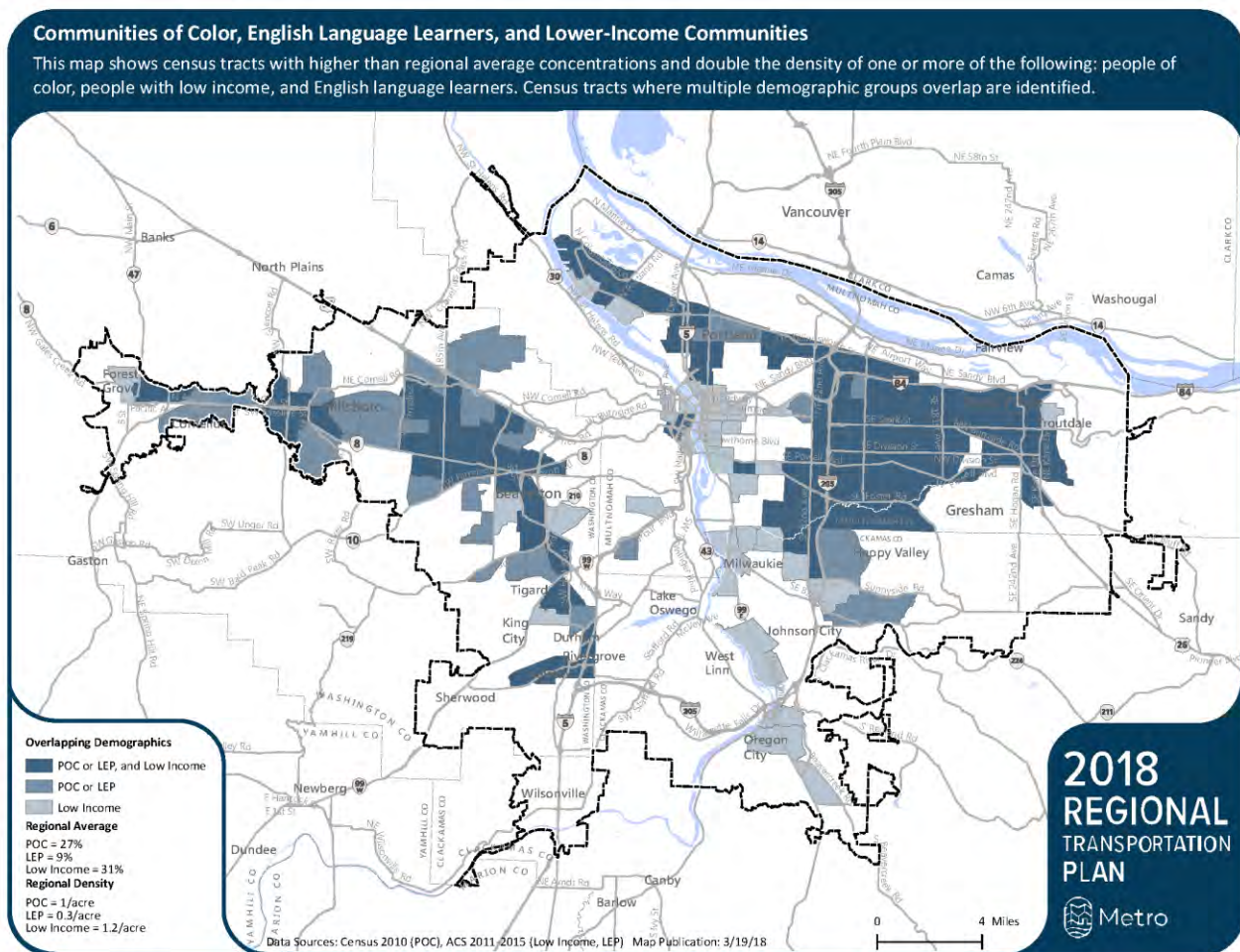
**Figure 17** illustrates where concentrations of historically marginalized communities reside in the region, based on the best available U.S. Census Bureau and Oregon Department of Education data at the start of the 2018 RTP. The map reflects where there is a significant regional concentration of people of color, people with limited english proficiency and people with lower incomes. These three communities are the emphasis and focus for the RTP and RTS, but not with exclusivity to the needs of other marginalized communities, including young people, older adults and people living with disabilities.

### *Metro’s strategic plan to advance racial equity, diversity and inclusion*

In June 2016 with the support of MPAC, the Metro Council adopted an equity plan that leads with race, committing to concentrate on eliminating the disparities that people of color experience, especially in those areas related to Metro’s policies, programs, services and destinations. People of color share similar barriers with other historically marginalized groups such as people with lower income, people with disabilities, LGBTQ communities, women, older adults and young people. But people of color tend to experience those barriers more deeply due to the pervasive and systemic nature of racism.

By addressing the barriers experienced by people of color, we will also effectively identify solutions and remove barriers for other disadvantaged groups. The result of this racial equity focus will be that all people in the 24 cities and three counties of the greater Portland region will experience better outcomes.

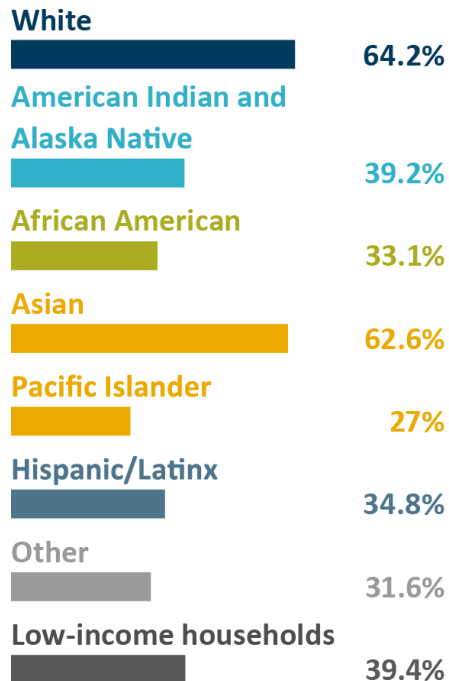
**Figure 17. RTP Equity Focus Areas**



### 3.5 Housing and transportation affordability and displacement

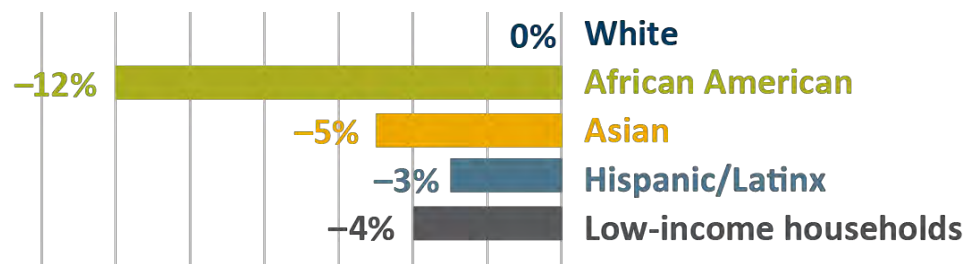
Homeownership is cited as a key tool in both personal and family wealth development and community stabilization. Not only do people of color face issues of inequity in access to education and pay, the legacy of systemic racism in the region is reflected in current homeownership rates, which differ greatly by race as shown in **Figure 18**.

**Figure 18. Homeownership in the greater Portland region, 2010**



As housing costs increase, families who own homes benefit from increased home value, while people who rent are forced to move farther from job centers and the community resources they rely on, increasing their daily travel cost and time. The result has seen an increase in travel distance that communities of color face when accessing key resources.

**Figure 19. Access to jobs within typical commute distance by race and ethnicity in the Portland-Vancouver MSA, percent change from 2002 to 2012**



*Note: original source did not provide information for American Indians or Pacific Islanders*

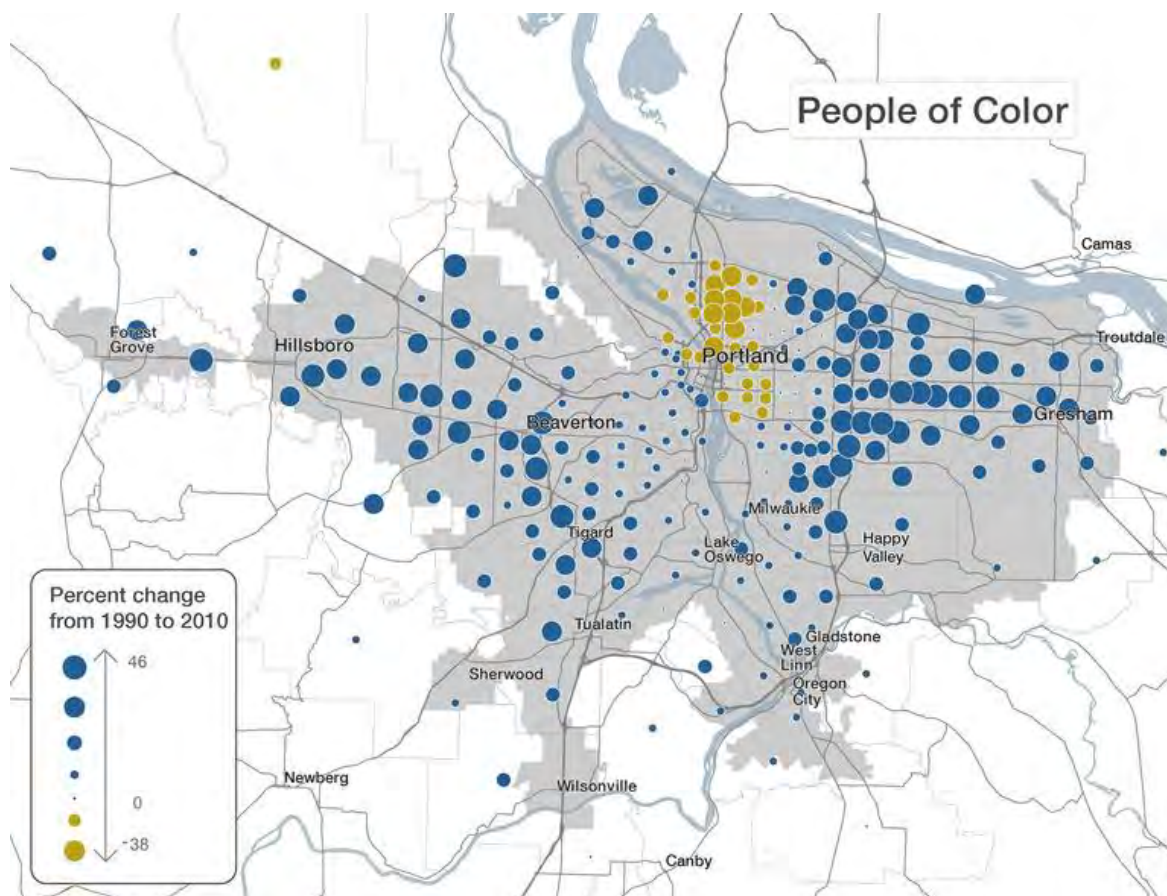
For example, a 2015 study by the Brookings Institute found that between 2000 through 2012, the number of jobs in a typical commute distance – for the greater Portland region that is 7.1 miles – fell by 1 percent, but for African Americans, Asians, and Latinx the number of jobs fell by 12 percent, 5 percent, and 3 percent during that 12-year period. Whereas for White residents, the number of jobs within a typical commute distance did not change over the past 12 years – as shown in **Figure 19**.



## Displacement affects communities as much as individuals

Displacement is often seen simply as a consequence of a growing population and an improving economy. Often unrecognized is a history that has concentrated communities of color into specific areas where they built strong community ties. Since these individuals and communities continue to face systemic inequities that limit access to the benefits of an improving economy, they are often priced out of these same areas as others gain stronger purchasing power. Not only does this displacement increase travel time and cost for individuals, it can create a cascading effect on the viability of community resources such as places of worship, community centers and culturally-focused businesses as members, users and customers lose convenient access.

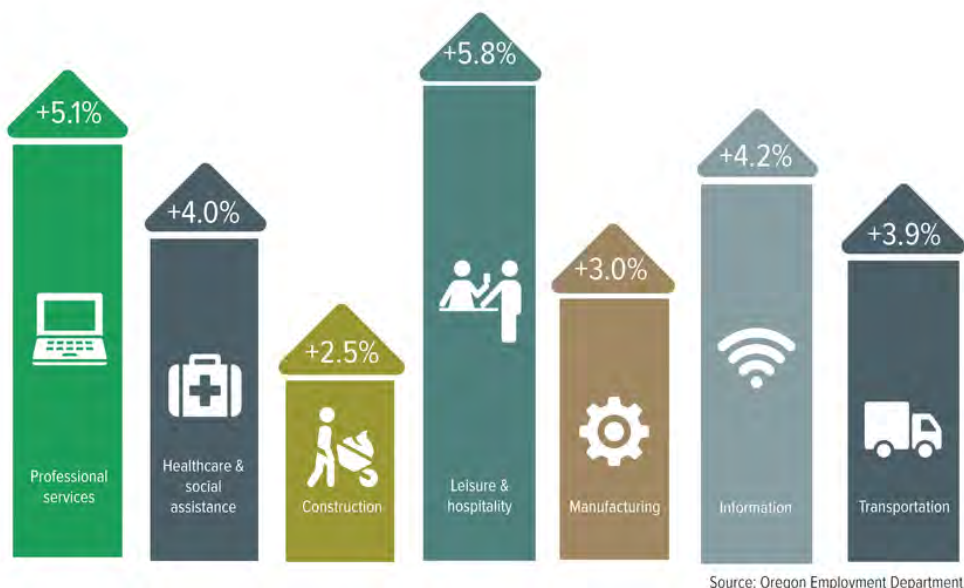
**Figure 20. Displacement for people of color in the greater Portland region, 1990-2010**



### 3.5 Economic growth

Portland is a critical West Coast domestic hub and international gateway for commerce and tourism. The economic health of the region is dependent on industries that have been attracted to the region because of our well-trained labor pool, relatively low cost of living, and high quality of life. Many of the companies who have moved to Oregon want to locate near transit lines.

**Figure 21. Fastest growing industries in 7-county region, 2014-15**



Several job sectors are doing exceptionally well in the Portland region, particularly professional and business services and leisure and hospitality. These sectors have been adding workers more quickly than other sectors as the region comes out of the recession.

Unfortunately, economic growth slowly puts strain on the factors that make the area attractive in the first place. As more people move to the area, congestion and the cost of living increase. As more goods are produced and transported throughout the region, emissions increase and erode air and water quality.

Transit plays an important role in making the region affordable, attracting a well-educated work force, keeping freight and goods moving, and supporting access to new jobs. Transit supports a healthy economy by providing essential connections between where people live and work. Transit can help reduce the number of cars on the road, which reduces traffic congestion and improves the movement of freight.

### **3.6 Aging infrastructure**

The region's transit system is relatively new compared to other metropolitan areas. However, it is becoming increasingly more important to invest in it in order to preserve safety and efficiency. While the focus has largely been on system expansion in previous years, critical elements will soon require maintenance as the system ages. TriMet has provided the region with public transit since 1969. Although significant technological advancements have required fairly constant updates, TriMet's fleet and facilities need to be kept in a state of good repair through continual investment.

In addition, MAX light rail vehicles will need to be replaced during the plan period. The 26 oldest high-floor Type 1 MAX vehicles will need to be replaced by 2027 at a cost of \$125 million, followed



by 52 Type 2 MAX vehicles in 2034 and 27 Type 3 vehicles in 2040 at a cost of \$250 million and \$130 million respectively.

### **3.7 New technology**

Using technology to actively manage the Portland metropolitan region's transit system means using intelligent transportation systems and services to help improve the speed, reliability, and accessibility of transit. It also means taking advantage of the growth in personal technology to efficiently communicate information about transit options.

Smart phones have changed the way people access information about transit. At a time when 90 percent of Americans own a cell phone, 58 percent own a smartphone, and 87 percent use the internet, technology can play a critical role in removing barriers to understanding and using a variety of transit options. For example, smartphone apps can tell people when the next bus or MAX will arrive or how to plan a trip that uses multiple modes.

In order to be effective, user information provided by technology must be easy to use, accurate, and reliable. While technology that is up-to-date and user-friendly can be an enormous asset, technology that isn't up to the standards that people have come to expect can be a hindrance to getting people to choose transit when more convenient options exist.

### **3.8 Affordability**

Traditionally, housing is considered affordable if it costs less than 30 percent of household income. However, those measures don't account for transportation costs, which are typically a household's second largest expense and inextricably tied to housing. According to the Housing and Transportation Index, the average Portland metropolitan area household spends 31 percent of their income on housing and an additional 21 percent on transportation. While only slightly higher than the ideal 50 percent for housing and transportation costs, this number hides the shocking truth of how much these costs vary. In reality, these costs range from a respectable 25 percent to a sky-high 105 percent when looking at individual blocks. In many scenarios housing costs are the primary financial burden for residents of our region, but in some areas transportation costs represent 27 percent of household income. When housing and transportation costs are looked at collectively it becomes clear that maintaining the affordability of transit in our region is critical to our region's economic success.

Additionally, increasing affordability means more than lowering the cost of transit. It also means increasing access to it. This is a region where 15.3 percent of households take fewer than 10 transit trips per year. No matter how low the cost, people will not use transit if it isn't physically accessible, safe, and reliable. If there are no alternative transportation options, people will be forced to bear the costs of owning and relying on automobiles, which add up to \$12,213 for the average household in the metropolitan area. The Regional Transit Strategy seeks to address these factors in order to make transit more accessible and convenient. In order to become the region we sought to create in the 2040 Growth Concept, affordable transit must become a priority.

### 3.9 Changing travel behavior

Travel behavior – mode choice, commuting patterns, trip length, and frequency – is influenced by a number of factors, including demographics, land use, community design, cost, access, car ownership, the economy, job locations, and social and environmental values.

Between 1990 and 1995, daily vehicle miles traveled (VMT) per capita increased significantly nationally as well as in the Portland metropolitan region. During the past 18 years, implementation of the region’s integrated transportation and land use planning strategy – the 2040 Growth Concept – has resulted in 15 percent fewer miles driven per capita and less time spent commuting than the national average.

It is likely that this trend will continue, as transportation preferences are changing for the newer generations of Americans. The millennial and future generation expect shared mobility options rather than the single-occupancy vehicles their parents dreamed of because they allow them the luxury of working while in transit, staying connected with peers, relaxing, or exercising through active transportation. However, with the cost of housing on the rise, the millennial and future generations are unable to afford housing in areas with robust public transit options. This public support could generate a big opportunity at this moment in time to promote investments that will encourage future generations to use more transit than previous generations through all stages of life and to continue to prioritize transit as a safer, more eco-friendly, and healthier transportation option.

### 3.10 Public health

Inactive lifestyles are fueling an alarming increase in obesity in U.S. adults and children, and health experts are warning us about the resulting long-term health implications. At the same time, population growth puts added pressure on our air and water quality, which directly impact public health. According to the Centers for Disease control and Prevention (CDC), the estimated annual medical cost of obesity in the U.S. was \$147 billion in 2008 U.S. dollars; the per capita yearly medical costs for people who are obese were \$1,429 (42 percent) higher than those of normal weight.

There is a trend of rapidly rising rates of chronic disease associated with obesity, weight problems, and sedentary lifestyles – conditions that public health officials now describe as epidemic. There was a dramatic increase in obesity in the United States from 1989 through 2014. It has leveled off in recent years and even decreased in certain states, but more than one-third of U.S. adults (36.5 percent) are still obese today. Oregon obesity levels are lower than national levels; in 2015, 27.9 percent of Oregon’s population was obese. In the greater Portland region, the percentage of adult survey respondents who reported being overweight or obese increased between 2002 and 2010. In 2010, Clackamas County had the highest percentage of adult survey respondents reporting being obese (27.6 percent). Washington County had the highest percentage of adult survey respondents reporting being overweight (39.2 percent) and the highest percentage of adults who were either obese or overweight (63.1 percent). Multnomah County had the lowest percentage of adults who were either obese or overweight (56.5 percent).

Another public health concern is air and water quality. Some measures of air quality have improved dramatically; others indicate more work is needed. Regional air quality has met the Environmental Protection Agency's air quality standards for six pollutants, sufficient to achieve "attainment" status. In the 1960s, the region averaged 180 days of air quality violations every year for ozone and carbon monoxide, but today we average zero.

More work is needed though. The Interstate 5 (I-5) corridor and the Pacific Northwest have unacceptable levels of benzene and other air toxics. For example, levels of toxic emissions near downtown Portland – most notably benzene – have been measured at more than 8.5 times the federal standard. Diesel particulate matter is another air toxin concern, and diesel emission levels in parts of the region exceed healthy levels. Regulatory monitoring of these air toxics and carbon emissions is not currently required, yet they pose significant risks to public health.

Interest in the connection between urban planning and active living grew in the 1990s, an outcome of a growing interest in "smart growth," a movement to integrate land use, transportation, and public health planning. Studies since then report positive effects on human health in neighborhoods built to encourage walking and biking. Not only does transit facilitate more active lifestyles, it also has a positive impact on chronic diseases such as asthma that are related to air quality and vehicle emissions. Since transit can have such a positive impact on public health, the Regional Transit Strategy affirms the RTP's vision for an active and healthy region.

### **3.11 Public funding**

The need for public funding is directly related to the issues of growth and aging infrastructure. Today, the federal government is investing less in infrastructure than ever before. While budgets are shrinking, our transit systems require funding for maintenance and expansion. Traditional approaches to financing transit projects are not only failing to maintain our existing infrastructure, they are wholly inadequate to expand and build new systems to accommodate growth.

Federal and state transit funding sources are at their lowest levels since the 1960s. Diminished resources mean increased competition for funds and reduced ability to expand, improve, and maintain existing transit infrastructure. New funding strategies, enhanced public and private collaboration, and stronger public support for new revenue sources must be developed to pay for major system investments.

HB2017, also known as Keep Oregon Moving, is an exciting new step in the right direction for transit funding. HB2017 includes funding for transit that will allow our region to expand and improve transit service. This goes a long way in expanding and improving transit service and includes opportunities for natural gas or electric vehicles purchases and a low income fare program.

Oregon lawmakers passed House Bill 2017(Section 122) the first comprehensive transportation package to receive legislative approval since 2009. At \$5.3 billion, the package makes significant investments in transit and many other transportation initiatives across the state. The measure creates a statewide employee payroll tax dedicated to transit improvements.

## CHAPTER 4 REGIONAL TRANSIT VISION AND POLICIES

With continued regional growth, come challenges including more congestion, higher housing prices, and constrained access to employment and daily needs. Residents, elected officials, and community organizations view increased transit service as a critical part of the overall solution to these challenges. To achieve the regional vision in the 2040 Growth Concept and Climate Smart Strategy, **the Regional Transit Vision is to make transit more convenient, accessible, affordable, and frequent everyone.**



### 4.1 Regional transit vision

*What do frequent, convenient, accessible and affordable mean?*

**Make transit more frequent** by aligning frequency and type of transit service to meet existing and projected demand in support of local and regional land use and transportation visions.

Frequent transit service is defined as service that operates at a maximum of 15 minutes intervals, but this isn't the only type of service. Regional and local transit service provides basic service and ensures that most the region's population has transit service available to them; service span and frequencies vary based on the level of demand for the service. Because of limited resources, it is important to ensure that service meets demand. Frequency therefore means aligning the frequency and type of service to meet existing and/or projected demand for an area.

**Make transit more convenient** and competitive with driving by improving transit speed and reliability through priority treatments and other strategies. Improve transit rider experience by ensuring seamless connections between various transit providers, including transfers, information, and payment. Additionally, cities and counties who own the roads used by bus transit could partner with the transit agencies to implement transit priorities treatments.

In order for people to choose transit over driving, transit must be convenient and reliable. A transit trip needs to get people to their destination at the projected time, and it must be easy to use. Perhaps most importantly, it needs to be a viable option in regards to travel times. This can be accompanied with strategies that prioritize transit (e.g. signal priority and bus lanes) as well as adopting technology that make transit more predictable and user-friendly (e.g. electronic fare and real-time monitoring systems).

**Make transit more accessible** by ensuring safe and direct biking and walking routes and crossings that connect to stops, as well as improve accessibility for seniors and persons with disabilities to ensure transit is accessible for everyone. Accessibility could also include park and

ride facilities and drop off/pick up areas. Expand the system to improve access to jobs and essential destinations and daily needs.

Accessibility refers to two separate but related aspects of transit. One is to ensure that transit is physically accessible to everyone, regardless of age or ability. All transit users must access transit via biking or walking, even if stops are mere feet away. Complete sidewalks and bike paths enhance the experience of using transit and the accessible stations are essential to making transit work for everyone. The first/last mile is also an important part of accessibility, as it often represents the best opportunity for people living in rural towns or outlying areas to access our transit system.

#### *First/last mile*

Most people are comfortable walking  $\frac{1}{4}$  to  $\frac{1}{2}$  mile to transit. The first/last mile connection refers to a distance greater than  $\frac{1}{4}$  to  $\frac{1}{2}$  mile to fixed route transit service.

The second component of accessibility is to ensure that essential destinations and jobs are accessible by transit. As the region grows, it's crucial to continue to expand community and regional transit service in order to improve access to these daily needs, and encourage employers to locate on existing transit routes.

**Making transit affordable** is the cornerstone of the other components of our vision. Frequency, convenience, and accessibility are meaningless if transit is not affordable. Additionally, affordability ensures that the transit system is equitable for low income populations, communities of color and those who rely on transit services rather than private automobiles to meet their daily transportation needs.

#### **4.1.1 Implementation of the regional transit vision**

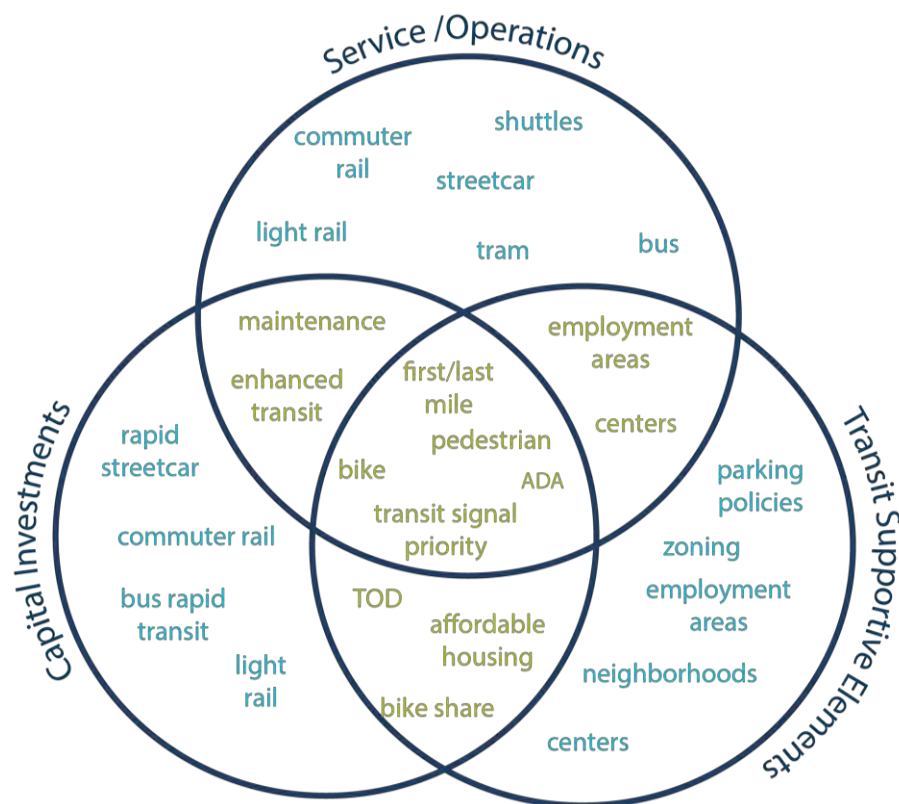
The Regional Transit Vision will be implemented through improving transit service, investing in transit infrastructure, collaborating between transit providers and local jurisdictions and expanding transit supportive elements:

1. **Transit service improvements:** local and regional transit service improvements designed to meet current and projected demand in line with local and regional visions and plans.
2. **Capital investments in transit:** new enhanced transit strategies such as signal priority, dedicated lanes or high capacity transit options such as bus rapid transit, light rail, commuter rail or high speed rail.
3. **Transit supportive elements:** including programs, policies, capital investments and incentives such as Travel Demand Management and physical improvements such as sidewalks, crossings, and complementary land uses.

**Figure 22** shows the relationships between these different types of investments.



**Figure 22. Service improvements, capital investments and transit supportive elements**



Public agencies and transit providers must collaborate in prioritizing transit investments throughout the region. With the passing of House Bill 2017, the Oregon Legislature has identified transit improvements and service expansion as a priority for the state. With this additional funding, the region will be able to significantly increase and expand transit service. This only highlights the need to collaborate between transit providers.

#### 4.1.2 Regional transit network concept

The regional street system has carried public transit for more than a century, beginning with the streetcars of the late 1800s and evolving into a combination of vans, buses, streetcars and light rail trains today. The Tri-County Metropolitan Transportation District of Oregon (TriMet) is the primary public transportation provider for the metropolitan region. The South Metro Area Regional Transit (SMART) in Wilsonville also provides regional transit service, connecting Wilsonville to downtown Portland.



TriMet implements the majority of transit service in the RTP in what is called the Transit Investment Plan (TIP). SMART, C-TRAN and other transit providers complement TriMet's service.



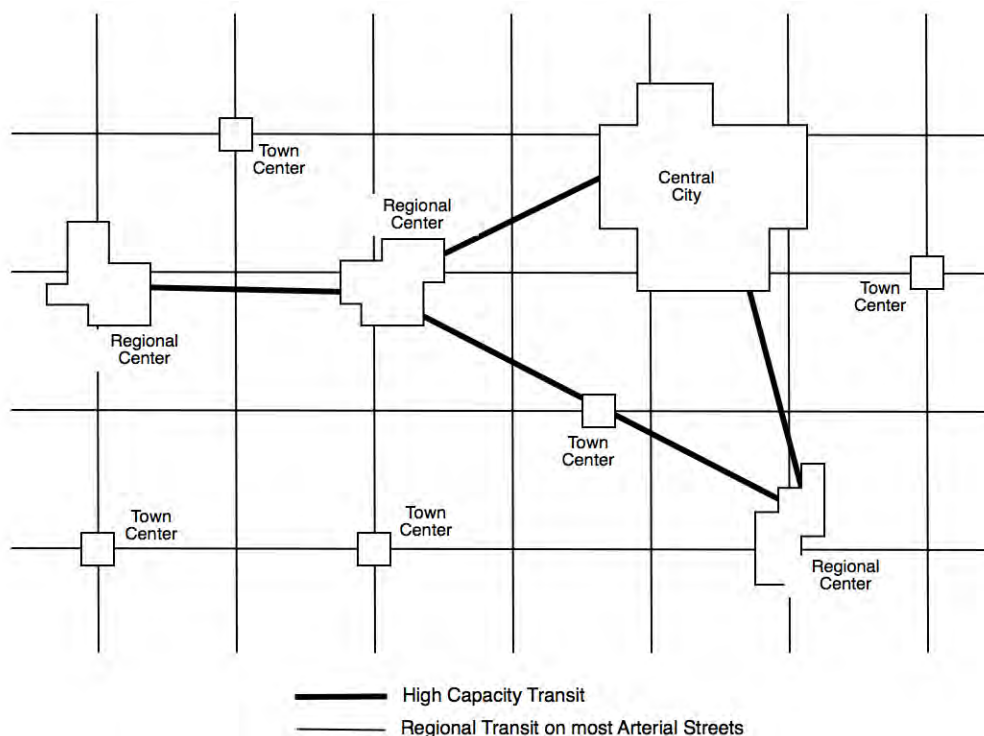
Just outside of the Metro region, Sandy Area Metro and Canby Area Transit provide transit service for Sandy and Canby. Bus service in other surrounding areas, all with connections to TriMet and SMART, is also provided by C-TRAN (Clark County, WA), Ride Connection, South Clackamas Transit District (SCTD), Cherriots (Salem, OR), Tillamook County Transportation District (Tillamook, OR), and Yamhill County Transit Area (Yamhill County, OR).

Transit is a partner in supporting the Region's 2040 Growth Concept, which calls for focusing future growth in regional and town centers, station communities, and 2040 corridors. A regional transit network, coupled with transit-supportive development patterns and policies that support taking transit, biking, and walking, will be necessary to help the region:

- be less dependent on automobiles
- reduce overall transportation and housing costs
- lead healthier lives
- reduce greenhouse gas emissions

As part of the 2040 Growth Concept, transit is critical to connecting centers. **Figure 23** shows how the regional transit system concept would connect the 2040 centers.

**Figure 23. Regional transit network concept**



The 2040 Growth Concept sets forth a vision for connecting the central city to regional centers like Gresham, Clackamas and Hillsboro with high capacity transit. The RTP expands this vision to include a complete network of regional transit along most arterial streets to better serve existing and growing communities. Existing land use mixes and future transit-oriented development potential should be considered and incorporated into service and station location decisions.

In order to leverage transit investments, it is important to ensure land uses are transit-supportive and support local and regional land use and transportation plans and visions to leverage and protect transit investments. Adjacent land uses, block size, street connectivity, and parking management affect the success of transit service. Policies and investments that make transit work best can be found in **Table 1**.

**Table 1. Effects of land use strategies on transit service**

Characteristic	Works	Doesn't Work
<b>Density</b>	High	Low
<b>Street layout</b>	Small blocks Grid system	Long, winding streets Cul-de-sacs, dead-end streets
<b>Mix of uses</b>	Mixed use (e.g., commercial, residential, and office uses)	Single use (e.g., all residential, all industrial)
<b>Pedestrian and bicycle environment</b>	Wide sidewalks Slow moving traffic Street elements (e.g., benches, street trees, pedestrian-scale lighting) Well-marked intersections with signalized crossings Bicycle parking	Narrow or no sidewalks Fast moving traffic Poor lighting No intersection markings and long pedestrian wait times
<b>Site design</b>	Buildings front the street and entrances	Buildings set back from the street and surrounded by surface parking
<b>Parking</b>	Limited Fee-based parking	Abundant Free

Source: TriMet

Transit-supportive development patterns include:

- a compact urban form that places destinations close to transit
- a mix of uses, and a balance of jobs and housing, that creates a place where activity occurs at least 18 hours a day
- locating a mix of service near transit including grocery stores and medical offices
- locating affordable housing options, particularly for older adults, seniors and people with disabilities, near frequent transit
- well-designed streets and buildings that encourage pedestrian travel
- streets that can accommodate 40-foot buses
- safe and efficient multi-modal interactions at transit stops and stations
- safe, direct and convenient pedestrian and bicycle access, within communities and to transit stops and stations

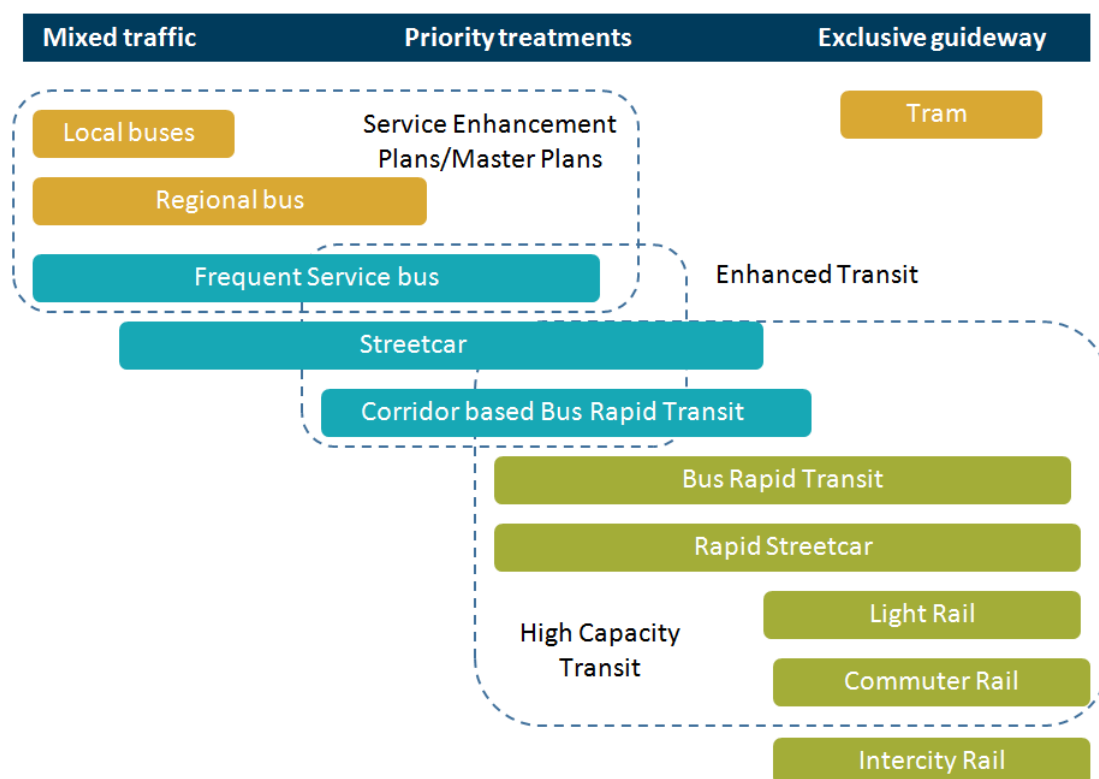
- street connectivity with good pedestrian and bike paths to extend the effective coverage of bus and rail service
- managed on-street and off-street parking

Areas with low population and/or employment densities, abundant free parking, and with difficult access to transit stops generate fewer riders than areas with transit-supportive development. When fewer riders are generated, it costs more per ride to provide transit service than it does in transit-supportive areas. Ridership productivity is a key criterion in assessing the benefits of service improvements and new transit investments.

## 4.2 Regional transit network map and functional classifications

The Regional Transit Network is the future transit vision. The Regional Transit Network includes future regional and local bus, enhanced transit corridors, high capacity transit and intercity rail, reflecting the region's updated future transit vision. Shown in **Figure 25**, the Regional Transit Network Map has been updated to include the 2009 HCT lines, new enhanced transit concept corridors, streetcar and future transit service as identified by TriMet's Service Enhancement Plans and Wilsonville's' Transit Master Plan. The map also highlights areas planned to be served by community-job connector shuttles.

**Figure 24. Regional transit spectrum**

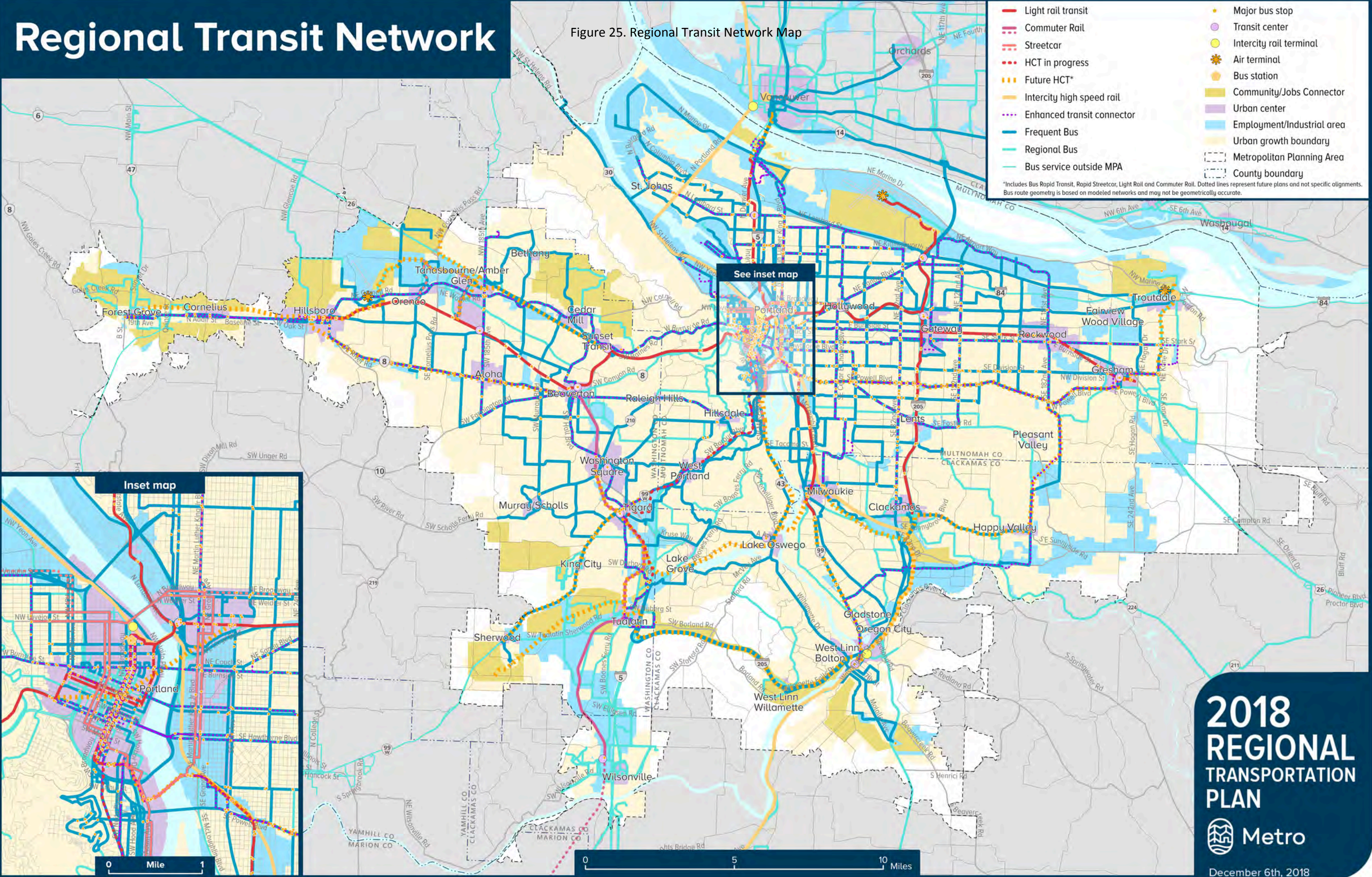


Many variables impact decisions about what type of transit mode and frequencies are most appropriate, including existing and future land uses, transit demand and opportunities and constraints.



# Regional Transit Network

Figure 25. Regional Transit Network Map





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### 4.2.1 Regional transit network map

The Regional Transit Network includes future regional and local bus, enhanced transit concept corridors, high capacity transit and intercity rail, reflecting the region's updated future transit vision. Shown in **Figure 25**, the Regional Transit Network map has been updated to include the planned 2009 HCT connections, new enhanced transit concept corridors, streetcar and future transit service as identified by TriMet's Service Enhancement Plans and Wilsonville's Transit Master Plan. The map also highlights areas planned to be served by community-job connector shuttles.

Our existing and planned system includes a variety of transit modes, each with a special function in the overall system. Local, regional and frequent service bus lines are the backbone of our transit system. The transit providers plan for improving and expanding transit service through service enhancement plans, master plans and through annual service planning.



The region's high capacity transit system operates with the majority of all of the service in exclusive right-of-way, consisting of five lines over a 60 mile network that serves 97 stations in the communities of Portland, Beaverton, Clackamas, Gresham, Hillsboro, Milwaukie; and Portland International Airport .

#### 4.2.1.1 Transit service improvements

Our bus system operates in mixed traffic and provides service across the region. Local and regional bus service connect people to and from home to work, play and other daily needs.

Alongside our bus system, we have implemented streetcar and currently working towards implementing the region's first corridor-based bus rapid transit (BRT). These services, along with frequent bus service, can and do include a variety of transit priority treatments. These tend to be more frequent and carry more transit riders than the regional and local bus system. The enhanced transit concept program, new to our region, provides that transit priority to help improve transit speed and reliability above the traditional transit service.

#### 4.2.1.2 Enhanced transit concept

The Enhanced Transit Concept (ETC) is a new concept the transit network. The purpose of ETC is to improve transit speed and reliability on our most congested existing and planned frequent service bus or streetcar lines. Potential corridors were evaluated based on reliability, dwell and ridership per mile. Corridors that had the highest reliability issues (difference in travel times

between free flow and peak period conditions) in addition to areas experiencing significant dwell and have high ridership were identified as ETC corridors.

#### **4.2.1.3 High capacity transit**

Our high capacity transit (HCT) system operates with the majority or all of the service in exclusive guideway. The high capacity transit system is meant to connect to regional centers and carry more transit riders than the local, regional and frequent service transit lines. HCT could include rapid streetcar, corridor-based bus rapid transit, bus rapid transit, light rail or commuter rail. Future planning studies are required to determine the specific mode. The Regional Transit Network map has been updated to include the 2009 HCT lines, with updates. These updates include:

- moving the I-5 HCT corridor from under development to a future HCT project
- moving the Portland to Lake Oswego Streetcar project from under development to a future HCT project
- Portland to Gresham in the vicinity of Powell Corridor remains a future HCT project, while the Portland to Gresham in the vicinity on SE Division St is an HCT project under development
- moved Portland to Sherwood in the vicinity of Barbur/Highway 99 Corridor from a future HCT to project under development
- modified the Clackamas Town Center to Damascus to connect to Happy Valley via the Columbia to Clackamas Corridor as a future HCT project

#### **4.2.1.4 Intercity rail**

Intercity passenger rail provides high quality rail service to communities outside of the region provides an important connection to our region. Intercity rail can connect regions and even states. This type of service goes beyond our regional boundaries and serves people traveling to destination in and out of our region.

## 4.3 Regional transit policies

Regional transit priorities are informed by the following policies which aim to provide transit as an attractive and accessible travel option for all people in the Metro region, optimize existing transit system operations and ensure transit-supportive land uses are implemented to leverage the region's current and future transit investments.

**Eight policies form the foundation of this vision:**

**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.**

**Policy 2 - Preserve and maintain the region's transit infrastructure in a manner that improves safety, security and resiliency while minimizing life-cycle cost and impact on the environment.**

**Policy 3 - Make transit more reliable and frequent by expanding regional and local frequent service transit and improving local service transit options.**

**Policy 4 - Make transit more convenient by expanding high capacity transit and improving transit speed and reliability through the regional enhanced transit concept.**

**Policy 5 - Evaluate and support expanded commuter rail and intercity transit service to neighboring communities and other destinations outside the region.**

**Policy 6 - Make transit more accessible by improving pedestrian and bicycle access to and bicycle parking at transit stops and stations and using new mobility services to improve connections to high-frequency transit when walking, bicycling or local bus service is not an option.**

**Policy 7 - Use technology to provide better, more efficient transit service – focusing on meeting the needs of people for whom conventional transit is not an option.**

**Policy 8 - Ensure that transit is affordable, especially for people who depend on transit.**

#### **4.3.1 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.**

The Portland metropolitan region's economic prosperity and quality of life depend on a transportation system that provides every person and business in the region with equitable access to safe, efficient, reliable, affordable and healthy travel options and have the same opportunity to thrive, regardless of their race or ethnicity. With a transportation system focused on mobility and access that addresses the transportation disparities faced by communities of color, the region's transportation system has the ability to open opportunities which can dramatically improve outcomes for people of color. While on the surface, a focus on racial equity may seem exclusionary, but by addressing the barriers faced by those communities, outcomes for other disadvantaged communities will improve as well.

A complete and seamless transit system is based on providing frequent and reliable bus and rail transit service during all times of the day, every day of the week. This goes far beyond the responsibility of the transit agencies; it requires actions on behalf of the region and all the jurisdictions. In order to provide frequent and reliable service, the region needs to partner together to invest in transit priority treatments and high capacity transit to ensure that transit can take people where they need to go on time.

All transit trips begin and end with different modes of access even if stations are mere steps from origins and destinations. Riders access transit via walking, bicycling, bus, rail, carpools, shared mobility (like Uber and Lyft or Biketown) and private automobiles. Safe and comfortable access to the stations is critical to the riders experience and convenience, but also makes transit fully accessible to people of all ages and abilities. Every transit rider is a pedestrian first, whether it is walking to the station, parking their bike and walking to vehicle or walking from the park and ride to the bus or rail.

High frequency or typical fixed route transit service may not make sense for everyone throughout the region. People often rely on demand-response transit or infrequent buses that provide slow service and are costly to operate. New shared mobility models like microtransit could provide better service at lower cost in these situations. As these options continue to mature, agencies

#### *Microtransit*

Microtransit can differ from conventional transit service in several different ways:

- Some operate on flexible routes to pick up and drop off riders nearer to their origins and destinations.
- Instead of operating on a fixed schedule, microtransit services may allow riders to request a ride when they need it.
- Services often use vans or small buses instead of 40-passenger buses.
- Many services are privately operated or operated through partnerships between public agencies and private companies.

should look for opportunities to supplement demand response and underperforming service with shared mobility. This could provide better service for underserved and transit-dependent residents, and also increase resources available to serve high-demand corridors.

Technology also provides tools to actively manage the Portland metropolitan region's transit system. This can involve using intelligent transportation systems and services to help improve the speed and reliability of transit, or taking advantage of smart phones and other personal technology to efficiently communicate information about transit options.

#### **4.3.2 Policy 2 - Preserve and maintain the region's transit infrastructure in a manner that improves safety, security and resiliency while minimizing life-cycle cost and impact on the environment.**

While our transit system is still relatively new, it will become increasingly important to invest in upkeep as the system ages. It is critical to ensure that it is well-maintained and to replace or improve outdated parts of our transit system to preserve its efficiency. In addition, the Federal Transit Administration's State of Good Repair program is dedicated maintenance of our transit system includes incorporating industry best practices and recommendations related to reliability and safety and supporting TriMet's implementation of its Service Enhancement Plans to help transit agencies maintain bus and rail systems as part of the Moving Ahead for Progress in the 21st Century (MAP-21) Act. These grants are distributed to state and local governments to repair and upgrade rail and bus rapid transit systems that are at least seven years old.

Following the Great Recession of 2008, TriMet delayed new bus purchases for four years because of the resulting decrease in income from taxes. Starting in 2012, TriMet began to replace buses on an accelerated schedule and has since moved away from having one of the oldest fleets in the country to an industry-standard average age of eight years. According to the FTA, the average useful life of a bus is 12 years, or 500,000 miles. Another area of investment for TriMet is the MAX system, parts of which are more than 30 years old. While the FTA's assigned life expectancy for rail cars is 25 years, industry experience reports a 30-35 year lifespan in reality. Nevertheless, the TriMet light rail system will soon be in need of repairs and upgrades.

It's also important that to plan for the future capacity needs of our transit system. As our region grows and ridership on our public transportation system is ever increasing, the region is starting to push the limits of what our existing infrastructure can handle. This creates more transit bottlenecks throughout the region, increasing congestion and decreasing the reliability of our transit system. Some lines already have many buses running behind schedule due to heavy traffic, which leads to unpredictable service. Other lines suffer from overcrowding. Popular lines will always have standees, but some trips have such high ridership that at times, riders are unable to board and must wait for another vehicle. In order to make transit more reliable and convenient, these factors must also be addressed.

Some recent maintenance projects and improvements that TriMet has undertaken include:

- Replacing switches and realigning the trackway at the Rose Quarter



- Replacing switches and reconstructing rail at SW 11th Avenue in Downtown Portland
- Completing design for reconstructing MAX trackway over the Steel Bridge
- Beginning a four-year replacement of overhead power contact wire on the original MAX Blue Line between Cleveland Ave in Gresham to Lloyd Center
- Upgrading and repairing platform areas at Gresham City Hall and Washington Park stations

Other improvement projects include planned upgrades to fourteen (14) MAX Blue Line stations between NE 42nd/Hollywood and Cleveland that include safety improvements and electronic display installations. Pedestrian crossings and shelters are being improved; trees on or near the platform are being removed to make space for lighting and improve the line-of-sight for security cameras.

### **4.3.3 Policy 3 - Make transit more reliable and frequent by expanding regional and local frequent service transit and improving local service transit options.**

#### **4.3.3.1 Expand regional and local frequent service transit**

In 2040 corridors, main streets and centers, the RTP recommends supporting transit by providing transit-supportive development and well-connected street systems to allow convenient bicycle and pedestrian access.

As mentioned earlier, Frequent service transit is defined as wait times of 15 minutes or less from the early morning to late in the evening, seven days a week. Frequency is especially important for making transit more competitive with driving for riders who take short, local trips, because the time riders spend waiting for a bus to take a short trip is a proportionately larger component of the total travel time than it is for longer trips.

Frequent bus service is appropriate when high ridership demand is demonstrated or projected, the streets are pedestrian-friendly, there are high proportions of transit-dependent residents, the lines connect to existing or proposed HCT corridors, and/or it serves multiple centers and major employers. Exhibiting many of the same service characteristics as frequent bus service, streetcar service functions primarily as a connection within and between 2040 centers and corridors.

Preferential treatments, such as transit signal priority, covered bus shelters, curb extensions, special lighting, enhanced sidewalks, protected crosswalks and bikeways, are

#### *Frog Ferry Passenger River Taxi Service Study*

A non-profit group, Friends of Frog Ferry, is pursuing the study of a passenger river taxi service connecting Vancouver, WA with central Portland. Friends of Frog Ferry has compiled an initial business plan and is working to partner with local jurisdictions to evaluate ridership and land development opportunities. Their proposal envisions a project that provides another transportation option and activates the Willamette River. More information about the study can be found in Chapter 8 and on the project website at [frogferry.com](http://frogferry.com).



all fundamental to making the frequent service bus and streetcars elements of the transit network function at its highest level. In select locations, park-and-ride facilities may provide vehicular access to the frequent service network, especially for areas that cannot be well-served by local transit due to topography, street configuration, or lack of density.

Types of frequent transit services and facilities include:

- Frequent bus
- On-Street Bus Rapid Transit
- Streetcar (Local)
- Express Bus
- Enhanced Transit elements
- Regional transit centers and stops
- Bicycle stations/parking
- Park-and-ride facilities

Key considerations for investments in frequent service are ridership, productivity and line that provide historically marginalized communities access to jobs and other community places. Decisions about transit investments should be assessed with an equity lens to ensure transit access for our most vulnerable communities.

#### **4.3.3.2 Improve local service transit**

The local transit network provides basic service and access to local destinations and the frequent and high capacity transit network. Service span and frequencies vary based on the level demand for the service. The local transit network ensures that the majority of the region's population has transit service available to them.

Local transit service is appropriate where there is some transit demand, but not enough to support regional or frequent service. Local transit is designed to provide full transit service coverage to the region. Transit preferential treatments and passenger facilities are appropriate at high ridership locations. Sidewalk connectivity, protected crosswalks and bikeways are all fundamental to making the local transit service elements of the transit network function at its highest level.

Providing community and job connector shuttles increases the convenience of transit, particularly for areas without frequent service transit or where traditional transit service is not viable. Community and job connector shuttles also expands the reach of transit across the region which improves access to jobs and community places and can help facilitate first/last mile connections where business and or homes are spread out and regional fixed-route bus service is not cost effective.

Types of local transit services include:

- Local Bus
- Para-Transit
- Deviated “On-Demand” routes
- Community and job connector shuttles
- Employer Shuttle Service
- Community Event Shuttles
- Tram

In order to reach our regional transit objectives local transit service improvements and expansion should be coordinated with TriMet’s Coordinated Transportation Plan for Seniors and Persons with Disabilities and the Special Transportation Funds Advisory Committee (STFAC).

#### 4.3.3.4 Demand response services

One foundational support of the regional transportation system in both urban and rural areas is the availability of demand-response services. These services provide access to transportation that “fills in the gaps” where fixed-route transit, complementary paratransit, or deviated fixed-route “last mile” shuttle services are not the appropriate or most cost-effective tool to meet the need of low income individuals, seniors or people with disabilities. Because these services operate in the background, as a coordinated addition to the total transportation system, they often go unnoticed. However, they provide a lifeline of service to low-income people who experience barriers to accessing the transportation system. Each year over 500,000 trips are provided on demand-response services throughout the region, and current service is still not enough to meet the existing demand or projected growth in demand concurrent with the region’s growing population.



The GroveLink bus serves a greater part of the Forest Grove, helping to link residents with downtown locales as well as with TriMet bus line 57.

Types of local transit services include:

- Local bus
- Para-transit
- Deviated “On-Demand” routes
- Community and job connector shuttles
- Employer shuttle services
- Community event shuttles
- Tram

#### **4.3.4 Policy 4 - Make transit more convenient by expanding high capacity transit and improving transit speed and reliability through the regional enhanced transit concept.**

##### **4.3.4.1 Expand high capacity transit, to serve transit dependent populations and improve system performance between key destinations**

High Capacity Transit (HCT) investments help the region concentrate development and growth in its centers and corridors. The regional transit network concept calls for fast and reliable HCT service between the central city and regional centers. HCT service carries high volumes of passengers quickly and efficiently, and serves a regional travel market with relatively long trip lengths to provide a viable alternative to the automobile in terms of convenience and travel time.

High capacity transit provides greater connections between the Portland Central City, regional centers, and passenger intermodal facilities. It operates on a fixed guideway or within an exclusive right-of-way, to the extent possible. High capacity transit strives for frequencies of 10 minutes or better during the peak hours and 15 minutes during off peak hours. Passenger infrastructure at HCT stations and within station communities often include enhanced amenities, such as real-time schedule information, ticket machines, special lighting, benches, shelters, bicycle parking, civic art and commercial services.

To optimize and leverage transit supportive land uses, alignments and station locations should be oriented towards existing and future high density, mixed-use development. To this end, urban form and connectivity, redevelopment potential, market readiness, public incentives and infrastructure financing should all be considered during the corridor refinement and alternatives analysis phases of project development. High capacity transit investments are informed by the HCT assessment and readiness criteria (see performance measures chapter of this strategy).

Types of high capacity transit types, facilities and services include:

- Light Rail Transit (MAX)
- Rapid Streetcar (Streetcars running in mostly exclusive right-of-way so that they are able to travel faster safely)
- Bus Rapid Transit (majority of service operates in separate and dedicated right of way, defined stations, transit signal priority, short headways).
- On-Street Bus Rapid Transit (substantial transit investment, some separate or dedicated right of way, defined stations, transit signal priority, short headways).
- Commuter Rail (WES)
- Interurban Passenger Rail (e.g., Amtrak or regional rail systems in other regions)
- Intermodal Passenger Facilities (e.g., Union Station and Greyhound)
- Secure bicycle parking (Bicycle stations or Bike & Rides)
- Park & Ride lots

- Transit Centers
- Transit Stations

Major infrastructure investments have implications within the communities they are located. Historic data shows that a major HCT investment contributes to both positive and negative outcomes for the communities they serve. It is critical that during the planning for a new HCT investment, a strategy should be developed that considers both the positive and negative impacts of the investment, particularly as it applies to the most at-risk populations. These tend to be people of color, low income, low English proficiency, seniors and youth. Additionally, these populations tend to be our most transit dependent. What this means is that their potential displacement from the economic pressures that the investment brings, ultimately leads to undermining the long-term effectiveness of the investment. By planning all new HCT lines through an equitable development framework, we can attempt to lessen the negative impacts of the investment, while enhancing the opportunity that these transit-dependent populations benefit from it, by limiting residential and business displacements and gentrification. The framework will vary for each project and should be developed at the time an HCT project is being considered through planning, engineering and construction.

Any HCT planning effort should directly incorporate community in the decision-making process. The process should also be informed and include an assessment of data with an equity lens. Where possible HCT projects should also enhance the contracting and job training benefits and opportunities for displaced and historically marginalized populations.

#### **4.3.4.2 Improve transit speed and reliability through the regional enhanced transit concept**

In order to meet the Portland Metro region's environmental, economic, livability and equity goals as we grow over the next several decades, we need to invest more in our transit system, particularly the frequent service bus network. There are many ways to increase transit speed and reliability throughout our system. The region should pursue opportunities as they arise to improve the efficiency of our system to support our transit riders.

The Enhanced Transit Concept (ETC) program, is one way to do this, which employs new public partnerships to service treatments that increase capacity and reliability, yet are relatively low-cost to construct, context-sensitive, and able to be deployed quickly throughout the region where needed.

ETC can be implemented through the coordinated investment of multiple partners and has the potential to provide major improvement over existing service or even our region's best frequent service, but less capital-intensive and more quickly implemented than large scale high capacity transit. Investments would serve our many growing mixed-use centers, corridors, and employment areas that demand a higher level of transit service but are not seen as short-term candidates for light-rail, or bus rapid transit.

ETC partnerships could also create more reliable, higher quality transit connections to connect low-income and transit-dependent riders to jobs, school and services. It would allow for a more



fine-grained network of higher-quality transit service to complement our high capacity transit investments, relieve transit congestion and grow ridership throughout the region. Preferential treatments, such as transit signal priority, covered bus shelters, special lighting, enhanced sidewalks, and protected crosswalks are also all fundamental to making the ETC network function at its highest level. Improving the speed and reliability of our frequent service network could be implemented at the regional scale, along corridors or at “hot spot” locations. **Table 2** describes the different types of treatments that have the potential to improve reliability.

**Table 2. Enhanced Transit treatments**

Regional	Hotspot
Bus on shoulder	Dedicated bus lane
Transit signal priority and signal improvements	Business access and transit (BAT) lane
Headway management	Intersection queue jump/right turn except bus lane
Corridor	Transit-only aperture
Level boarding	Pro-time (peak period only) transit lane
All door boarding	Multi-modal interactions
Bus stop consolidation	Curb extension at stops/stations
Rolling stock modification	Far-side bus stop placement
Transit signal priority and signal improvements	Street design traffic flow modifications

#### **4.3.5 Policy 5 - Evaluate and support expanded commuter rail and intercity transit service to neighboring communities and other destinations outside the region.**

Intercity passenger rail and bus service to communities outside of the region provides an important connection to the regional transit network. A high level assessment of potential demand for commuter rail outside of the Portland urban growth boundary was conducted as part of the 2009 High Capacity Transit System Plan.

The demand estimates of ridership potential are highly conceptual and were developed only to determine the order of the magnitude of differences between corridors, not as actual predictions of ridership. The estimates are not based on detailed alignment, station location or service concepts. Rather, they estimate the potential to attract riders based on comparable commuter rail services in operation in the United States and the overall demand for work travel between the major corridor markets.

Key findings from this analysis are summarized below:

- **Potential Intercity Corridor.** A potential future **commuter rail line to Newberg** may be feasible in the long term. Even though the riders per mile analysis looks favorable due to the relatively short distance of the line, the overall population in the rail shed is very low compared to other corridors, and overall ridership is relatively low. Metro, regional partners and corridor communities should consider right of way preservation planning for this corridor and consider land use planning activities that focus on transit supportive development around potential future commuter rail station areas.

- Promising Intercity Corridor. Salem/Keizer** is the most promising of the corridors evaluated. In addition to the highest market potential, this corridor has a number of favorable aspects: there is existing Amtrak passenger rail service in the corridor, this is a lightly used freight corridor that was evaluated in the 2001 Oregon Rail study as a potential commuter rail corridor, and an alignment could easily tie into the WES commuter rail service now operating to Wilsonville. If the region or state chose to focus on the development of inter-regional rail service, this alignment should take priority. After coming to a similar conclusion about this corridor, the Oregon State Legislature passed House Bill 2408, which directs ODOT to study the possible extension of commuter rail service from Wilsonville to Salem, which is currently serviced by SMART today.

In addition, the Pacific Northwest Corridor is one of ten corridors identified for potential high-speed rail investments to better connect communities across America. Shown in **Figure 26**, this corridor provides an important intercity rail connection between Eugene, Oregon and Vancouver, British Columbia. More work is needed to determine what partnerships, infrastructure investments and finance strategies are needed to support this level of service.

More recently, the Oregon Department of Transportation (ODOT) completed its analysis for improved passenger rail service between Eugene-Springfield and Portland – a 125 mile segment of the federally-designated Pacific Northwest Rail Corridor. The results of this study are documented in Tier 1 Draft Environmental Impact Statement (DEIS) currently under review by the Federal Railroad Administration. Information in the DEIS includes the general rail alignment, communities where stations would be located and service characteristics, such as the number of daily trips, travel time objectives and recommended technologies. In addition, ODOT is looking at way to improve future commuter rail needs through an update of the Oregon State Rail Plan. More work is needed to determine what partnerships, infrastructure investments and finance strategies are needed to support improved intercity passenger service to communities outside the region.

**Figure 26. U.S. High Speed Intercity Passenger Rail Network**



*Source: U.S. Department of Transportation (April 2016)*

**4.3.6 Policy 6 - Make transit more accessible by improving pedestrian and bicycle access to and bicycle parking at transit stops and stations and using new mobility services to improve connections to high-frequency transit when walking, bicycling or local bus service is not an option.**

**4.3.6.1 Improve pedestrian and bicycle access to and bicycle parking at transit stops and stations**

Providing safe and direct walking and biking routes and crossings that connect to transit stops ensures that transit services are fully accessible to people of all ages and abilities. At some point in their trip, all transit riders are pedestrians. The environment where people walk to and from transit facilities is a significant part of the overall transit experience. An unattractive or unsafe walking environment discourages people from using transit, while a safer and more appealing pedestrian environment may increase ridership. Likewise, high quality local and regional bicycle infrastructure extends the reach of the transit network, allowing more people to access transit from longer distances.

**Figure 27** depicts the Metro region's priorities for providing multi-modal access to the region's transit service. It prioritizes walking and biking to transit and deemphasizes driving to transit. Establishing pedestrian and bicycle connections to bus and train stations and stops

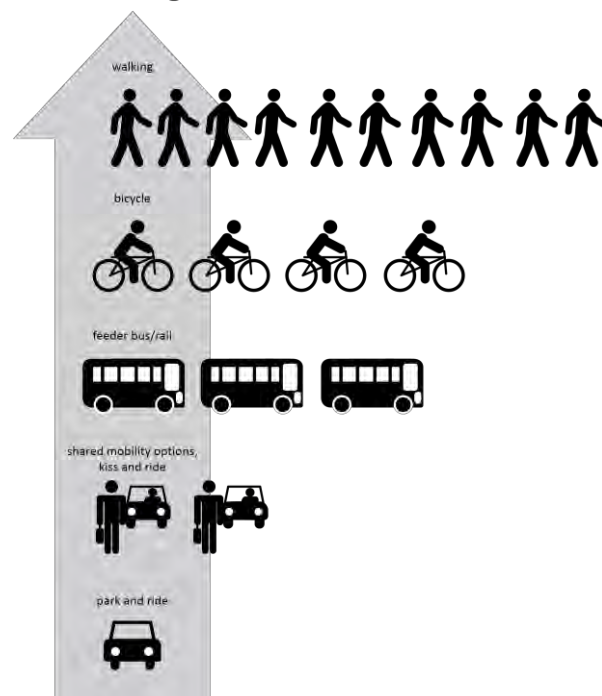
helps extend the reach of the transit network, making trips made by transit feasible and accessible for more people of all ages and abilities, including seniors and people with disabilities. Transit, pedestrian and bicycle travel benefit as improvements are made to each of the modes.

Improving pedestrian and bicycle access to transit is accomplished through:

- filling sidewalk gaps within a mile of stops and stations
- filling bicycle and trail network gaps within three miles of stops and stations
- integrating trail connections with transit
- providing shelters, transit tracker information and seating at stops and stations
- providing bicycle amenities at transit centers such as repair stations and lockers

**Figure 27. Regional Transit Access Priorities**

**Metro Regional Transit Access Priorities**



- providing pedestrian and bicycle protected crossings at stations and stops where appropriate, including secured, covered bicycle parking or Bike and Rides at stations and stops
- allowing bicycles on board transit and exploring the use of apps to let bicycle riders know if a bus or train has bicycle space available
- locating transit stops and stations on bicycle and pedestrian maps, integrating biking, walking and transit on tools such as TriMet's Trip Planner and Transit Tracker
- co-locate bike and car sharing facilities at transit stations to improve active transportation connections and manage parking demand, which helps to create a safer walking and bicycling environment
- Linking modal systems in regional and local transportation plans

#### **4.3.6.2 Explore new ways to improve connections to high frequency transit**

Advances in technology have given rise to new transportation options that make it easier for people to share vehicles and rides and provide a potential first/last miles connection. Many of these options are already widely used in our region:

- In the city of Portland, ride-hailing services, Uber and Lyft, provided an estimated 10 million rides in 2017. We do not know how many of these were first/last mile connections to transit.
- Car sharing services operate over 1,000 vehicles in the region, and though some of these services have been around for a decade, new models have sprung up, including free-floating car sharing companies like ReachNow and Car2Go that allow people to pick up and drop off a car anywhere within a defined service area.
- The City of Portland's bike share system, BIKETOWN, launched in July 2016, and carried over 300,000 trips in its first year. Many of the bikeshare stations are purposefully co-located at transit stations.
- The City of Portland recently launched a four-month pilot for shared electric scooters (also known as dockless scooters or e-scooters) in summer 2018. In the first three weeks of the pilot these scooters carried close to 100,000 trips. Following the pilot, the City will evaluate how e-scooters contribute to its mobility, equity, safety and climate action goals. Metro and its public agency partners will be coordinating with Portland to understand how e-scooters support regional goals, whether they are effective at providing first/last mile connection to transit, and if so, what steps transportation agencies could take to make scooters available for these connections.

Other innovations are not yet available in our region, but may be soon:

- Shared electric bikes allow riders to take easier or longer-distance trips than they could on a conventional bicycle.
- Microtransit, which refers to services that use smart phones to allow riders to book trips, collect data to tailor routes that meet riders' needs and serve these routes with vehicles that

are smaller than conventional buses, can be a viable model for communities that don't have high enough ridership for conventional transit to pencil to be cost effective.

These new options, along with conventional shared modes like transit, carpools, and vanpools, are often referred to collectively as "shared mobility." Combining transit and other shared modes can provide better service for travelers while creating better environments around stations. People who might otherwise need to drive to can instead use a combination of shared mobility and transit. In these situations, shared mobility provides more convenient connections to stations, but taking transit for the bulk of the trip keeps the journey more affordable. If more people use shared modes to get to transit rather than driving, it can free up space that might otherwise be used for parking for public spaces, bicycle and pedestrian facilities or development. In order to deliver on this potential, Metro and our partners need to improve connections between shared mobility and transit. There are several actions we can take:

- Dedicate space for shared mobility at transit stations. Accommodating bike share stations or pods of car share vehicles at transit stops makes it easy for transit riders to use these options. Setting aside space for pickups and dropoffs near stations can make it more convenient for people to access options to transit, as well as improve safety by reducing conflicts between modes. At stations with parking, reserving premium spaces for carpools or shared vehicles can provide an incentive for travelers to share trips instead of driving alone.
- Coordinate with shared mobility companies to provide shared connections to transit stations. Several communities already support vanpools or operate shuttles to and from transit stations. Similarly, public agencies can work partner with microtransit or carsharing, pooled ride-sharing services or dockless bike/scooter sharing companies to provide new connections to transit and promote the use of these services.
- Make it easy to plan and book transit and shared mobility trips. Smartphone apps are now the most common way for people in the Portland region to access information about their transportation options. At a minimum, transit agencies should make schedule and route information available through their own online tools as well as in general transit feed specification format so that it can be incorporated into apps like Google Maps, TransitApp, and moovel. TriMet's Open Trip Planner Shared-use Mobility project will create a platform to integrate data on transit and shared mobility options so that riders can easily plan multimodal trips. The ability to book and pay for multimodal trips on a single platform could make transit-shared mobility connections even more convenient.

There are two important issues to consider when integrating transit and shared mobility data. The first is ensuring that third-party apps use that data in a way that supports transit. No matter how easy-to-use or informative the apps and websites that public agencies develop are, a significant number of people will get data from third-party apps. The companies that develop these apps often monetize transit data by showing advertisements for ride-hailing services that show how much quicker a rider could reach a destination by paying extra for an Uber or Lyft. These advertisements can draw people away from taking transit, and agencies should consider whether they want to place conditions on the use of transit data by third parties.



The second is maintaining access for the many people who can't access apps or make online payments, which can include low-income people, undocumented people, people with disabilities, or people with limited English proficiency—in other words, many of the same travelers who rely on transit. Phone-based concierge services or cash-based payment services at convenient locations, as well as traditional fare media and schedules, can help these people continue to access transit.

Design and manage designated transit streets to prioritize transit and shared travel. Dedicating transit lanes and rights of way and prioritizing buses at signalized intersection are widely used strategies to help transit vehicles move more quickly. As the region explores congestion pricing, we should consider methods of pricing that reduce tolls for higher occupancy vehicles. More ride hailing services pick people up and drop them off means that curb space is increasingly valuable, and the use of global positioning systems on TNC vehicles makes it possible to manage where these vehicles drop people off and pick them up. Agencies can manage the curbside to prioritize ride hailing services carrying more than one passenger and avoid conflicts with transit vehicles.

#### **4.3.7 Policy 7 - Use technologies to provide better, more efficient transit service – focusing on meeting the needs of people for whom conventional transit is not an option.**

Emerging technology is a highly advancing field that can provide opportunities to improve transit service and efficiency. The region should incorporate emerging technologies to achieve our regional goals. One key way to do this is through the application of technology to serve areas that are more difficult to serve by traditional transit service. It is the region's approach to be proactive, supportive of and seek to integrate technological advances in transportation and mobility services that are supportive of and leverages the use of transit.

Our region is home to many people with disabilities who require specialized vehicles and point-to-point service, as well as people who depend on transit but live in communities where fixed-route service doesn't make sense. These people often rely on demand-response transit or infrequent buses that provide slow service and are costly to operate. New shared mobility models like microtransit could provide better service at lower cost in these situations. As these options continue to mature, agencies should look for opportunities to supplement demand response and underperforming service with shared mobility. This could not only

#### *Incorporate Emerging Technologies*



Transit is a critical option for those in need, the most efficient way to move people along crowded streets, and the backbone of many communities. It is difficult to imagine positive future for the region without it. In order to make sure that transit thrives, we need to enhance service on high-ridership lines while experimenting with new ways to provide transit (like microtransit or using new mobility services to connect to stations) in communities that are challenging to serve with large buses traveling fixed routes.

provides better service for underserved and transit-dependent residents, but also increase resources available to serve high-demand corridors.

Over the longer term, autonomous vehicle (AV) technologies have the potential to make transit work more efficiently everywhere, and transit agencies should look for opportunities to test these technologies and understand their potential benefits as they become available.

#### **4.3.8 Policy 8 - Ensure that transit is affordable, especially for people who depend on transit.**

The cost of transportation burdens many households in the metropolitan region. Transportation is usually the second largest share of household costs (after housing) and are particularly burdensome for low-income households who often have the longest distances to travel. It is therefore important to ensure that transit is affordable, particularly for the riders that need it the most (i.e. the riders who do not have access to cars). Ensuring that transit is affordable alleviates the cost of owning automobiles; in the Portland Metro Region, an individual saves an average of \$10,477 annually by switching from cars to public transit (APTA, June Transit Savings Report, 2017).

Low-income households, people of color, people with disabilities, children, senior citizens, and people with limited English proficiency are those most affected by transportation costs because they're historically more transit-dependent than others. As our region continues to grow in both population and diversity, embracing this growing diversity means providing service that is equitable. Using equity as a lens to guide decisions ensures that the transit system benefits those who rely on it the most.

SMART routes within the City of Wilsonville are free, while other routes running to Canby, Tualatin, Barbur Transit Center, and Salem charge a fee. SMART also offers a reduced half price pass for seniors (60 years and older), persons with disabilities, Medicare card holders and youth riders (5-17 years old or students to 23 years old with valid student ID).

#### *SMART fareless program*



South Metro Area Regional Transit (SMART) is on a mission to make public transportation accessible, affordable, inclusive, and convenient for its residents, employees, and visitors of Wilsonville. SMART achieves this by providing high quality service to all at no cost to the user on all six in-town routes. By providing a fareless system, SMART allows for customers to enjoy the City they work, play, and live in, rather than hassling with what resources they might need in order to get to their destination. With the support of City Council and local businesses, SMART is proud to offer one of the most inclusive transit systems in the country; a sustainable high quality service at no charge to the customer.

## **Expanded payment options**

TriMet also rolled out the Hop Fastpass, a state-of-the-art electronic fare system for TriMet, C-TRAN, and Portland Streetcar. Riders will be able to choose from a variety of payment options, including a transit-only smart card, contactless bank card, and smartphones with contactless technology built in. One benefit of the Hop Fastpass for low-income riders is a daily and monthly cap on fares paid. Riders who use the system for two full-fare trips will be able to ride the rest of the day for free. Similarly, after using the Hop Fastpass for the equivalent cost of a monthly pass, riders will be able to use the transit system for free for the rest of the month. The Hop Fastpass therefore allows riders to buy daily and monthly passes one installment at a time, making discounts available to those who can't afford the cost of a daily or monthly pass up front.

## **Reduced fare program**

TriMet has already implemented several programs in order to make transit affordable. Reduced fares are available to youths ages 7-17 and students in high school or pursuing a GED, and children 6 and under ride for free with a paying passenger. High school students in the Portland Public School District can ride for free during the school year as well by showing their student ID. Honored citizens, which include those over 65, those on Medicare, or those with disabilities are also eligible for reduced fares. Access Transit fare programs help low-income riders, including low-income seniors and riders with disabilities. These programs provide fares to non-profit and community-based organizations at lower to no cost, which are then distributed to clients.

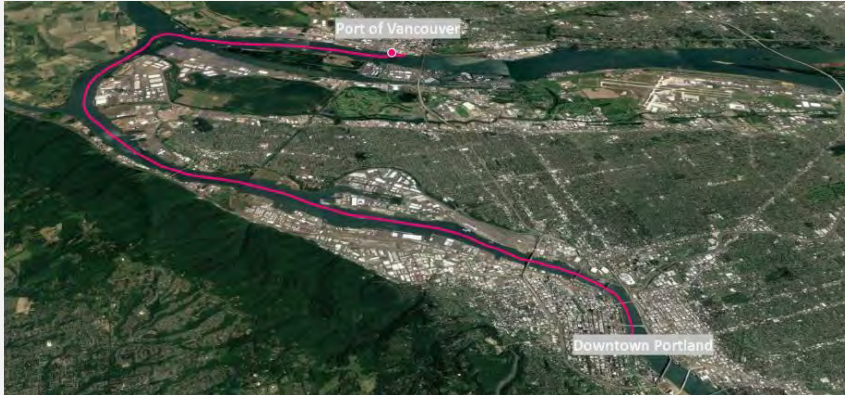
Over the last few years, TriMet has been working toward a reduced fare program for people with limited incomes. A task force of advocates, community members and elected officials recommended a low income fare program where adults at or below 200 percent of the federal poverty level would be eligible for half-priced fare. Implementation of this program means that adults making up to \$24,120 a year could take a ride for \$1.75, and buy a day pass for \$2.50 (the same price as Honored Citizen and Youth fares). Participants would use a reduced fare Hop card similar to an Honored Citizen or Youth card. House Bill 2017 provided the funding to implement the TriMet Low-Income Fare Program.

## **Partnerships and advocacy**

To ensure that transit remains affordable, the region should build partnerships with non-profit and human service providers to support the dissemination of information about these fare programs and to work through ways in which these programs can be more effective. This should also include advocating in the state legislature and to the voters to increase, deepen, and sustain long-term funding for programs which support keeping transit affordable for riders.

### Private efforts to study the potential for passenger ferry service

A non-profit group, Friends of Frog Ferry, is pursuing the study of a passenger river taxi service connecting Vancouver, WA with central Portland. Friends of Frog Ferry has compiled an initial business plan and is working to partner with local jurisdictions to evaluate ridership and land development opportunities. Their proposal envisions a project that provides another transportation option and activates the Willamette River.



Source: Friends of Frog Ferry

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## CHAPTER 5 STRATEGIES AND ACTIONS

### 5.1 Strategies

This section describes the current transit strategies that relate to how we are implement transit service, guiding our capital investments and supporting our transit system.

#### 5.1.2 Climate Smart Strategy

In 2014 Metro released its Climate Smart Strategy, a state mandated strategy to implement changes that reduced per capita greenhouse gas emissions from cars and small trucks by 2035. Metro engaged communities, business, public health and elected leaders to shape a strategy that supports local plans for downtowns, main streets and employment areas; protect farms, forestland, and natural areas; creates healthy and equitable communities; increases travel options; and grow the economy while reducing greenhouse gas emissions.

Since its adoption in December of 2014 Metro and the region as a whole have already taken action to meet the goals of the strategy. Some of the places we have already begun working include:

- working with ODOT on updating the Oregon Public Transportation Plan
- increasing state funding for transit service (House Bill 2017)
- making funding for access to transit a priority through RTP
- working with elected officials, community, and business leaders at local, regional and state levels to make transit more accessible
- researching and developing best practices that support equitable growth and development near transit without displacement
- developing a Regional Transit System Plan
- supporting reduced fares and service improvement for low-income families, youth, older adults, and people with disabilities
- partnering with transit providers and school districts to seek resources to support youth pass programs
- expanding of transit payment options (Hop Fastpass)

As the list above highlights our region is making real strides towards using transit as a tool to reach our climate smart objectives. Our region's ability to successfully implement these strategies and actively improve the areas we are lacking demonstrates leadership and real dedication to the reduction of greenhouse gas emission in our region.

#### 5.1.2 Focusing on racial equity

In June 2016, Metro adopted the Strategic Plan to Advance Racial Equity, Diversity, and Inclusion (Strategic Plan). The Strategic Plan's purpose is to provide clarity as to how Metro looks to achieves equity, one of the six desired outcomes for the region. The Strategic Plan to Advance

Racial Equity, Diversity, and Inclusion emerged as a need to provide greater direction to Metro's different lines of business and better integrating and approaching social equity in planning, operations, and services.

The key aspect of the Strategic Plan is its focus and emphasis on deliberately tackling inequities based on race and ethnicity. The Strategic Plan identifies specific objectives and implementation actions associated to each goal some of which are internally focused on Metro practices and some of which are externally focused to how Metro considers and serves the needs of communities of color. The Strategic Plan also builds on the extensive equity work that Metro departments and venues have been conducting for a number of years. In developing the 2018 RTP, the region looks to opportunities to align the goals areas of the Strategic Plan with the policies, strategies, and actions of the region's long-range transportation blueprint.

In previously adopted Regional Transportation Plans, the focus on equity has looked at whether future transportation investments will serve a broad spectrum of historically marginalized communities. Moving forward, the Strategic Plan provides unified strategic direction to have an additional focus on race for the crucial equity work currently underway at Metro, including the development of the region's long-range transportation blueprint. The RTP equity analyzes all projects with an equity lens and an overlap of transit investments and communities of color.

### **5.1.3 Collaboration between transit providers in transit planning and service operations**

Transit riders are not particularly concerned with who the transit provider is, they just want to get to the places they are traveling to. Therefore, in order to improve transit services for the entire region, we need to increase the degree of collaboration between transit service providers. As mentioned in Chapter 2, there are transit options within our regional and transit options that operate outside our region but provide for critical connections. Collaboration between transit providers and services are critical to improving the experiences of transit riders who transfer from one to the other and to plan for improvements that will benefit both agencies in the future.

With improvement, expansion, and capital investments in transit service, transit providers should be coordinating to ensure that seamless connections between transit providers is maintained and or improved. Transit providers should explore ways to improve the connections between transit providers (e.g. payment options, marketing or information sharing) that improve the transit rider's experience.

### **5.1.4 Enhanced transit concept**

A consistent theme of our public and partner outreach is that transit needs to be more reliable if want people to ride it. Light rail and commuter rail operate in exclusive guideway, so reliability is not necessarily a big issue. But as our region grows and congestion worsens, the reliability of our bus system which operates in mixed traffic is going to become more and more important.

Through a Transportation Growth Management (TGM) grant, from the Oregon Department of Transportation (ODOT), TriMet and the City of Portland developed an Enhanced Transit Corridors Plan and a toolbox of potential improvements that could apply to congested transit corridors that

could increase capacity and reliability with moderate capital and operational investments and could be deployed quickly. The City of Portland and TriMet developed this approach specifically for transit service within the City of Portland. As this was being developed, Metro, TriMet and local jurisdictions sought to adapt this approach to the rest of the region to develop enhanced transit corridors that can move forward towards implementation and construction.

Through the RTS, the region developed a policy framework (see Chapter 3: Vision and Policies) and criteria to identify enhanced transit candidate corridors, as well as identify opportunities for service improvements, capital investments and policy commitments to enhance transit service in the corridors that need it most. The Regional ETC Pilot Work Plan goals are to:

- increase transit ridership to level sufficient to meet regional and local mode split goals by improving transit reliability, speed, and capacity through hotspot bottleneck locations in congested corridors and throughout the region through moderate capital and operational investments from both local jurisdictions and transit agencies
- identify, design and build a set of Enhanced Transit projects, either as hotspot bottlenecks or across whole congested corridors or, in partnership with local jurisdictions and facility owners where improvements are most needed and can be deployed quickly to produce immediate results
- develop a pipeline of Enhanced Transit projects so they are ready to advance for to construction as funding is identified

### **5.1.5 Role of technology**

Metro's Emerging Technology Strategy, included as part of the 2018 update to the Regional Transportation Plan, lays out a plan to harness innovations like automated vehicles and shared mobility to create a more equitable and livable Portland region. These technologies have the potential to transform how we travel, but much uncertainty remains about when they will reach maturity and how they will affect communities. The Emerging Technology Strategy forecasts when and how technology will likely impact our region and identifies policies and actions for Metro and our partners to guide the region toward positive outcomes.

Emerging technologies have the potential to support transit, but also present new challenges. Shared mobility services like car share and bike share to provide new opportunities to connect people who aren't within walking or bicycling distance of transit to stops and stations, but there is growing evidence that some of these services draw riders away from transit and make it harder for buses to operate efficiently by producing conflicts and congestion. Advances in automated vehicles and dynamic routing could help make transit more efficient and bring service to areas that are hard to serve with fixed routes, but automated passenger vehicles could make driving much more convenient, dramatically reducing transit ridership. The Emerging Technology Strategy includes policies and actions to ensure that technology supports transit, and these policies and actions are incorporated into the Regional Transit Strategy.

### 5.1.6 Growing transit communities

The Growing Transit Communities Plan (a TGM funded project by the state) is an effort led by the City of Portland's Bureau of Transportation to identify and prioritize the most beneficial improvements that would make getting to the bus and using the bus a safer and more convenient option, with a particular plan focus along sections of bus lines 87, 77, and 20. The purpose of the Growing Transit Communities Plan is to identify a methodology for determine a package of transportation investments on a corridor level that would best create transit-oriented neighborhoods, places where transit (along with walking and bicycling for short trips) is truly the mode of choice for getting to and from work, school, shops, or other destinations.

Frequent transit service is one essential component of a transit-oriented community, but other components include safe access to transit, bus stop quality, sidewalk and bikeway network connections, crossings of busy streets, and the overall built environment. Deficiencies in these other factors often lead to lower ridership, and make frequent service less viable to implement. Conversely, as these transit-supportive elements are put into place at a corridor and neighborhood level, transit demand is likely to increase, making increasing transit frequency more cost-effective, creating a virtuous cycle of Growing Transit Communities.

While this was developed by the City of Portland, the methodology to develop the concept can be applied to the rest of the region. As population increases throughout the region, increasing transit service frequency and targeted investments in access to transit are ways to increase transit ridership, meet our regional transit mode share targets and support the region's overall desired outcomes. As communities are thinking about additional service or expanding to frequent service, local jurisdictions should work with the transit provider to identify local actions that could be taken to improve ridership and justify additional service in corridors.

### 5.1.7 First and last mile connections

Another key transit-supportive element is ensuring safe, convenient and attractive access to the transit system for those who connect by walking, rolling and riding a bike. Given diverse facility ownership, it is imperative for transit operators in the region work closely with local and state partners to focus on strategic investments in improving access to transit on the roadway, cycling, pedestrian and other rights of way they own and operate but that are served by transit.

***Pedestrian access to transit:*** Working with cities and counties across the region, as well as ODOT, TriMet's Pedestrian Network Analysis Project developed a data-driven system to prioritize places around the region where sidewalk and crosswalk investments will provide a safer and more comfortable walking experience and better access to transit.

This effort guides current and future investments in access, both from TriMet and from our partners in the region, and includes recent competitive grant awards for access improvements on corridors such as SW Barbur Blvd., SE Powell Blvd. and Tualatin Valley Hwy/Oregon Hwy 8.

***Bicycle access to transit:*** With support from the state's Transportation Growth Management grant program, TriMet recently developed its first-ever Bike Plan to help improve bike access to transit,

and help guide investments in biking infrastructure and amenities by TriMet and its local and state jurisdictional partners. This includes improving bicycle facilities in the vicinity of transit service, expanding bike parking options at stations and stops and accommodating bikes on buses, MAX and WES trains. After a period of public outreach and working with stakeholders, the final plan was adopted by the TriMet Board of Directors in July 2016.

Improvements in bike parking facilities throughout the system are made as needed, and as funding allows, each year. These improvements may include new or additional basic bike racks, covered bike parking, bike locker upgrades, or secure and enclosed Bike & Ride facilities.

Transit operators also regularly seek grant awards for key bike parking improvements at strategic access points in the system. One recent highlight of a grant award is the current Westside Bike & Rides: Access to Employment project, largely funded through a ConnectOregon V grant from the State of Oregon, with local match money from Washington County and TriMet. TriMet is using this funding to make enhanced bike parking improvements at the Goose Hollow/SW Jefferson St and Beaverton Creek MAX stations. This will allow cyclists to park their bikes at secure locations before traveling through the Westside tunnel, which is one of the most congested parts of the MAX system for bike access.

### **5.1.8 Seniors and people with disabilities**

Decisions we make today on how best to invest in transportation options for seniors and persons with disabilities will affect the future quality of life for thousands of tri-county residents. By 2040, there is expected to be approximately 230,000 more people 65 years and older in the tri-county area, growing from a 13.2 percent share of the population today to a 20.0 percent share in 2040. According to the 2010 US Census, over 10 percent of the region's population reported that they had a disability. Seniors will represent the fastest growing segment of population in years to come, far outpacing the rate of population growth. As the Portland metro region is projected to become proportionally older, many seniors are likely to become disabled due to physical frailty caused by the effects of aging. Existing resources are inadequate to meet the growing demand for services for these populations.

Transportation is a key determinant of health. The World Health Organization has developed a "Checklist of Essential Features of Age-friendly Cities" (2007) as a tool for a city's assessment and map for charting progress. All of the data indicates that 80-90 percent of individuals want to stay in their home as long as possible. One of the key elements of a Livable Community is adequate transportation to access medical care and other essential services. The concept of Age-friendly Communities or Livable Communities is being actively promoted by AARP, The National Council on Aging and the National Association of Area Agencies on Aging. The Institute on Aging at PSU is a leading expert in Age-friendly Communities.

These changing demographics challenge the conventional solutions of more buses, light rail service, and paratransit vans. While such traditional modes of transportation will surely be needed, there is a limit to how much the region can afford. Improved coordination among existing services, innovative collaboration to deliver new types of services and a regional commitment to



placing public facilities and social services at locations served by public transit will also be needed.

## 5.2 Regional Transit Strategy actions

The Regional Transit Strategy Vision is to make transit more frequent, convenient, accessible and affordable for everyone. The following table describes the actions we can take to move our transit system towards our vision.

- **Frequent:** Align frequency and type of transit service to meet existing and projected demand in support of adopted local and regional land use and transportation plans.
- **Convenient:** Make transit more convenient and competitive with driving by improving transit speed and reliability through priority treatments (e.g., signal priority, bus lanes, queue jumps, etc.) and other strategies. Improve customer experience by ensuring seamless connections between various transit providers, including transfers, route and schedule information and payment options.
- **Accessible:** Provide safe and direct biking and walking routes and crossings that connect to transit stops to ensure transit services are fully accessible to people of all ages and abilities. Expand community and regional transit service across the region to improve access to jobs and Community places.
- **Affordable:** Ensure transit remains affordable, especially for those dependent upon it the most.

**Table 3. Regional Transit Strategy Actions**

FREQUENT	CONVENIENT	ACCESSIBLE	AFFORDABLE
<ul style="list-style-type: none"> <li>• implement TriMet's Future of Transit Service Enhancement Plans</li> <li>• implement the SMART Master Plan</li> <li>• implement the Portland Streetcar Strategic Plan and expansion</li> <li>• implement and coordinate with C-TRAN's Transit Development Plan</li> <li>• implement and coordinate with state, regional, neighboring cities and rural transit provider's future service plans</li> <li>• implement the Regional Enhanced Transit Concept Pilot Program</li> <li>• invest in Enhanced Transit Concept improvements</li> <li>• invest in High Capacity Transit corridors</li> <li>• implement TriMet's Coordinated Transportation Plan for Seniors and Persons with Disabilities, in conjunction with Special Transportation Fund Advisory Committee (STFAC) and service providers</li> <li>• coordinate transit investments with local and regional land use</li> </ul>	<ul style="list-style-type: none"> <li>• implement TriMet's Future of Transit Service Enhancement Plans</li> <li>• implement the SMART Master Plan</li> <li>• implement the Portland Streetcar Strategic Plan and expansion</li> <li>• implement and coordinate with C-TRAN's Transit Development Plan</li> <li>• implement and coordinate with state, regional, neighboring cities and rural transit provider's future service plans</li> <li>• invest in Enhanced Transit Concept improvements</li> <li>• invest in High Capacity Transit corridors</li> <li>• invest in repair and maintenance and critical transit bottleneck improvements to ensure the existing system functions effectively and efficiently</li> <li>• facilitate service connections between transit modes and transit providers at transit centers and hubs</li> <li>• implement and coordinate the HOP Fastpass program across multiple service providers.</li> </ul>	<ul style="list-style-type: none"> <li>• coordinate transit investments with improvements to pedestrian and bicycling infrastructure that provide access to transit as service improvements are prioritized, in line with Regional Active Transportation Plan and TriMet's Coordinated Transportation Plan for Seniors and Persons with Disabilities</li> <li>• provide new community and regional transit connections to improve access to jobs and community services and make it easier to complete some trips without multiple transfers</li> <li>• enhance transit access to jobs and other daily needs, especially for historically marginalized communities<sup>2</sup>, youth, older adults and persons living with disabilities</li> <li>• provide biking, walking, shared ride and park-and-ride facilities that help people access the transit system</li> <li>• test and evaluate new mobility services like microtransit, ride-hailing services and car/bike sharing to improve connections</li> </ul>	<ul style="list-style-type: none"> <li>• expand existing reduced fare program to low-income families and individuals in line with Metro/TriMet Low Income Fare Task Force recommendations</li> <li>• integrate transit payment options (e.g., electronic e-fare cards) to increase affordability and convenience</li> <li>• expand student pass program</li> </ul>

<sup>2</sup> Historically marginalized communities areas with high concentrations (compared to regional average) of people of color, people with low-incomes, people with limited English proficiency, older adults and/or young people.

FREQUENT	CONVENIENT	ACCESSIBLE	AFFORDABLE
<p>and transportation visions as service improvements are prioritized</p> <ul style="list-style-type: none"> <li>• test and deploy connected vehicle technologies that help transit operate more efficiently, such as transit signal priority</li> <li>• design transit streets to prioritize curb access for transit vehicles and minimize conflicts with other modes</li> </ul>	<ul style="list-style-type: none"> <li>• implement the TriMet Regional Transit Signal Priority Study recommendations, especially in congested corridors to improve on-time performance and reliability.</li> <li>• provide programs and adopt policies that help increase transit usage and reduce drive alone trips, such as travel options information and support tools (e.g., trip planning services, wayfinding signage, bike racks at transit stops), individualized marketing, commuter programs (e.g., transit pass programs), and actively managing travel in downtowns and other mixed-use areas.</li> <li>• improve the availability of transit route and schedule information and integrate information on first and last-mile transportation options</li> <li>• coordinate efforts between transportation providers to increase information sharing and ease of use (e.g., transfers and payment integration)</li> </ul>	<p>to high-frequency transit when walking, bicycling, or local bus service isn't an option</p> <ul style="list-style-type: none"> <li>• coordinate and link transit-oriented development strategies with transit investments</li> <li>• coordinate transit investments with the regional Equitable Housing Initiative</li> <li>• coordinate and link transit investments with local and regional land use and transportation visions as service improvements are prioritized</li> <li>• explore and pilot test technologies such as automated vehicles and dynamic routing to provide better transit in communities that currently lack frequent service</li> <li>• explore and pilot test the potential of new mobility services to provide more convenient and cost-effective paratransit and human service transportation</li> </ul>	

## CHAPTER 6 TRANSIT INVESTMENTS

The Regional Transit Strategy and the Regional Transportation Plan (RTP) implement the 2040 Growth Concept through an approach that views the transportation system as an integrated and interconnected system that supports planned land uses, shifting the emphasis from simply moving vehicles to moving people and goods, providing access, and helping to create and connect places.

During the update of the RTP, regional investment priorities were identified to address the challenges listed in the section above. These regional transportation investment priorities are described below, and guided the development and refinement of the 2018 RTP investment strategy.

Building off the Regional Transit Vision, a set of investments have been developed by the local, regional and state agencies within our Metropolitan Planning Area (MPA). These investments are identified in the 2018 RTP.

Implementing the 2040 Growth Concept is one of the main roles of the transit strategy, recognizing the importance of prioritizing transportation investments in the 2040 growth areas to support the region's economic vitality and commercial activity. These are the areas where the greatest growth is planned for, and where the most trips will be occurring.

- Portland central city, regional centers and town centers
- Station communities
- Main streets and Corridors
- Industrial and employment areas

Transportation investments also play an important role in placemaking, which helps achieve the 2040 Growth Concept vision for a strong economy, healthy environment and communities that serve all needs. Refer to Chapter 1 of the RTP for more information on the 2040 Growth Concept.

Investing in transit is a key tool for implementing the 2040 Growth Concept visions as well as the adopted Climate Smart Strategy, and achieving a new 2040 target adopted by the Land Conservation and Development Commission in 2017. The RTP and the transit strategy prioritize

### *Regional trends and challenges*

Technological change, housing and transportation affordability and displacement, changing demographics and an aging population, and social inequities and disparities are major societal trends and shifts which impact and are impacted by investments in the regional transportation system.

Policies, projects and programs in the RTP seek to address these regional trends and challenges in ways that help achieve the region's six desired outcomes and make progress on near-term regional priorities for improving safety, advancing equity, implementing the Climate Smart Strategy and managing congestion.




transportation investments that help reduce greenhouse gas emissions from cars and small trucks, while making our transportation system safe, reliable, healthy and affordable.

## 6.1 2018 RTP Transportation Investment Priorities

The 2018 RTP comprises two main parts: the policy sections and the project lists. The policy sections, sets the vision, the project lists, are priority projects from local, regional or state planning efforts that provided opportunities for public input.

To develop the RTP lists of projects and programs, Metro issued a call for projects in Spring 2017 and coordinated with local, regional and state partners to begin updating the region's transportation investment priorities into three separate investment scenarios.

**Figure 28. RTP Investment Scenarios**

- 
- C<sup>10</sup>**  
2018–2027 The **2027 Constrained investment scenario** identifies the highest priority projects and programs that the greater Portland region can reasonably expect to fund in the first 10-years of the plan.
  - C**  
2018–2040 The **2040 Constrained investment scenario** includes all of the projects and programs that fit within a constrained budget of federal, state and local funds the greater Portland region can reasonably expect through 2040 under current funding trends. In order to be eligible for federal or state transportation funding, a project must be included on the 2040 Constrained list.
  - S**  
2028–2040 The **2040 Strategic investment scenario** includes additional strategic priority investments (not constrained to the budget based on current funding trends) that could be built with additional resources. This is referred to as the 2040 Strategic and are not anticipated to be completed unless new, as of yet identified funding becomes available. For analysis purposes, these projects are assumed to be implemented in the 2028 to 2040 time period.

Working with a financially constrained budget and funding targets, Clackamas, Multnomah and Washington counties and cities within each county recommended priority projects for their jurisdictions at county coordinating committees. The Oregon Department of Transportation (ODOT), the Port of Portland, TriMet, SMART and other agencies worked with county coordinating committees and the City of Portland to recommend priority projects. The City of Portland recommended projects after reviewing priorities with its community advisory committees. These projects were provided to Metro to build the draft project lists for technical evaluation and initial public review in winter 2018.







Once the final RTP project lists were developed, Metro conducted a final system performance evaluation and assessment of the project lists. Results from the system performance evaluation are provided in Chapter 7. This section describes the projects and programs from the 2040



constrained list of projects. This is the list that the region can reasonably assume it will fund and complete based on funding assumptions. Projects and programs identified in the 2040 strategic list are not described in this section because funding has not been identified.

**Table 4** shows the breakdown of RTP projects in the constrained lists by investment category, and provides a quick reference for comparing the relative cost of the 2027 Constrained (the 10-year plan) and full 2040 Constrained investment strategies. For comparison and context, information is provided on the costs for the Strategic list of projects. The 2040 Strategic costs include the Constrained RTP project costs plus estimated costs for additional projects that could be implemented with additional resources.

**Table 4. Estimated costs for RTP investment strategies**

RTP Capital Costs	 2018–2027	 2018–2040	 2028–2040
Transit capital	\$3.2 billion	\$5.1 billion	\$6.2 billion
Throughways capital	\$1.1 billion	\$4.3 billion	\$6.1 billion
Roads and bridges capital	\$1.6 billion	\$3.3 billion	\$5.6 billion
Freight access	\$156 million	\$254 million	\$467 million
Active transportation	\$790 million	\$1.8 billion	\$3 billion
Technology – system management	\$71 million	\$189 million	\$308 million
Information – travel options	\$51 million	\$127 million	\$216 million
RTP Operations and Maintenance Costs	 2018–2027	 2018–2040	 2028–2040
Transit operations and maintenance	\$5.7 billion	\$13.7 billion	\$16.7 billion
Roads and throughways operations and maintenance	\$6 billion	\$13.3 billion	\$13 billion
<b>Total estimated costs (2016\$)</b>	<b>\$19 billion</b>	<b>\$42 billion</b>	<b>\$52 billion</b>

Source: 2018 RTP Financially Constrained Project List. Costs are in 2016 dollars and have been rounded.

### Why the constrained project list matters

In order to be eligible for federal or state transportation funding, a project must be included on the “constrained” list and must be part of the planned regional transportation system.

The region’s operations and maintenance commitment is significant and consumes the majority of federal, state, and local revenues identified for the greater Portland region through 2040 – an estimated \$27 billion. The RTP constrained list of capital projects represents another \$15.2 billion in capital investment in the

### Defining terms

#### Constrained budget

The budget of federal, state and local funds the greater Portland region can reasonably expect through 2040 under current funding trends – presumes some increased funding compared to current levels

#### Constrained list

Projects that can built by 2040 within the constrained budget – makes up the federal constrained transportation plan

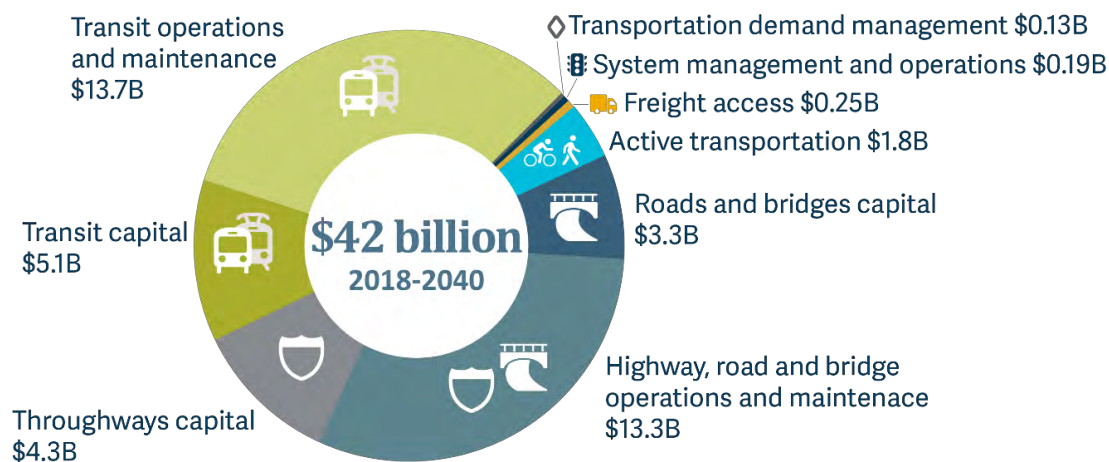
#### Strategic list

Additional priority projects that could be achieved with additional resources

region's transportation system,. A well-maintained, complete and efficient transportation system must meet multiple needs and offer options for people, goods and services to get around.

**Figure 29** shows the total estimated cost of the RTP constrained list of capital projects and estimated operations and maintenance of the transportation system by investment category for the period 2018-2040.

**Figure 29. Total estimated investment by 2040 (2016\$)**



Source: 2018 RTP Constrained Project List

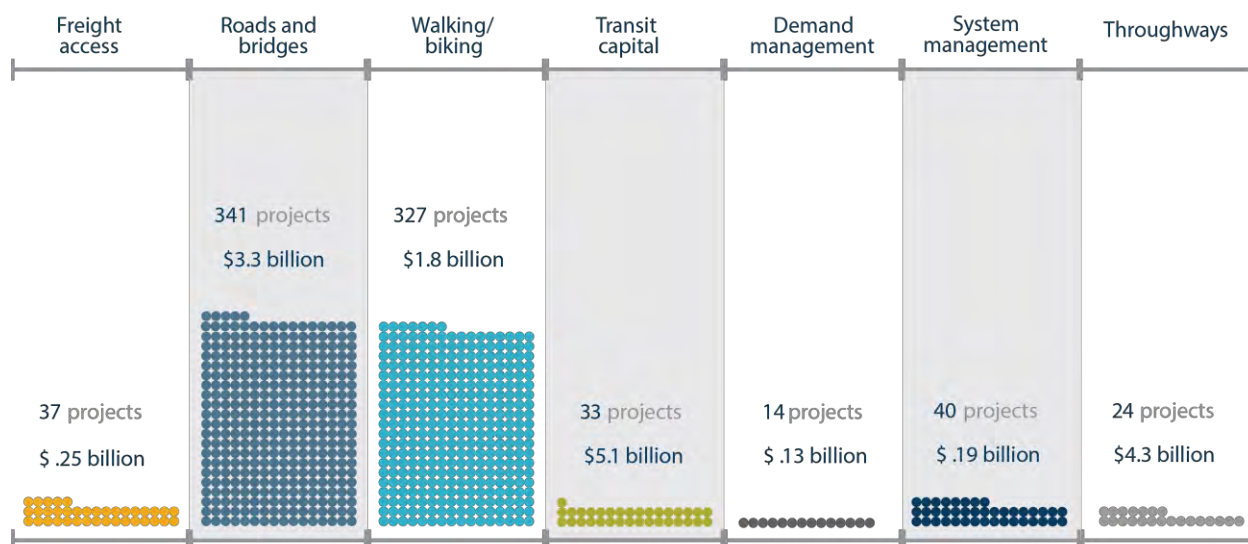
Source: 2018 RTP Financially Constrained Project List. Costs are in 2016 dollars and have been rounded.

The figures that follow show the breakdown of capital projects by cost and number for each investment category, for the region, for the City of Portland and for each of the three counties. A map of the location of all RTP constrained capital projects is also provided for the region, the City of Portland and each county.

## Greater Portland region

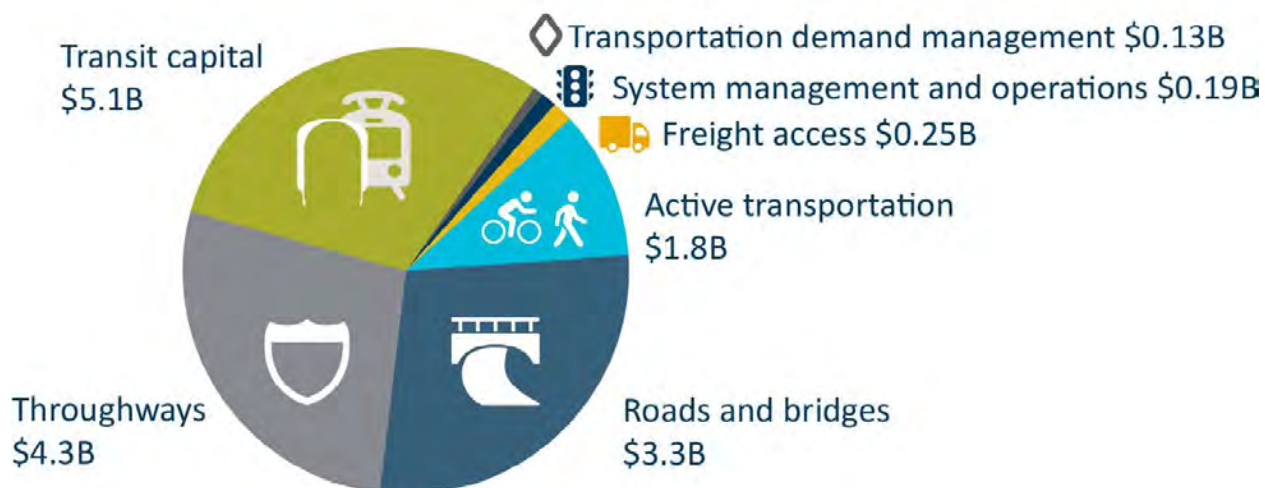
**Figures 30 and 31** show RTP investments broken down by investment category. Roads, bridges, and walking and biking connections comprise the majority of projects in the Constrained RTP project list, though the cost of projects vary greatly.

**Figure 30. Greater Portland region 2040 Constrained RTP: Cost and number of projects by investment category**



Source: 2018 RTP Financially Constrained Project List. Costs are in 2016 dollars and have been rounded. Road and transit operations and maintenance costs are not included the information presented here.

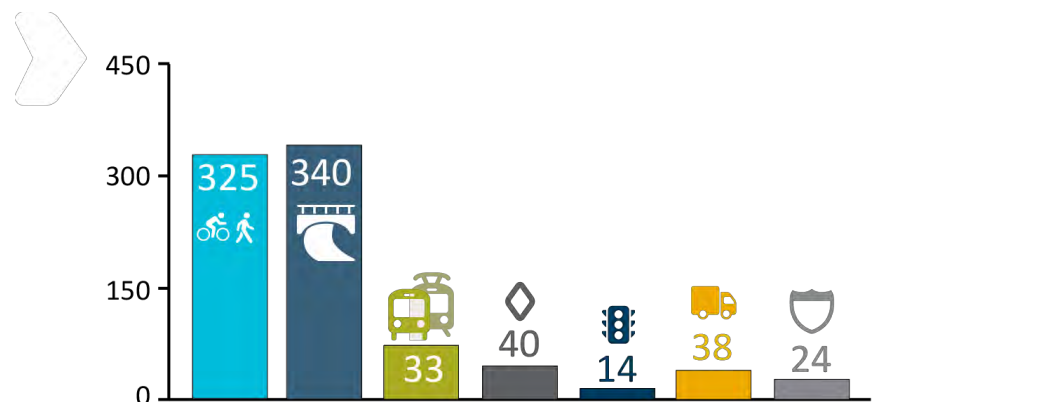
**Figure 31. Greater Portland region 2040 Constrained RTP: Cost of capital projects by investment category**



Source: 2018 RTP Financially Constrained Project List. Costs are in 2016 dollars and have been rounded. Road and transit operations and maintenance costs are not included the information presented here.

Roads, bridges, and walking and biking connections have the most projects in the 2040 Constrained list as shown in **Figure 32**, though the cost of projects vary greatly.

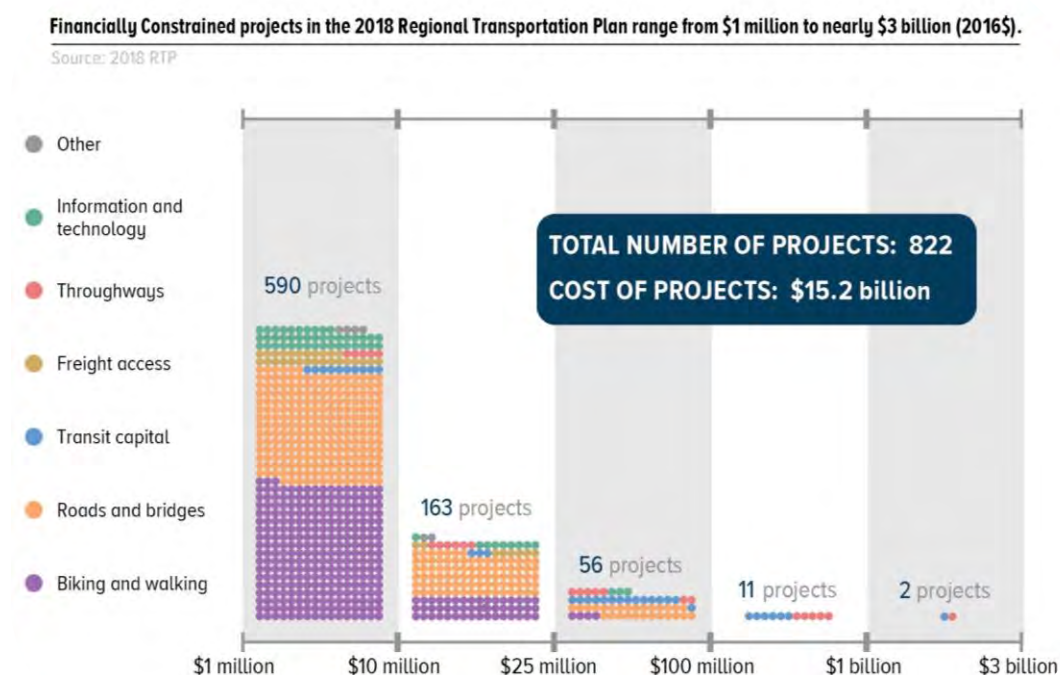
**Figure 32. Greater Portland region 2040 Constrained RTP: Number of capital projects by investment category**



Source: 2018 RTP Financially Constrained Project List. Costs are in 2016 dollars and have been rounded. Road and transit operations and maintenance costs are not included the information presented here.

Projects in the 2018 RTP Constrained list range from \$1 million to nearly \$3 billion as shown in **Figure 33**.

**Figure 33. Greater Portland region 2040 Constrained RTP: Cost range of projects by investment category**



Source: 2018 RTP Financially Constrained Project List. Costs are in 2016 dollars and have been rounded. Road and transit operations and maintenance costs are not included the information presented here.

## ODOT Projects

**Figure 34** shows the cost of RTP investments submitted by ODOT broken down by investment category. Throughway projects comprise the majority of ODOT's capital projects in the Constrained RTP project list. See Section 6.3.14 for more information on region-wide road operations, maintenance and preservation costs.

**Figure 34. ODOT: Cost and number of Constrained RTP capital projects by investment category**



Costs are in 2016 dollars and have been rounded. The information includes capital projects submitted by ODOT. Road and throughway operations and maintenance costs are not included.

## TriMet Projects

**Figure 35** shows the cost of RTP transit capital and transit operating related capital investments submitted by the TriMet broken down by investment category. TriMet transit capital projects comprise the majority of TriMet's capital project costs in the Constrained RTP project list. See Section 6.3.14 for more information on region-wide transit operations and maintenance costs.

**Figure 35. TriMet: Cost and number of Constrained RTP capital projects by investment category**



Costs are in 2016 dollars and have been rounded. The information includes capital projects submitted by TriMet. Transit capital projects submitted by cities and counties and transit operations and maintenance costs are not included.



## SMART Projects

**Figure 36** shows the cost of RTP investments submitted by SMART broken down by investment category. SMART transit service and operations comprise the majority of SMART's projects in the Constrained RTP project list. See Section 6.3.14 for more information on region-wide transit operations and maintenance costs.

**Figure 36. SMART: Cost and number of Constrained RTP capital projects by investment category**

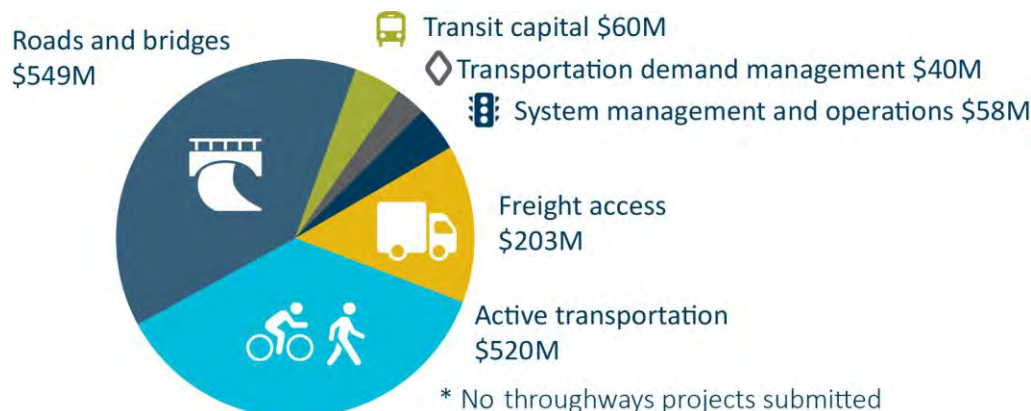


Costs are in 2016 dollars and have been rounded. The information includes capital projects submitted by SMART. Transit operations and maintenance costs are not included.

## City of Portland Projects

**Figures 37 and 38** show the cost and number of RTP investments submitted by the City of Portland and Port of Portland broken down by investment category. Roads, bridges, and walking and biking connections comprise the majority of projects in the Constrained RTP project list.

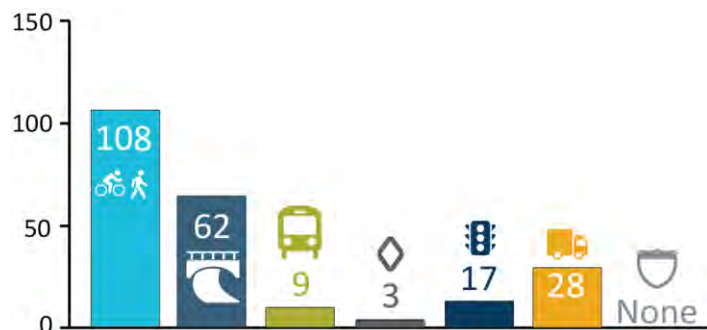
**Figure 37. City of Portland: Cost of Constrained RTP capital projects by investment category**



Source: 2018 RTP Constrained Project List

Costs are in 2016 dollars and have been rounded. The information includes capital projects submitted by the City of Portland and the Port of Portland. Capital projects submitted by ODOT, TriMet and SMART as well as road and transit operations and maintenance costs are not included.

**Figure 38. City of Portland: Number of Constrained RTP capital projects by investment category**



Source: 2018 RTP Constrained Project List

The information includes capital projects submitted by the City of Portland and the Port of Portland. Capital projects submitted by ODOT, TriMet and SMART as well as road and transit operations and maintenance costs are not included.

## Clackamas County Projects

**Figures 39 and 40** show the cost and number of RTP investments submitted by Clackamas County and its cities broken down by investment category. Roads, bridges, and walking and biking connections comprise the majority of projects in the Constrained RTP project list.

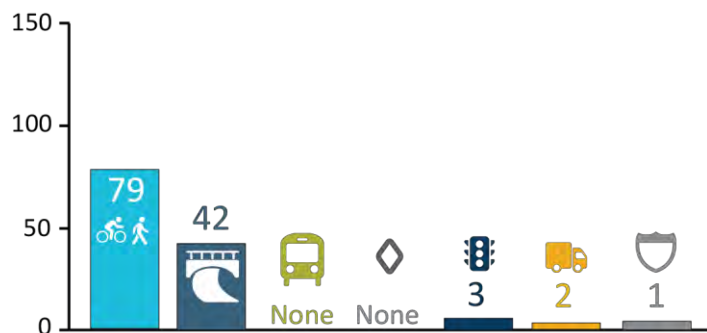
**Figure 39. Clackamas County: Cost of Constrained RTP capital projects by investment category**



Source: 2018 RTP Constrained Project List

Costs are in 2016 dollars and have been rounded. The information includes capital projects submitted by Clackamas County and cities in Clackamas County. Capital projects submitted by ODOT, TriMet and SMART as well as road and transit operations and maintenance costs are not included.

**Figure 40. Clackamas County: Number of Constrained RTP capital projects by investment category**



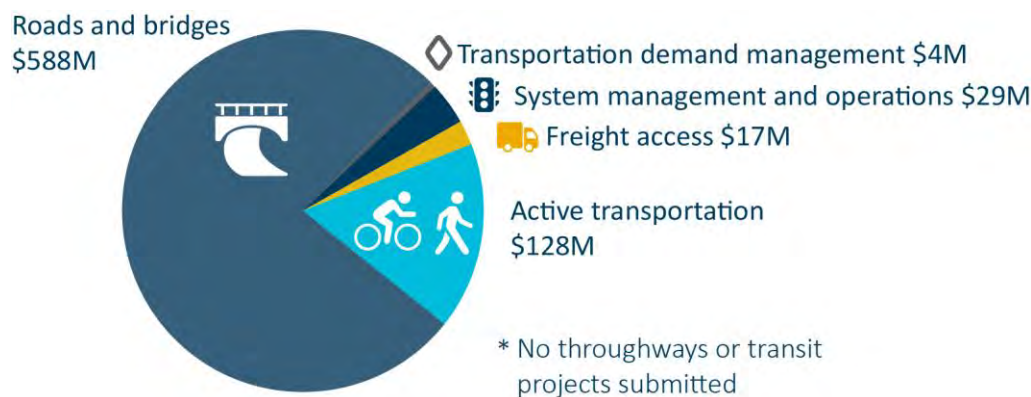
Source: 2018 RTP Constrained Project List

The information includes capital projects submitted by Clackamas County and cities in Clackamas County. Capital projects submitted by ODOT, TriMet and SMART as well as road and transit operations and maintenance costs are not included.

## East Multnomah County Projects

**Figures 41 and 42** show the cost and number of RTP investments submitted by Multnomah County and its cities (except Portland) broken down by investment category. Roads and bridges projects comprise a majority of costs and number of projects due in large part to the County's six Willamette River bridges.

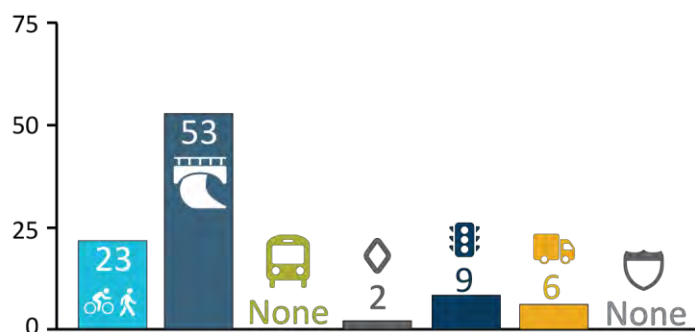
**Figure 41. East Multnomah County: Cost of Constrained RTP capital projects by investment category**



Source: 2018 RTP Constrained Project List

Costs are in 2016 dollars and have been rounded. The information includes capital projects submitted by Multnomah County and cities in Multnomah County (except for the city of Portland). Capital projects submitted by ODOT, TriMet and SMART as well as road and transit operations and maintenance costs are not included.

**Figure 42. East Multnomah County: Number of Constrained RTP capital projects by investment category**



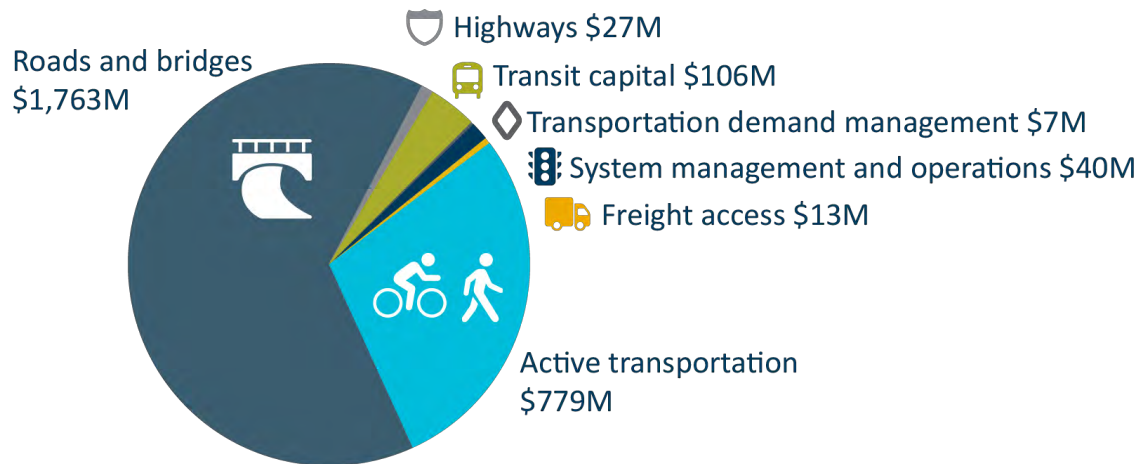
Source: 2018 RTP Constrained Project List

The information includes capital projects submitted by Multnomah County and cities in Multnomah County (except for the city of Portland). Capital projects submitted by ODOT, TriMet and SMART as well as road and transit operations and maintenance costs are not included.

## Washington County Projects

**Figures 43 and 44** show the cost and number of RTP investments submitted by Washington County and its cities broken down by investment category. Roads, bridges, and walking and biking connections comprise the majority of projects in the Constrained RTP project list.

**Figure 43. Washington County: Cost of Constrained RTP capital projects by investment category**



Costs are in 2016 dollars and have been rounded. The information includes capital projects submitted by Washington County and cities in Washington County. Capital projects submitted by ODOT, TriMet and SMART as well as road and transit operations and maintenance costs are not included.

**Figure 44. Washington County: Number of Constrained RTP capital projects by investment category**



Source: 2018 RTP Constrained Project List

The information includes capital projects submitted by Washington County and cities in Washington County. Capital projects submitted by ODOT, TriMet and SMART as well as road and transit operations and maintenance costs are not included.

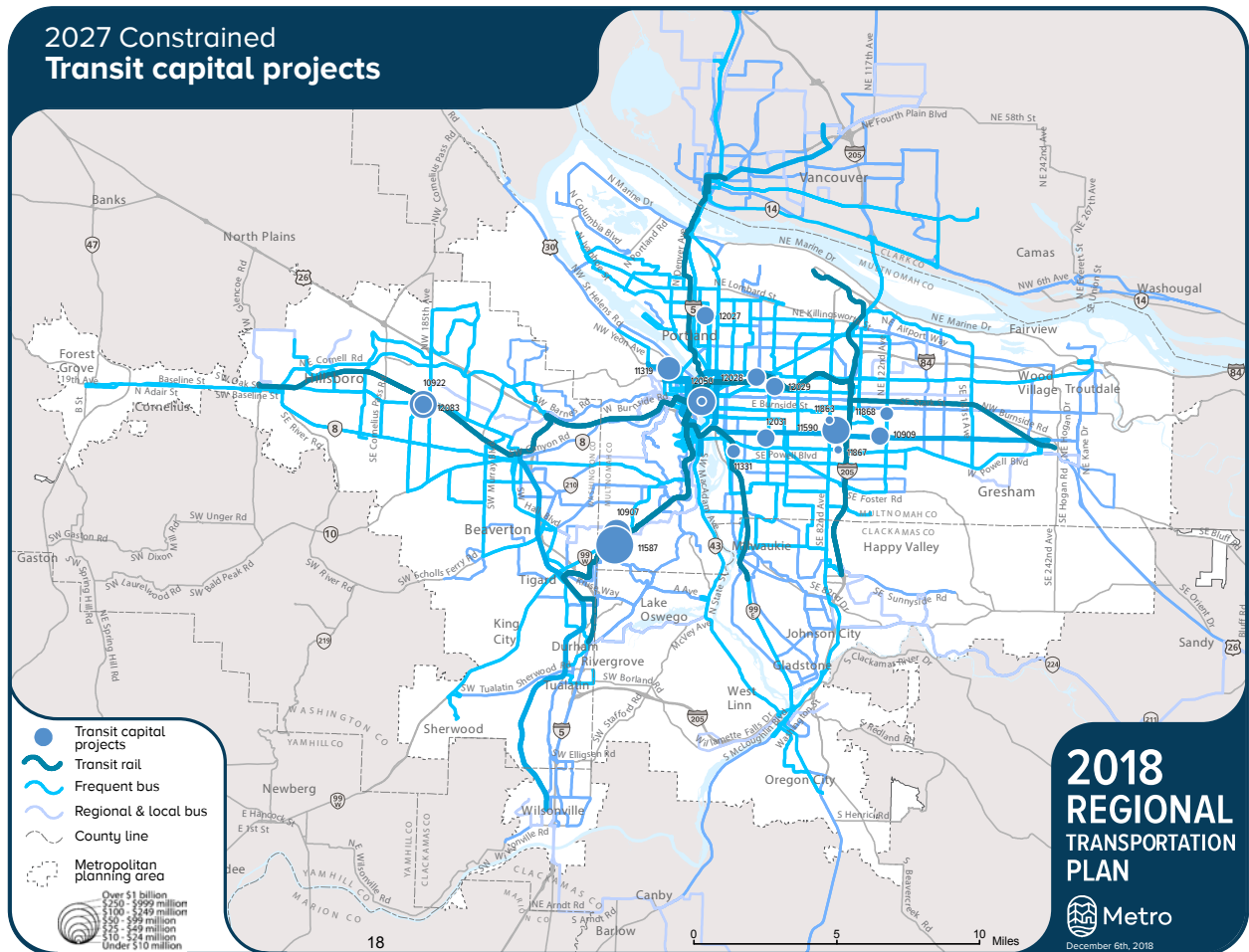
For an interactive map of all the RTP projects visit [www.oregonmetro.gov/rtp](http://www.oregonmetro.gov/rtp).



## 6.2 Regional transit investment priorities

Improving and expanding our transit service network is key to meeting our regional 2040 Growth Concept Land Use and our Climate Smart Strategy goals. The regional transit investment priorities are shown in **Figures 45 to 47**. **Table 5** describes some of the key elements associated with the transit investments identified in the RTP. The 2018 RTP 2018 financially constrained investment strategy exceeds the Climate Smart Strategy estimates.

**Figure 45. 2027 constrained transit investment scenario**



6-14

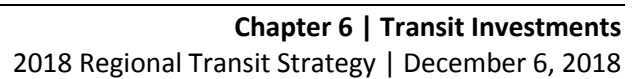
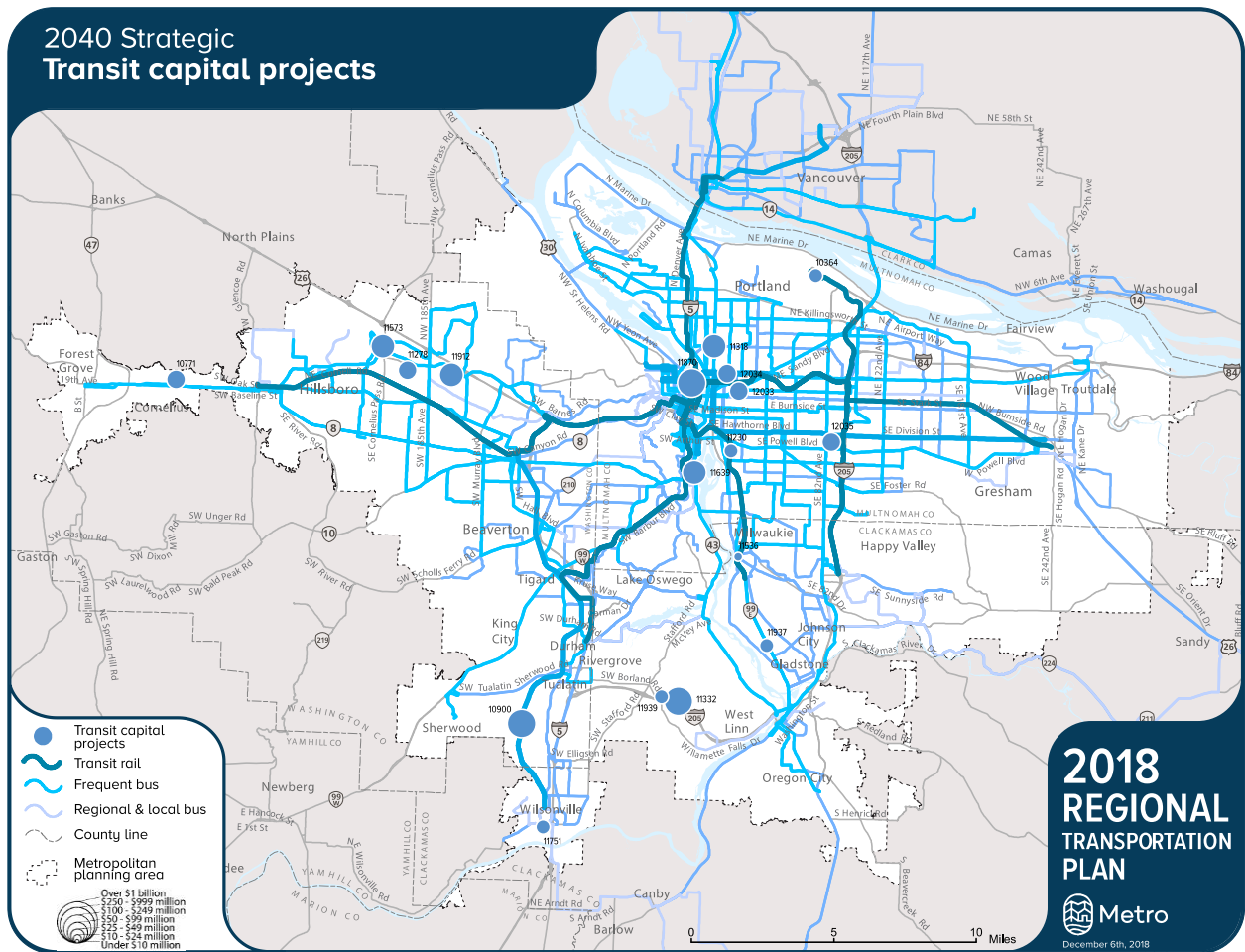





Figure 47. 2040 strategic transit investment scenario



**Table 5. Transit service provided by Investment Category**

Transit capital projects	 2018–2027	 2018–2040	 2028–2040
Number of transit capital projects	18	33	
Number of transit capital projects on a high injury corridor	14	26	
Daily revenue hours (TriMet and SMART)	8,100	9,500	11,700
Service expansion	38% increase from 2015	60% increase from 2015	94% increase from 2015
New high capacity transit connections	4 HCT projects, including Division Transit, Southwest Corridor, Red Line extension and the Central City Capacity Analysis	2 additional HCT projects (from 2027 Financially Constrained): HCT connecting Portland to Vancouver, WA, improvements on the Steel Bridge	6 additional HCT projects (from 2040 Financially Constrained): HCT along Sunset Highway and I-205, HCT extensions to Oregon City and Forest Grove and WES extension to Salem
Other service enhancements	9 enhanced transit projects and 1 streetcar extension to Montgomery Park	10 additional enhanced transit projects and 1 streetcar extension to Hollywood (from 2027 Financially Constrained)	3 additional enhanced transit projects and 3 streetcar extension to Amber Glen, extension Blvd, to Johns Landing (from 2040 Financially Constrained)
Public and private shuttles	More major employers and some community-based organizations work with TriMet to operate shuttles	More major employers and some community-based organizations work with TriMet to operate shuttles	More major employers and some community-based organizations work with TriMet to operate shuttles
Fares	Reduced fares provided to youth, older adults, people with disabilities and low-income families	Reduced fares provided to youth, older adults, people with disabilities and low-income families	Reduced fares provided to youth, older adults, people with disabilities and low-income families
Estimated capital cost (\$2016)	\$3.2 billion	\$5.1 billion	\$6.2 billion
Estimated service operating costs*	\$8.5 billion	\$5.7 billion	\$16.7 billion

\* Operating costs for TriMet service were calculated by annualizing the daily revenue hours proposed for each scenario and applying TriMet's average operating cost per revenue hour, with cost by mode weighted by the proportion of service provided on each mode. SMART and Portland Streetcar operating costs were calculated by applying each agency's FY17 annual operating costs.

The following table describes the high capacity transit and enhanced transit projects identified in the RTP. In the first 10 years of the RTP, the region is following through on the commitments to build the Division Transit Project and the Southwest Corridor Transit Project. The Red Line extension to Hillsboro is another HCT investment proposed for the first 10 year period of the plan. The first 10 years also includes several ETC improvements and two streetcar extensions.

**Table 6. Transit capital improvements by RTP investment strategy**

<b>2027 RTP Financially Constrained</b>	<b>2040 RTP Financially Constrained (2027 Constrained investments, plus)</b>	<b>2040 RTP Strategic (2040 Constrained investments, plus)</b>
<b>High Capacity Transit</b>	<b>High Capacity Transit</b>	<b>High Capacity Transit</b>
<ul style="list-style-type: none"> <li>• Southwest Corridor Project</li> <li>• Division Transit Project</li> <li>• MAX Red Line Improvements Project</li> <li>• Central City Transit Capacity Analysis (combined with Steel Bridge Transit Bottleneck)</li> </ul>	<ul style="list-style-type: none"> <li>• Portland to Vancouver HCT</li> <li>• Steel Bridge Transit Bottleneck (combined with Central City Transit Capacity Analysis)</li> </ul>	<ul style="list-style-type: none"> <li>• HCT extension to Oregon City via McLoughlin Blvd.</li> <li>• HCT on I-205 (Clackamas to Bridgeport)</li> <li>• WES all-day service</li> <li>• WES extension to Salem</li> <li>• Sunset Highway HCT (Sunset transit center to Hillsboro Fairplex)</li> <li>• HCT extension to Forest Grove</li> </ul>
<b>Enhanced transit concept</b>	<b>Enhanced transit concept</b>	<b>Enhanced transit concept</b>
<ul style="list-style-type: none"> <li>• Streetcar upgrades on Grand Avenue in Portland</li> <li>• Central City Portals (downtown Portland bridges)</li> <li>• 82nd Avenue ETC (NE Killingsworth Street to SE Clatsop Street)</li> <li>• Powell Boulevard ETC (SE Portland to I-205)</li> <li>• 122nd Avenue ETC (Lents to Parkrose transit center)</li> <li>• Martin Luther King Jr. Boulevard ETC (Portland Central City to N Vancouver Boulevard)</li> <li>• Sandy Boulevard ETC (Portland Central City to Parkrose TC)</li> <li>• 82nd Avenue ETC (Swan Island to Clackamas town center)</li> <li>• Hawthorne Boulevard/Foster Road ETC (downtown Portland to Lents town center)</li> <li>• Streetcar to Montgomery Park in NW Portland</li> </ul>	<ul style="list-style-type: none"> <li>• Inner North Portland ETC (Portland Central City to N Lombard Street)</li> <li>• Caesar Chavez ETC (Sandy to Powell)</li> <li>• Lombard Street ETC (St. Johns to MLK Jr. Boulevard)</li> <li>• SE Hawthorne/50th Avenue ETC (Willamette River to SE Powell)</li> <li>• Tualatin Valley Highway multimodal project (Maple Street to 160th Avenue)</li> <li>• E. Burnside/SE Stark Street ETC (Portland to Gresham)</li> <li>• Tualatin Valley Highway ETC from Beaverton to Forest Grove</li> <li>• Beaverton-Hillsdale Highway ETC from Portland to Washington Square</li> <li>• Cornell/Barnes ETC (Sunset transit center to Hillsboro TC)</li> <li>• 185th/Farmington Road ETC (PCC Rock Creek to Beaverton transit center)</li> <li>• Streetcar on NE Broadway to Hollywood town center</li> </ul>	<ul style="list-style-type: none"> <li>• SE Powell Boulevard ETC (Portland to extent TBD)</li> <li>• Lombard/Caesar Chavez ETC (St. Johns to Milwaukie town center)</li> <li>• Belmont Street ETC (Portland to Gateway transit center)</li> <li>• Streetcar on Martin Luther King Jr. Boulevard in NE Portland</li> <li>• Streetcar in AmberGlen in Hillsboro</li> <li>• Streetcar to Johns Landing in SW Portland</li> </ul>



As shown in **Table 6**, the region is committed to completing the Division and Southwest Corridor Transit Projects. The project list above, both HCT and enhanced transit, show that the region is looking to make transit investments that help improve speed and reliability on our bus and rail system.

**Table 7** presents the transit operating capital improvements identified. Operating capital improvements are designed to improve the reliability and efficiency of the transit system.

**Table 7. Transit operating capital improvements by RTP investment strategy**

2027 RTP Financially Constrained	2040 RTP Financially Constrained (2027 Constrained investments, plus)	2040 RTP Strategic (2040 Constrained investments, plus)
Operating Capital Improvements	Operating Capital Improvements	Operating Capital Improvements
<ul style="list-style-type: none"> <li>Center Street bus garage expansion</li> <li>North Downtown Transit Mall Terminal</li> <li>Powell Garage expansion</li> <li>SMART bus replacement (including alternative fuel vehicles)</li> <li>SMART Fleet Service Facility Phase II</li> <li>SMART vanpool services</li> <li>TriMet 4th bus base</li> <li>TriMet electrification of bus fleet Phase I</li> <li>TriMet equipment and facilities, Phase I</li> <li>TriMet Low-No Zero Emission Bust Project</li> <li>TriMet fleet vehicle replacements, Phase I</li> <li>TriMet Information Technology, Phase I</li> </ul>	<ul style="list-style-type: none"> <li>TriMet equipment and facilities, Phase II</li> <li>TriMet fleet vehicle replacements, Phase II</li> <li>TriMet Information Technology, Phase II</li> </ul>	<ul style="list-style-type: none"> <li>HCT optimization, operations and reliability improvements</li> <li>Merlo bus garage expansion</li> <li>PDX light rail station/track realignment</li> <li>SMART Central Informational Center at Wilsonville Station</li> <li>SMART property acquisition</li> <li>Transit priority on frequent service routes (Washington County)</li> <li>TriMet electrification of bus fleet Phase II</li> <li>TriMet Park&amp; Ride facilities, Phase II</li> </ul>

As service increases, so does the need to store and maintain the buses we do have plus the additional buses that will be needed for the increase in service. A majority of the investments are identified for the first 10 years of the plan. It's important to be able to make those upfront costs needed to increase transit service as soon as possible. The investments shown in **Table 7** are focused on:

- expanding the bus maintenance facilities and garages to keep up with the increase in service;
- replacing and expanding the bus and rail vehicle fleet to keep with increased service, as well as, pursuing alternative fuel sources like low-no emissions or electrification; and

- advancing information technology investments to improve transit operations.

**Table 8** shows the safety and access improvements identified in the RTP to improve safety and security, access and stop/station locations.

**Table 8. Transit safety and access improvements by RTP investment strategy**

2027 RTP Financially Constrained	2040 RTP Financially Constrained (2027 Constrained investments, plus)	2040 RTP Strategic (2040 Constrained investments, plus)
Safety and access improvements	Safety and access improvements	Safety and access improvements
<ul style="list-style-type: none"> <li>• 60<sup>th</sup> MAX station area improvements</li> <li>• 82<sup>nd</sup> Ave MAX station area improvements</li> <li>• E Burnside safety and access to transit</li> <li>• Halsey/Weidler safety and access to transit</li> <li>• SMART bus stop access improvements</li> <li>• TriMet bike and ride facilities, Phase I TriMet bus stop amenities, Phase I</li> <li>• TriMet pedestrian access improvements, Phase I</li> <li>• TriMet safety and security improvements, Phase I</li> <li>• TV Highway safety and access to transit</li> <li>• TriMet park&amp; ride facilities, Phase I</li> </ul>	<ul style="list-style-type: none"> <li>• Cornelius Park&amp; Ride</li> <li>• Eastside MAX station pedestrian improvements</li> <li>• Sunset TC Station Community pedestrian improvements</li> <li>• Transit stop enhancements (Hillsboro)</li> <li>• TriMet safety and security improvements, Phase II</li> <li>• TriMet transit access and signal priority improvements (Tigard)</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Downtown Milwaukie Transit Center improvements</li> <li>• Gresham Transit Center access &amp; design enhancements</li> <li>• TriMet bike and ride facilities, Phase II</li> <li>• TriMet bus stop amenities, Phase II</li> <li>• TriMet pedestrian access improvements, Phase II</li> <li>• Union Station, Phase III</li> </ul>

*Note: This list represents the projects identified in the RTP as transit operating capital or access to transit, as a primary purpose, and does not represent all the safety, pedestrian and bicycle projects identified in the RTP.*

As shown in **Table 8**, the majority of the bus stop, pedestrian and bicycle access and safety and security projects are prioritized for the first 10 year period of the plan.

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## CHAPTER 7 MONITORING AND MEASURING PROGRESS

The Regional Transit Strategy (RTS), as part of the 2018 Regional Transportation Plan (RTP) update, purposefully lays out a set of policies, projects, and strategies intended to achieve the region's vision for an integrated land use and transportation system. Performance evaluation of the planned transportation system provides valuable information for establishing transportation policy and planning objectives, and for informing transportation investment actions and priorities. The RTS and RTP take a performance-based planning approach to evaluating and informing our transportation investments.

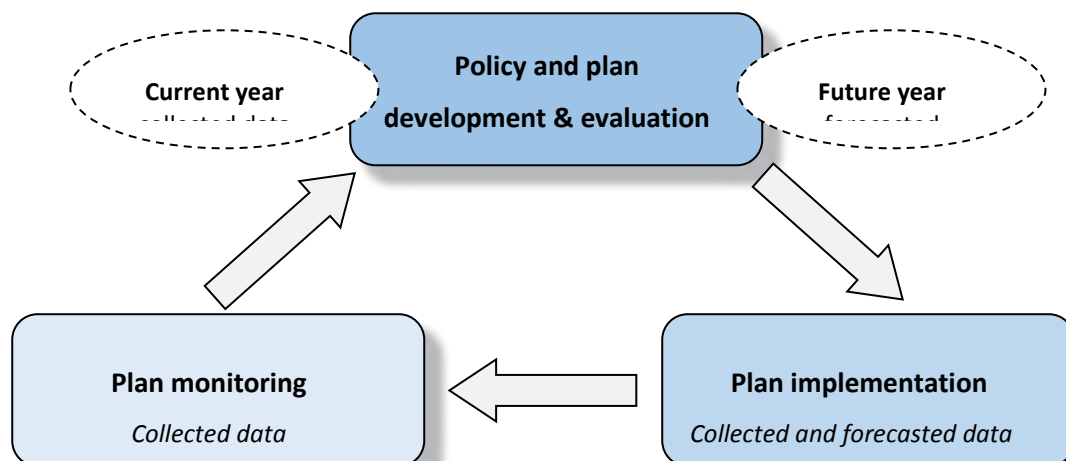
Performance-based planning requires system evaluation of desired outcomes to ensure that incremental land use decisions and transportation project development are consistent with the plan vision. Evaluating the future effectiveness of transportation investments is challenging. How well the transportation system functions results from a combination of multiple factors, including land use, land supply, cost of travel, availability of capacity, availability of transportation options, and demands for travel.

### 7.1 Performance-based planning

System performance measures serve as the dynamic link between the region's goals and plan implementation by formalizing the process of evaluation to ensure the advancement towards achieving of the region's transportation, land use, economic, and environmental goals and targets.

This is a cyclical process of plan development and evaluation, plan implementation and monitoring as the Performance Measurement System that extends beyond the RTP updates, as shown in **Figure 48**.

**Figure 48. RTP and RTS performance measurement system**



Through a system evaluation approach, the region can better understand the extent to which investments in the transportation system will achieve desired outcomes and provide the best return on public investments. The RTP Performance Measurement System also satisfies reporting

requirements for performance measures and benchmarks mandated by the Oregon Transportation Planning Rule (TPR), the Oregon Metropolitan Greenhouse Gas Reduction Targets Rule and federal requirements to assess potential impacts of RTP projects on environmental resources, historical and cultural resources and tribal lands.

The policy and plan development and evaluation element of the performance measurement system applies during periodic plan updates, which occur approximately every five years. During these updates, the region revisits its goals and objectives for the transportation system and develops and refines an investment strategy comprised of infrastructure projects and programs submitted by ODOT, TriMet and the local agencies that together help achieve the plan goals.

### 7.1.1 Transit targets

The policy and plan development and evaluation has two levels: performance targets and system performance evaluation. The performance targets are the highest order evaluation measures in the outcomes-based policy framework. The performance targets set quantifiable goals for achieving the region's desired policy outcomes (not all goals have targets). In

comparison, system evaluation measures evaluates changes between current conditions (in 2015) and the set of transportation investments the region has chosen to pursue (the funding investment scenarios). There is some overlap between the targets and the measures but they serve different functions.

#### *Transit target*

The target for the transit element of the RTP is triple the transit mode share of the region's overall trips.

### 7.1.2 Transit performance measures

Through an evaluation of performance of the transportation system the region can better understand the extent to which investments in the transportation system will achieve desired outcomes and provide the best return on public investments.

**Table 9** lists the RTP performance measures used for plan evaluation, linking them to the RTP goals they support.



**Table 9. RTP system evaluation measures and RTP goals**

RTP System Evaluation Measures		Legend										
		● = measure highly correlated with achieving goal										
		◐ = measure somewhat correlated with achieving goal										
		○ = measure partially supports achieving goal										
		Vibrant Communities	Shared Prosperity	Transportation Choices	Reliability and Efficiency	Safety and Security	Healthy Environment	Healthy People	Climate Leadership	Equitable Transportation	Fiscal Stewardship	Transparency and Accountability
How much do households spend on housing and transportation in our region? <sup>3</sup>												
n/a	Affordability*	●	●	◐	◐	○	○	●	○	●		
How safe is travel in our region?												
n/a	Safety*	●	◐	●	●	●	◐	●	◐	●		
How much do people and goods travel in our region?												
1	Multimodal Travel	●	◐	●	●	◐	●	●	●	●		
2	Mode Share	●	◐	●	●	◐	●	●	●	●		
How easily, comfortably and directly can we access jobs and destinations in our region?												
3	Access to Travel Options – system completeness *	●	◐	●	●	●	●	●	●	●		
4	Access to Jobs*	●	●	●	○	○	○	◐	◐	●		
5	Access to Community Places*	●	◐	●	○	○	●	●	◐	●		
6	Access to Bicycle and Pedestrian Parkways	●	●	●	○	●	●	●	●	●		
7	Access to Transit*	●	●	●	◐	○	●	◐	●	●		
8	Access to Industry and Freight Intermodal Facilities	○	●	○	○	○	○	○	○	○		
How efficient is travel in our region?												
9	Multimodal Travel Times	●	●	●	●	○	○	○	○	○		
10	Congestion	◐	●	○	●	●	◐	◐	◐	○		
11	Transit Efficiency and Ridership	●	○	●	●	○	◐	○	○	○		
How will transportation impact climate change, air quality, the environment and public health?												
12	Climate Change	○	●	●	○	○	●	●	●	○		
13	Clean Air	○	●	●	○	○	●	●	◐	●		
14	Potential Habitat Impact	◐	○	○	○	○	●	●	◐	●		
15	Potential Historical, Cultural and Tribal Lands impact	●	◐	○	○	○	○	◐	○	○		
16	Public health	◐	◐	○	○	○	●	●	●	○		

There are no system evaluation measures for the “Fiscal Stewardship” and “Transparency and Accountability” goals.

\* Performance measures with an asterisk (\*) reflects the transportation priorities identified by historically marginalized communities and serve as the basis for the federally-required Title VI Benefits and Burdens analysis.

<sup>3</sup> Evaluation measures and methods to be developed for next RTP.

### 7.1.2.3 Transit performance monitoring

Plan monitoring supports the region's federally-required Congestion Management Process reporting between the RTP update cycles. Some of the plan monitoring measures overlap with the performance targets and system evaluation measures, but rely on collected (observed) data rather than forecasted data.

## 7.2 Measuring transportation equity

As part of the 2018 RTP, Metro conducted a transportation equity evaluation of the financially constrained 2018 RTP investment strategy. The equity evaluation addresses federal requirements for Environmental Justice Impact Analysis and advances Metro's adopted Regional Strategy for Diversity, Equity and Inclusion.

The purpose of the transportation equity evaluation was to look at how well the region's planned long-range transportation investments performed relative to transportation priorities identified by historically marginalized communities. These identified transportation priorities subsequently shaped transportation-related equity goals, objectives, and performance measures in the Plan.

The transportation equity evaluation takes a system-wide look at the region's long-term investment strategy to

- 1) determine whether progress is being made towards transportation priorities expressed by historically marginalized communities;
- 2) determine whether the financially constrained long-range transportation investment strategy, in totality, is disproportionately impacting historically marginalized communities and if mitigation measures are necessary; and
- 3) continue to learn from the assessment to propose technical refinements for future transportation equity evaluations.

The 2018 RTP transportation equity evaluation worked to incorporate and reflect previous recommendations from the 2014 Civil Right Assessment, other agency strategic direction, federal corrective actions, as well as the latest research and best practices – drawing from national experts, think tanks, engagement, and academic partnerships. These different sources shaped and informed further how to measure equity within the context of the transportation system.

Through engagement with historically marginalized communities, the outcomes historically marginalized communities identified as priorities for the transportation system include (not in order): <sup>4</sup>

- accessibility
- affordability
- safety
- environmental health

These topic areas were translated into system performance measures, which were guided by the input of a technical work group, comprised of community-based organizations, social justice advocates, public health agencies, and jurisdictional partners. A foundational element of the transportation equity evaluation of the 2018 RTP investment strategy was based on defining equity focus areas, which served as the main geography of comparisons of performance relative to the region and the non-equity focus areas. The equity focus areas identify census tracts where there is a significant residential presence of three historically marginalized demographic groups: people of color, people in poverty/with lower-incomes, and English language learners.

Lastly, as an entity utilizing federal funds, Metro is responsible for successful integration of environmental justice (EJ) and civil rights (Title VI) standards into its transportation program and planning activities. Any program or activity receiving federal financial assistance cannot discriminate against people based on race, color, national origin, age, sex, disability, religion or income status nor prohibit a person from participating in regional activities. The programmatic evaluation of the 2018 RTP investments serves as part of demonstrating the planning of federal investments into the regional transportation system complies with federal non-discriminatory and disproportionate impact regulations.

Further detail about the equity system evaluation can be found in Appendix E of the 2018 RTP.

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<sup>4</sup> Due to capacity constraints and additional resource needs, the affordability system evaluation measure was deferred and recommended for development prior to the 2023 RTP.

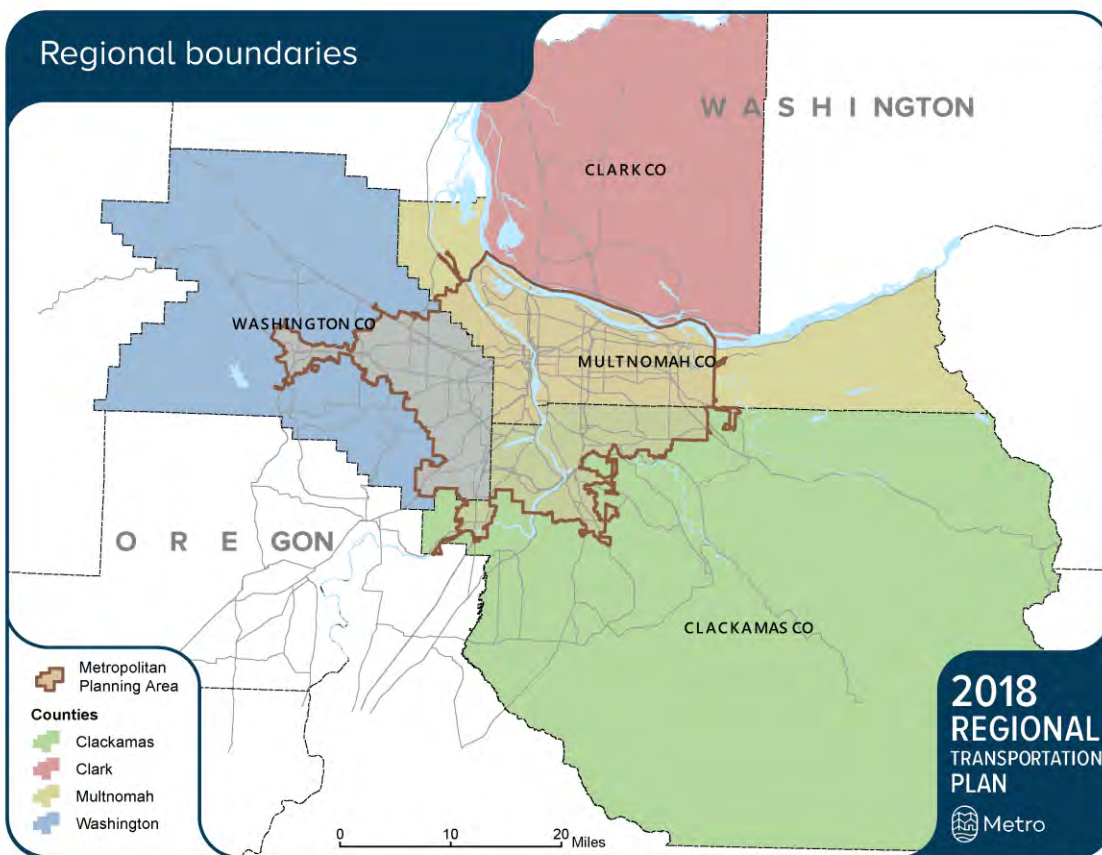
## 7.2 Regional transportation performance and findings

This section provides a snapshot of the various performance measures used to assess the performance of the RTP. Some of the measures are included in the system evaluation, others are not. There is no method yet to forecast outcomes, but they are reported on here based on observed data.

### 7.2.1 Evaluation geographies

Metro evaluated the performance of the transportation system for the: 4-county region and metropolitan planning area. Within the metropolitan planning area (MPA), some measures were also evaluated in equity focus areas.

**Figure 49. Metropolitan Planning Area (MPA) boundary map**



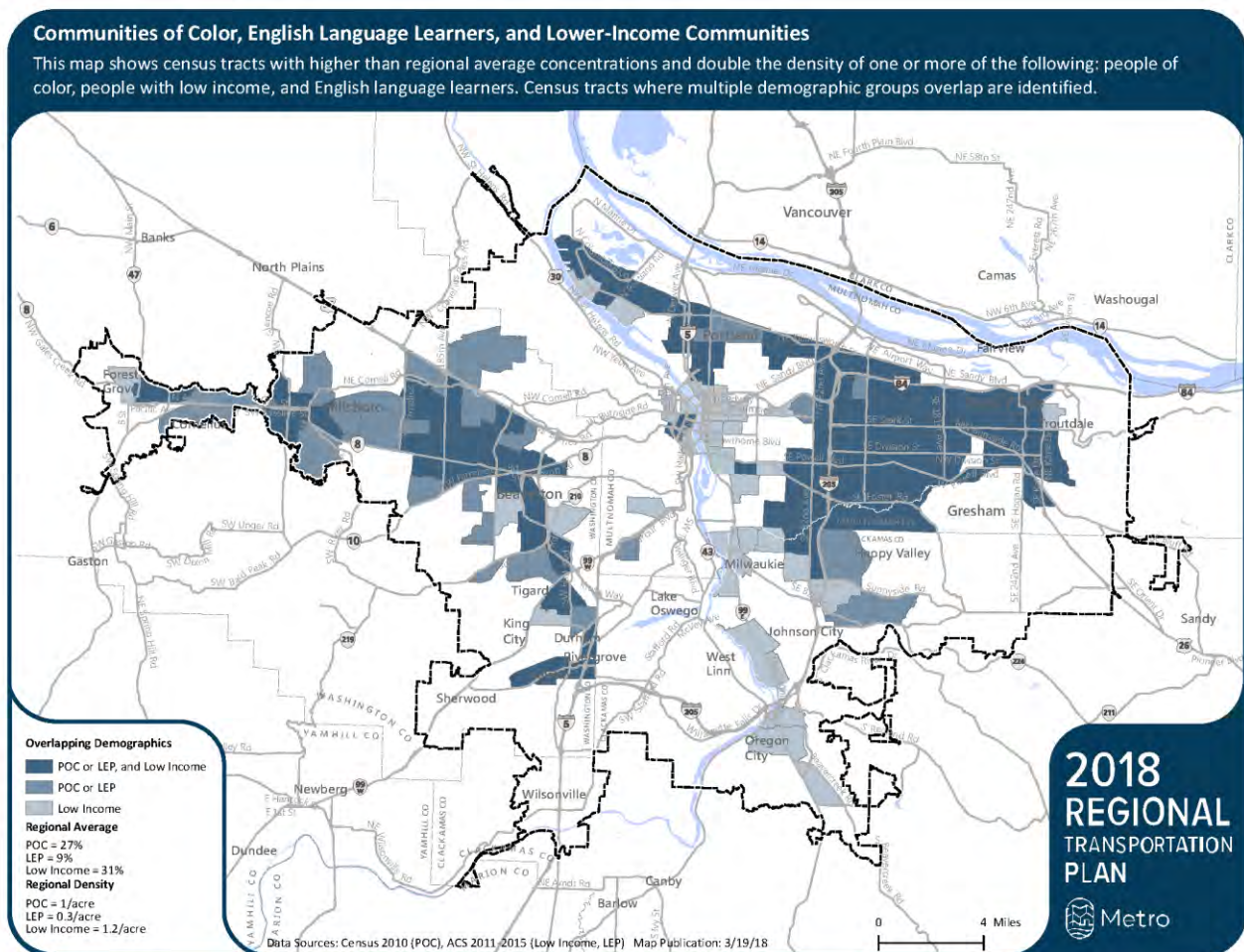
#### 4-County Region

This area includes all of Clackamas, Multnomah, Washington and Clark Counties.

**Metropolitan Planning Area (MPA) Boundary** The primary geographic area for the RTP system evaluation, this is the geographic area determined by agreement between the Metropolitan Planning Organization (MPO) – Metro – and the Governor, in which the metropolitan transportation planning process is carried out by the MPO. See Chapter 1 for more information about the MPA boundary.

**Figure 50** presents a map of the RTP Equity Focus Areas.

**Figure 50. RTP equity focus areas**



**Equity Focus Areas** Some evaluation measures include findings for equity focus areas. These areas are census tracts with higher than regional average concentrations and double the density of one or more of the following populations: people of color, English language learners, and/or people with lower income. Most of these areas also include higher than regional average concentrations of other historically marginalized communities, including young people, older adults and people living with disabilities.



### 7.2.2 Evaluating system performance for different investment strategies

Metro evaluated the performance of the transportation system for six different investment strategies. Refer to **Chapter 6** for additional information on the investment strategies and the project lists. Refer to **Appendix M of the 2018 RTP** for detailed information on the regional travel forecast modeling assumptions for each of the strategies.

- **2015 Base Year** – This includes the “existing conditions” strategies against which the other funding assumptions are compared, and uses 2015 population and employment numbers. All transportation projects completed by 2015 are included in the Base Year.
- **2027 No Build** – This strategy assumes only projects with committed funding are built by 2027 and uses 2027 projected population and employment numbers.
- **2027 Constrained** – This strategy assumes that all projects and programs identified in the first ten years of the Regional Transportation Plan are completed by 2027 and uses 2027 projected population and employment numbers.
- **2040 No Build** – This strategy assumes only projects with committed funding are built by 2040 and uses 2040 projected population and employment numbers.
- **2040 Constrained** – This strategy assumes that all projects and programs on the full Constrained list are completed by the year 2040 and uses projected 2040 population and employment numbers.
- **2040 Strategic** – This strategy assumes that all projects on the full Constrained list and all of the projects on the full Strategic list are completed by 2040 and uses projected 2040 population and employment numbers. Funding has not been identified for projects on the Strategic list, and therefore evaluation results are not shown for the Strategic investment strategies in this Chapter. Refer to Appendix I to the 2018 RTP for an overview of system evaluation measure outcomes for the Strategic investment strategies.

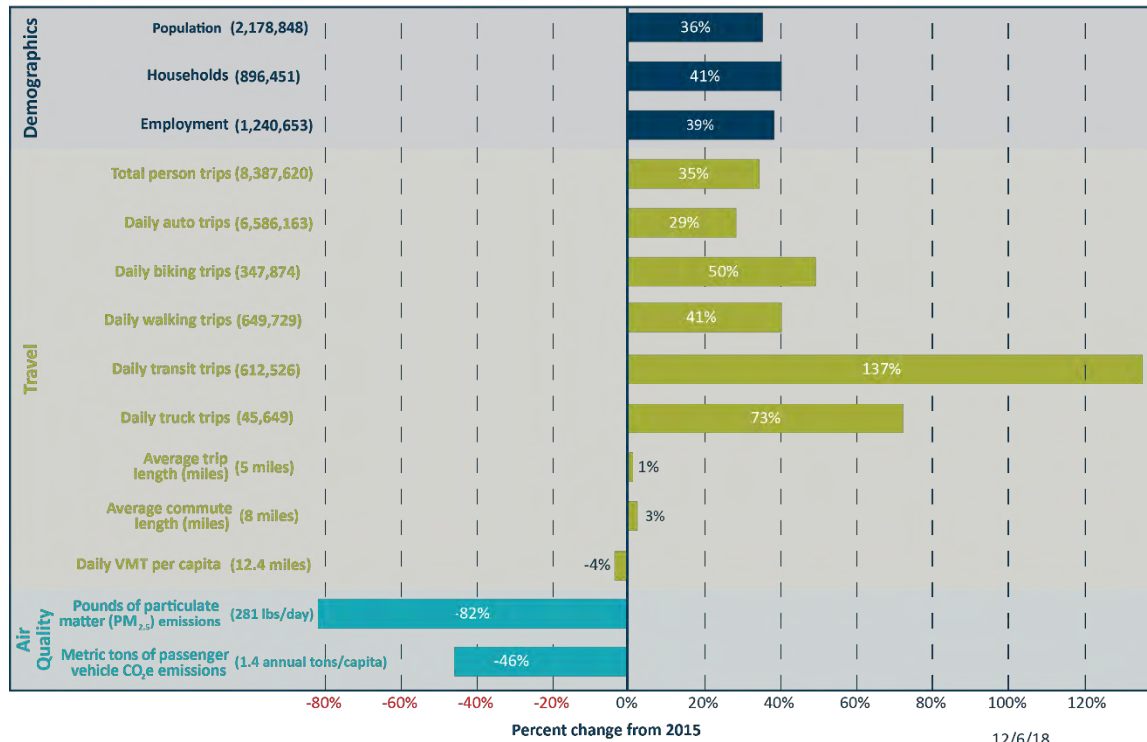
### 7.2.3 Regional system performance

**Figure 51** RTP System Evaluation Results Summary provides a summary of projected changes in demographic, travel and air quality in 2040 within the Metropolitan Planning Area. For more information on the system evaluation, see Chapter 7 of the 2018 Regional Transportation Plan (RTP).

**Figure 51. RTP system evaluation results summary.**

### 2018 RTP System Evaluation Results Summary

Totals are for travel within the metropolitan planning area for the greater Portland region and assume the 2040 Constrained projects.



Source: Metro Travel Demand Model

## 7.3 Regional transit performance and findings

Performance measures were refined and developed as part of the 2018 RTP update and development on the RTS. The following 6 questions and performance measures help frame the current status of transit in our region:

- How much do people and goods travel in our region?
  - **Measures:** Multimodal travel, transit ridership, and active transportation and transit mode share
- How much do households spend on housing and transportation in our region?
  - **Measures:** Affordability
- How safe is travel in our region?
  - **Measures:** Safety
- How easily, comfortable and directly can we access jobs and destinations in our region?
  - **Measures:** Access to transit – system completeness, access to jobs, and access to community places
- How efficient is travel in our region?
  - **Measures:** Multimodal travel times, congestion, and transit efficiency
- How will transportation impact climate change, air quality and the environment?
  - **Measures:** Climate change, air quality, potential habitat impact, and potential historical, cultural and Tribal Lands impact

Answering these questions help paint a clearer picture of whether or not the region is meeting its transit goals. For more detail on the transportation system performance measure, see Chapter 7 of the 2018 RTP.

### 7.3.2 How much do people and goods travel in our region?

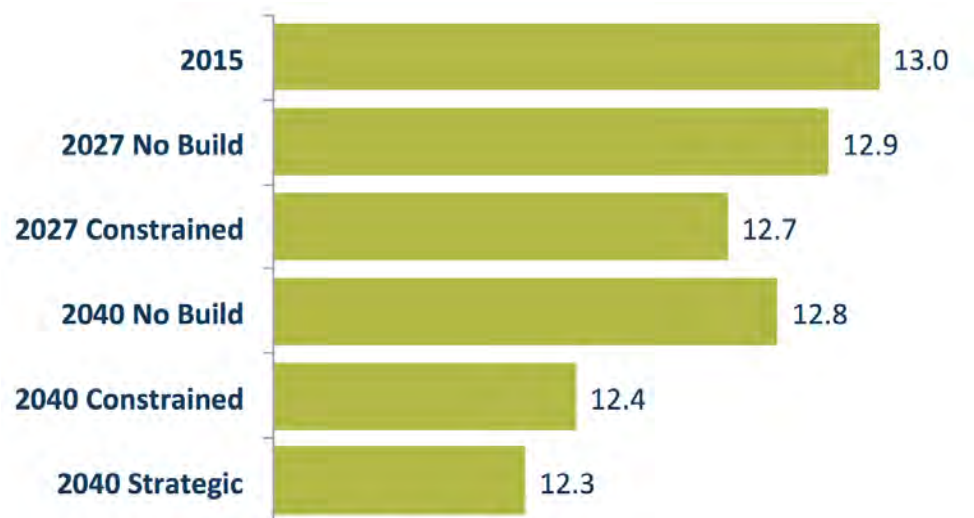
The following section measures how much people and goods travel in our region focus on transit travel and transit demand. For more information regarding the transportation system performance measure, see the Chapter 7 of the 2018 RTP.

#### 7.3.2.1 Multimodal travel

While it's no surprise that as the region's population increases the amount of daily vehicle trips will also. As a result, the total daily vehicle miles traveled (VMT) in our region is expected to grow by 30 percent between 2015 and 2040. Although increases in population typically bring increased total VMT, our region is unique in expecting a decrease in the per capita VMT by five percent between 2015 and the 2040 constrained scenario, making progress towards our regional target (to reduce vehicle miles traveled per person by 10 percent compared by 2040) but not reaching it. That means that other modes such as transit are increasing. In the 2040 constrained scenario

transit miles traveled per person increases by 82 percent from 1.1 to 2.0 between the years 2015 and 2040.

**Figure 52. Vehicle miles traveled per person each day (within the MPA)**



Source: Metro Travel Demand Model

**Table 10. Daily person miles traveled per person**

Person Miles Traveled	2015 Base Year	2027 No Build	2027 Constrained	2040 No Build	2040 Constrained	2040 Strategic
<b>Total</b>	30,403,023	36,272,364	36,639,935	41,359,645	42,069,444	42,236,504
<b>Per Person</b>	18.9	19.0	19.2	19.0	19.3	19.4

**Table 11. Daily vehicle miles traveled per person**

Vehicle Miles Traveled	2015 Base Year	2027 No Build	2027 Constrained	2040 No Build	2040 Constrained	2040 Strategic
<b>Total</b>	20,798,618	24,534,300	24,128,244	27,879,927	27,098,119	26,883,845
<b>Per person</b>	12.7	12.9	12.7	12.8	12.4	12.3
<b>Per employee</b>	23.2	22.9	22.5	22.5	21.8	21.7

**Table 12. Daily transit miles traveled per person**

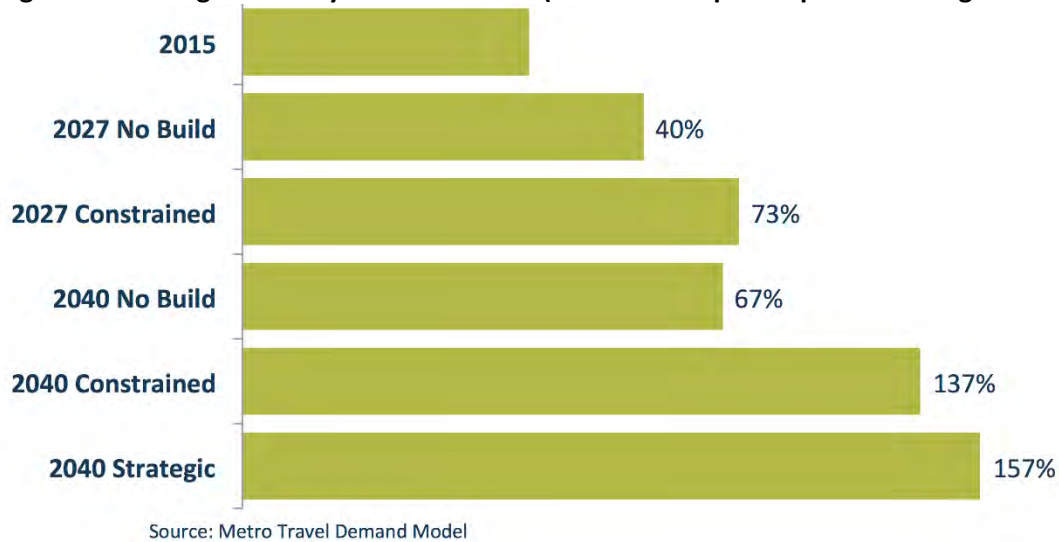
Transit Miles Traveled	2015 Base Year	2027 No Build	2027 Constrained	2040 No Build	2040 Constrained	2040 Strategic
<b>Total</b>	1,814,208	2,537,005	3,212,334	3,033,836	4,421,606	4,860,131
<b>Per person</b>	1.1	1.3	1.7	1.4	2.0	2.2
<b>Per employee</b>	2.0	2.4	3.0	2.4	3.6	3.9

### 7.3.2.2 Transit demand

Concurrent with reduced VMT the region is expected to see a substantial increase in transit usage. The 2040 constrained model estimates the number of weekday transit trips to increase from 259,000 (2015) to 612,500 (2040) a staggering 137 percent increase. There is a even a significant increase, 73 percent, in transit demand projected between 2015 and the 2027 constrained

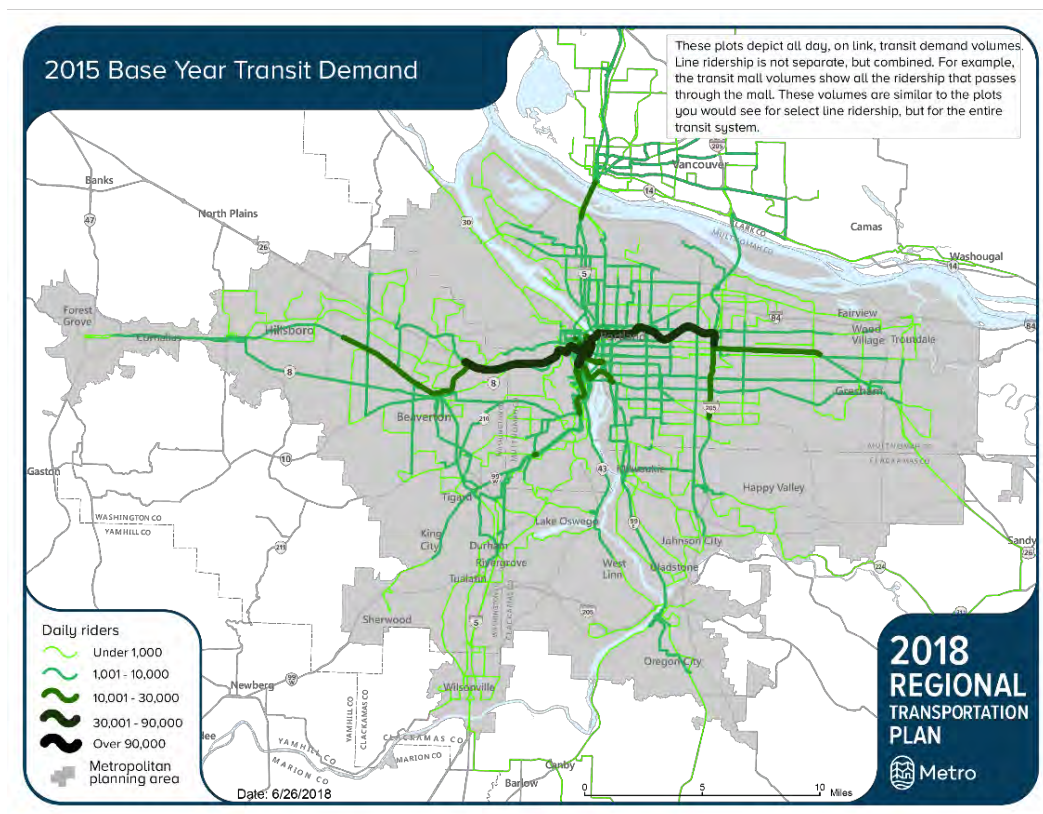
scenario (as shown in **Figure 53**). In addition to transit the region is expected to see increases in walking, and biking as well.

**Figure 53. Average weekday transit demand (number of trips and percent change from 2015)**



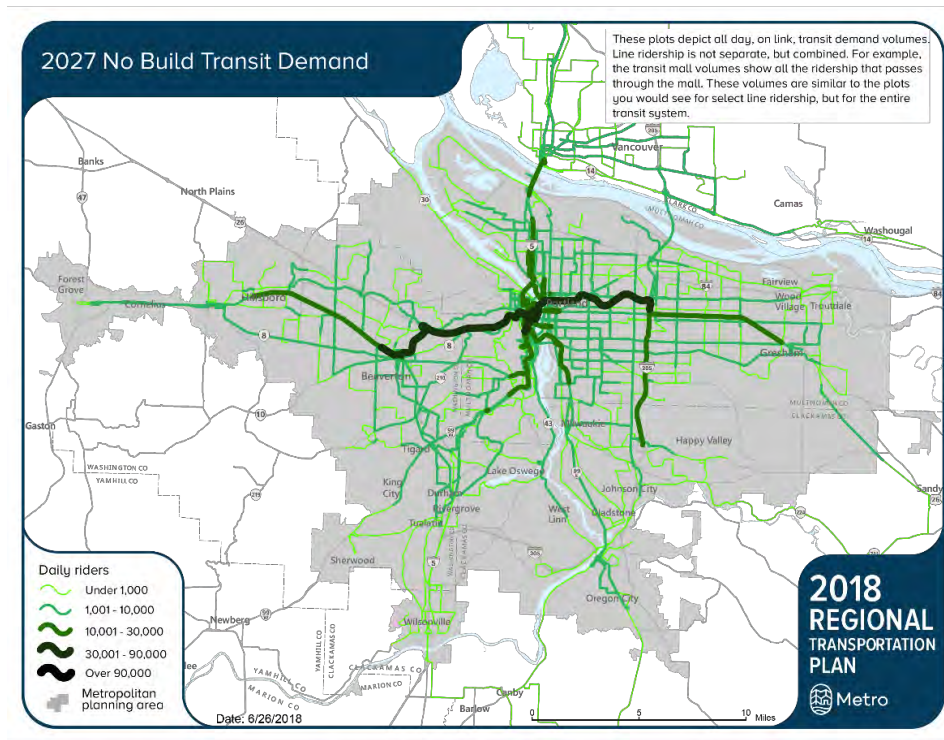
The following figures show where that travel demand is for each of the investment scenarios.

**Figure 54. 2015 Regional transit demand map**

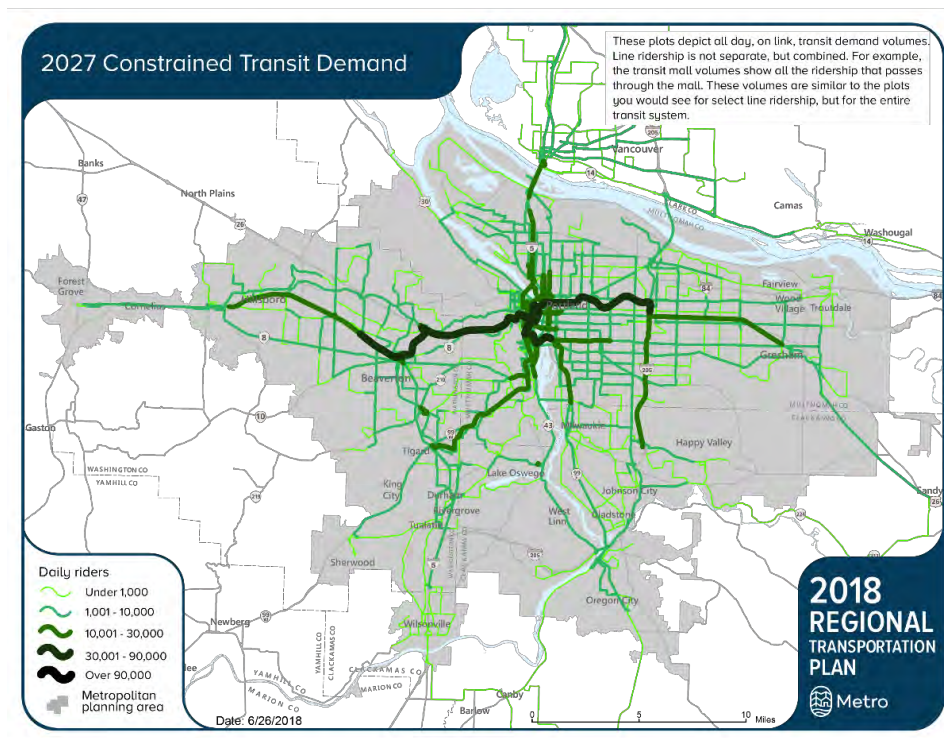




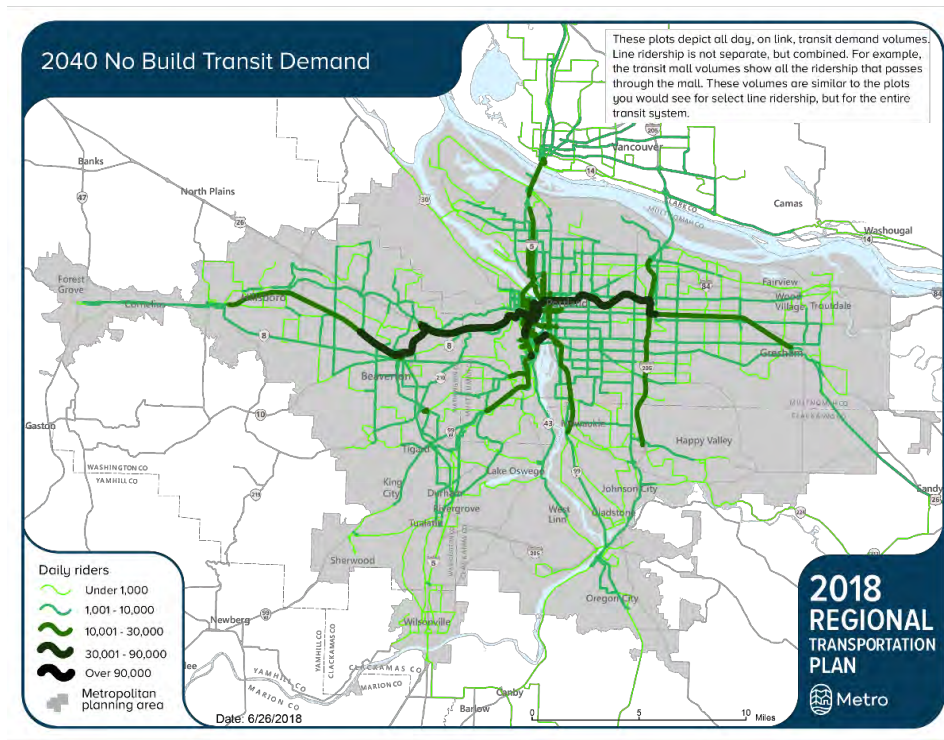
**Figure 55. 2027 No Build regional transit demand map**



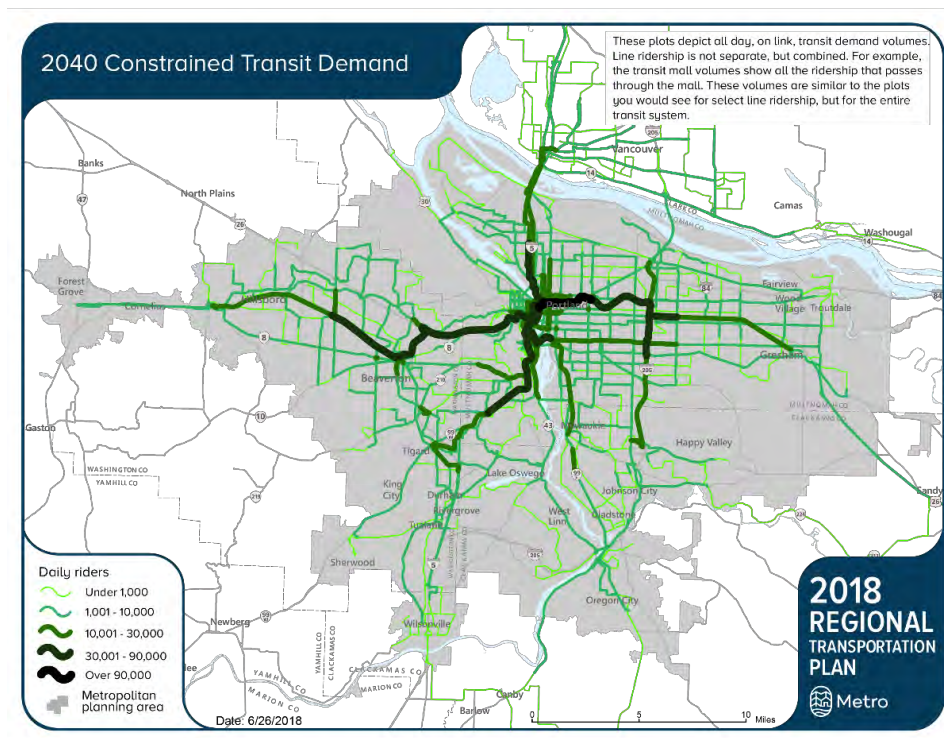
**Figure 56. 2027 Constrained regional transit demand map**



**Figure 57. 2040 No Build regional transit demand map**

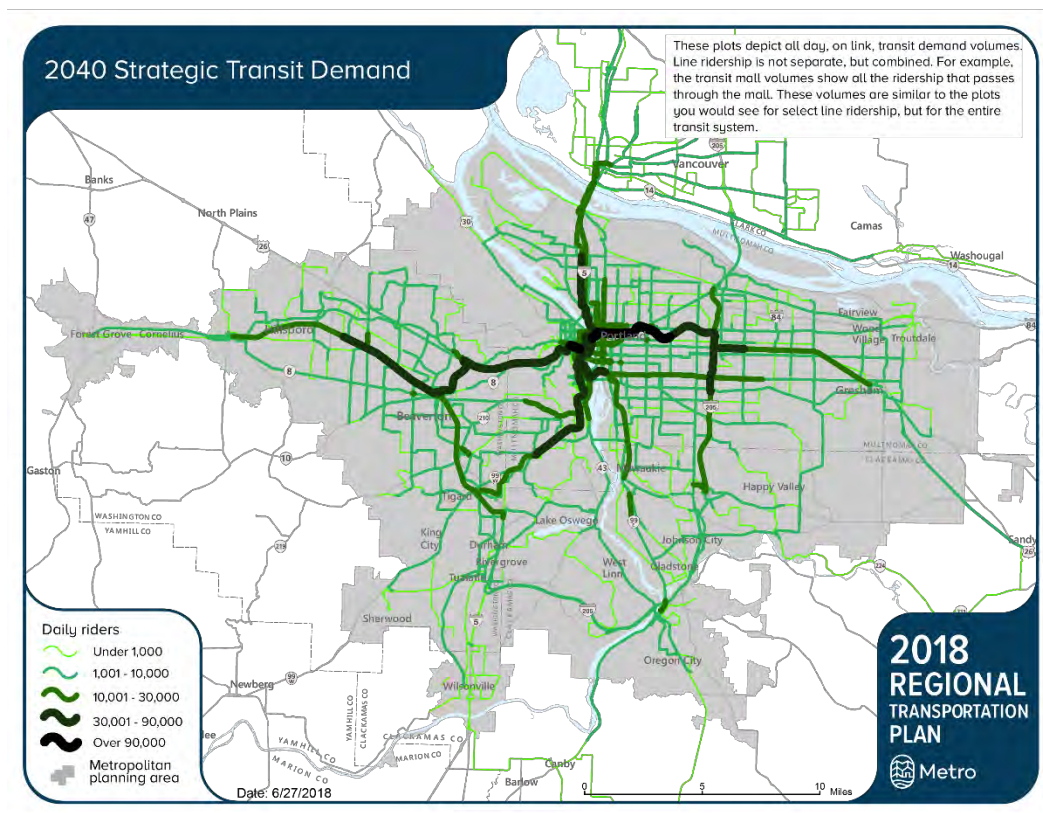


**Figure 58. 2040 Constrained regional transit demand map**





**Figure 59. 2040 Strategic regional transit demand map**



The movement of people and goods through the network are great indicators of economic activity. As a region strategic efforts must be made to maintain and expand the effectiveness of our transit systems to ensure they remain viable transportation options as the region's population continues to increase.

The data above indicates that, as a region we're ahead of our peers when it comes to growth in transit usage. However there is always room to improve. Metro with the help of partners around the region, needs to continue exploring the barriers to transit use in the region. Meaningful engagement will lead to strategies that break down barriers to transit use and improve the overall quality of life of everyone that calls the Portland metropolitan region home.

### 7.3.2.3 Active transportation and transit mode share

Another indicator of transit performance is the percent of trips taken by transit. The RTP sets a target to increase non-driving mode share and triple walking, biking and transit region wide by 2040 compared to 2015 levels. Based on this evaluation, the region does not meet target of tripling transit, walking, and biking mode share region-wide (within the MPA) between 2015 and 2014.

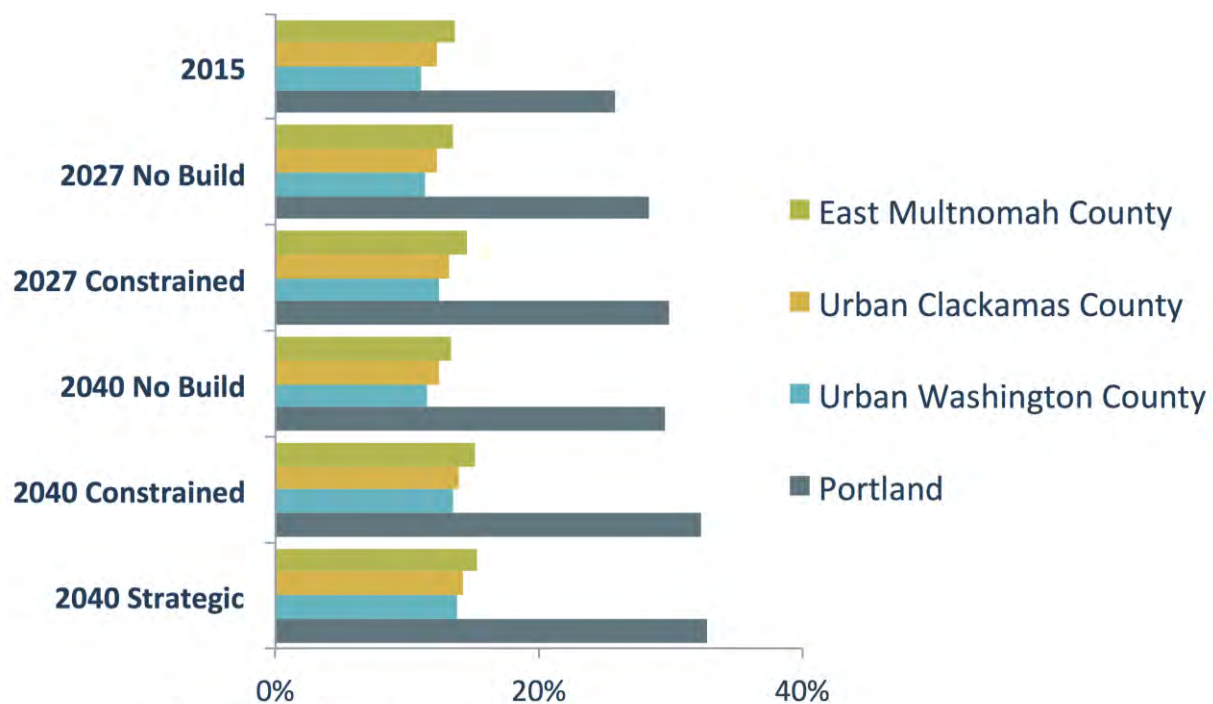
**Table 13. Active transportation mode share within the region**

Mode	2015 Base Year	2027 No Build	2027 Constrained	2040 No Build	2040 Constrained	2040 Strategic
Walk	7%	7%	8%	8%	8%	8%
Bike	4%	4%	4%	4%	4%	4%
Transit	4%	5%	6%	5%	7%	8%

Source: Metro Travel Demand Model

As **Figure 60** shows, there are relatively large increase from 2015 to 2040 Constrained for travel within the City of Portland (from 26 percent to 32 percent) and urban Washington County (11 percent to 14 percent), with more moderate increases within other sub-regions. However, non-driving modes do not triple for any sub-region.

**Figure 60. Non driving mode share by sub-region**



Source: Metro Travel Demand Model

### 7.3.2 How safe is travel in our region?

Regionally we've placed high value on transit as an alternative transportation method to automobile travel. We must think critically regarding the safety of our transit system. Transit safety analysis is more complex than automobile due to the fact that in most scenarios transit users are pedestrians first.

Taking a transit user's unique position into consideration offers two primary ways to approach safety:

- physical safety: This type of safety is concerned with the likelihood of an individual sustaining serious injury or death during the course of their trip.
- security: This type of safety is more difficult to measure and is concerned with the opinions of potential transit riders. Emotional safety usually considers the non-transportation based "dangers" of transit usage, such as the fear of discrimination, concerns with the complexity of trip planning, or even the fear of being harmed by people you encounter along the way.

Physical safety concerns can typically be addressed by investments along the transit network that reduce the risk of serious death or injury for potential riders. From sidewalks to stoplights to bus to bike lanes, projects that support safety support regional transit use. Across the constrained and strategic project lists the RTP identifies 382 projects aimed at increasing safety across the region.

While the transit ride may be safer than its automobile counterpart, the entire trip may not be. Recalling that transit riders are pedestrians first, it is critical we take into consideration their entire trip. High Injury Corridors (HIC) are places along a transportation network where there are disproportionate amounts of vehicular related deaths and injuries.

Many of the high crash corridors are along transit routes. This means, that in order to develop a safe and user friendly transit system, we must also invest in infrastructure that makes accessing transit safe, easy, and reliable.

### 7.3.3 How much do households spend on housing and transportation in our region?

For the average resident in our region housing and transportation consumes about 48 percent of their yearly income. The general rule of thumb is that no more than 28 percent of a person's income should go toward housing; currently our regional average is 27 percent. Potentially more so than housing, transportation expenditures can vary greatly, most sources suggest that a reasonable transportation cost lies somewhere between 15 percent – 20 percent of an individual's total income. Our region reports an average of 20 percent compared to the National average of 22 percent.

Transit use has the ability to significantly impact where our money is going. In 2016, the American Public Transportation Association (APTA) released its Transit Savings report which compared the average monthly expenditures for automobile ownership compared to transit use. On average, individuals in Portland were expected to spend \$9,778 less per year by using transit. With similar savings reflected in 2018, \$9,800 would represent approximately 15 percent of the regional

average income. This means that the average driver in our region with viable access to transit could see their transportation expenditures fall to as low as 5 percent of their total income by switching modes of travel.

High housing costs are at the center of many conversations around the region. Investment and maintenance of a safe and accessible transit system has the ability to mitigate some of the financial impacts of increased housing costs in our region.

### 7.3.4 How easily, comfortably and directly can we access jobs and destinations in our region?

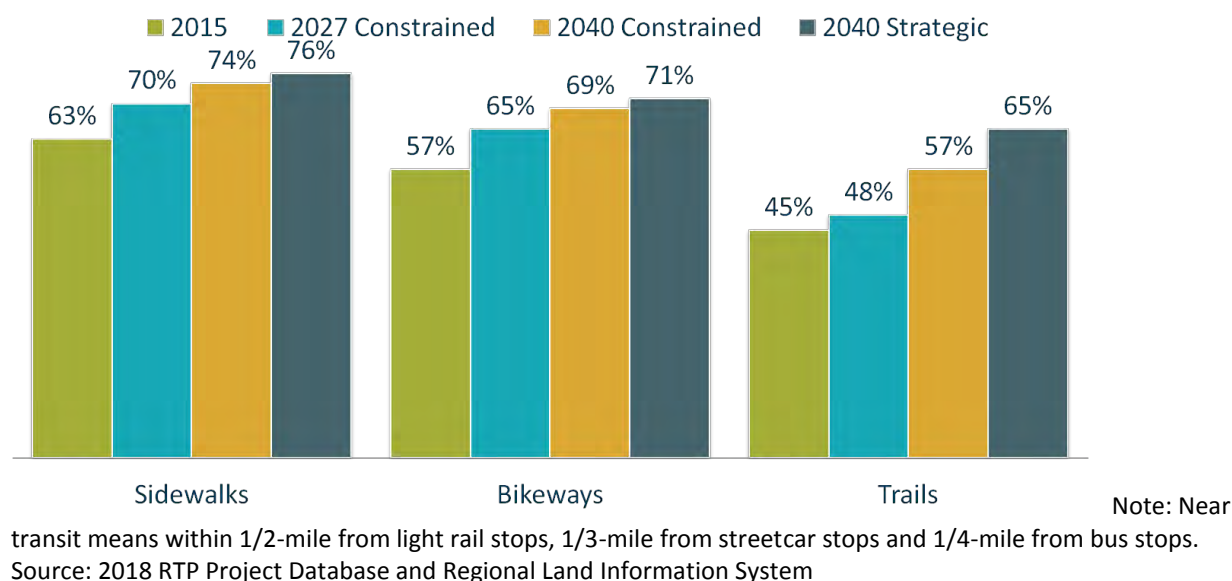
How easily, comfortable and directly we can access jobs and destinations in our region by transit plays a key role in transit as modal choice. If is easy and comfortable to take transit to work, play or school, the more likely we are to take transit.

#### 7.3.4.1 Access to transit – system completeness

All findings described are for the 2040 Constrained investment strategy in the RTP. While progress is made in filling gaps in sidewalks, bikeways and trails near transit, not all gaps are filled. By 2040, 74 percent of all sidewalks, 69 percent of all bikeways and 57 percent of regional trails are completed within 1/2-mile from light rail stops, 1/3-mile from street car stops, and 1/4-mile from bus stops, as shown in **Table 14** and **Figure 61**.

However, greater progress is made completing sidewalk, bikeway and trail gaps near transit compared to region-wide completion. For example, while 74 percent of all sidewalks near transit are completed by 2040, 70 percent of sidewalks on arterial roadways are completed and only 69 percent of sidewalks are completed on the planned Regional Pedestrian Network. This indicates that policies prioritizing access to transit are working.

**Figure 61. Percent of all sidewalks, bikeways and trails completed near transit**





**Table 14. Percent of all sidewalks, bikeways and trails completed near transit and near transit within equity focus areas**

	2015 Base Year	2027 No Build	2027 Constrained	2040 No Build	2040 Constrained	2040 Strategic
Percent of sidewalks completed near transit	63%	63%	70%	63%	74%	76%
Percent of bikeways completed near transit	57%	57%	65%	57%	69%	71%
Percent trails completed near transit	45%	45%	48%	45%	57%	65%
Percent of sidewalks completed near transit within equity focus areas	73%	73%	80%	73%	83%	84%
Percent of bikeways completed near transit within equity focus areas	59%	59%	69%	59%	72%	74%
Percent of trails completed near transit within equity focus areas	44%	44%	49%	44%	56%	66%

Note: Near transit means within 1/2-mile from light rail stops, 1/3-mile from streetcar stops and 1/4-mile from bus stops. Source: 2018 RTP Project Database and Regional Land Information System

#### 7.3.4.2 Transit access to jobs and community places

When exploring transit access there are two primary things to consider:

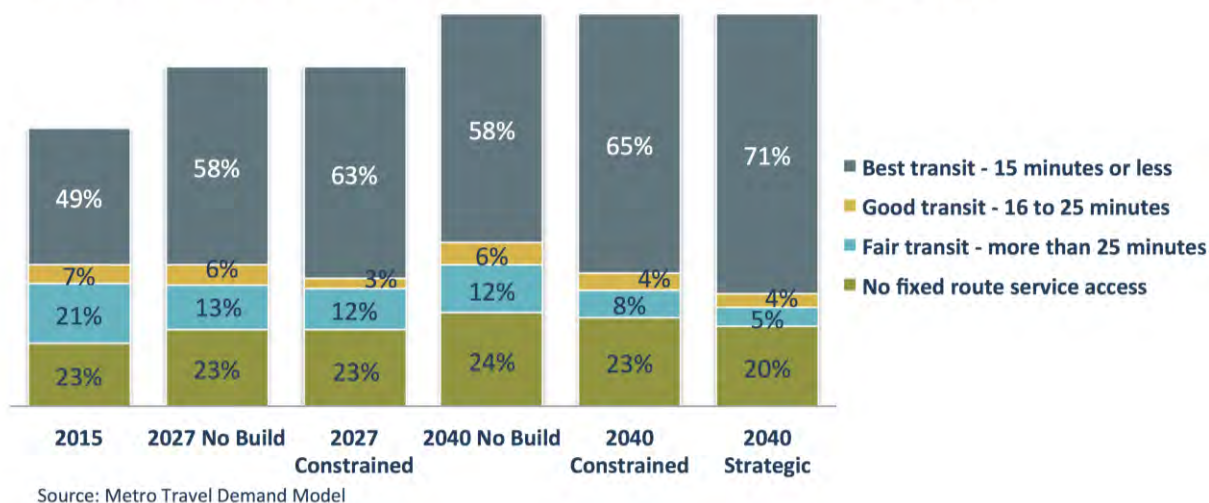
- Proximity to Station: This considers the distance people live from transit stations.
- Time to Destination: This considers whether or not transit use gets people where they need to go in a reasonable amount of time.

**Proximity to stations:** There is no motivation to use transit if it's geographically inaccessible, and even if it's geographically accessible there's no point in using it if it doesn't take you where you want to go. Good transit planning considers these concepts of access concurrently. The good news is that the future looks bright for both qualifiers of access. As the graph below highlights we can expect more than three-quarters of the region's households to have access (proximity) to transit by 2040, the majority being classified as "best transit" operating at 15 minute or better intervals. Additionally, 90 percent of the jobs in the region are accessible by transit. **Figures 62 and 63** shows the percentages of households and jobs with access to transit by frequency of planned transit service. **Figures 64 through 69** present the access and frequencies for jobs, households, low-income households and low-income households in equity focus areas for various time frames analyzed.

Approximately 90 percent of the jobs in the region are located near transit. As shown in **Figure 62**, the number of jobs accessible by 15 minute or better transit service increases significantly between today and the 2040 financially constrained investment scenario. The increase in transit service and frequencies means that more people are able to access job opportunities.

**Figure 62 Number of households with access to transit during the Rush Hour**

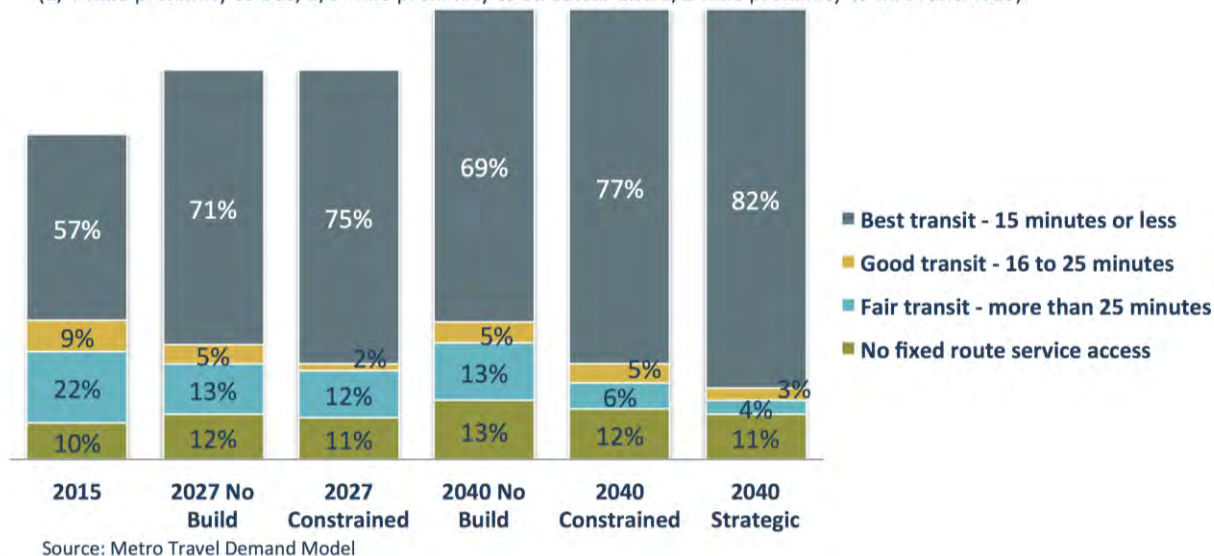
(1/4-mile proximity to bus, 1/3-mile proximity to streetcar and 1/2-mile proximity to MAX and WES)



More than three-quarters of the households in the region would see an increase to higher frequency transit. The number of households with 15 minute or better transit service increases significantly between today and the future 2040 financially constrained investment scenario. The jobs in our region see even higher rates of transit access.

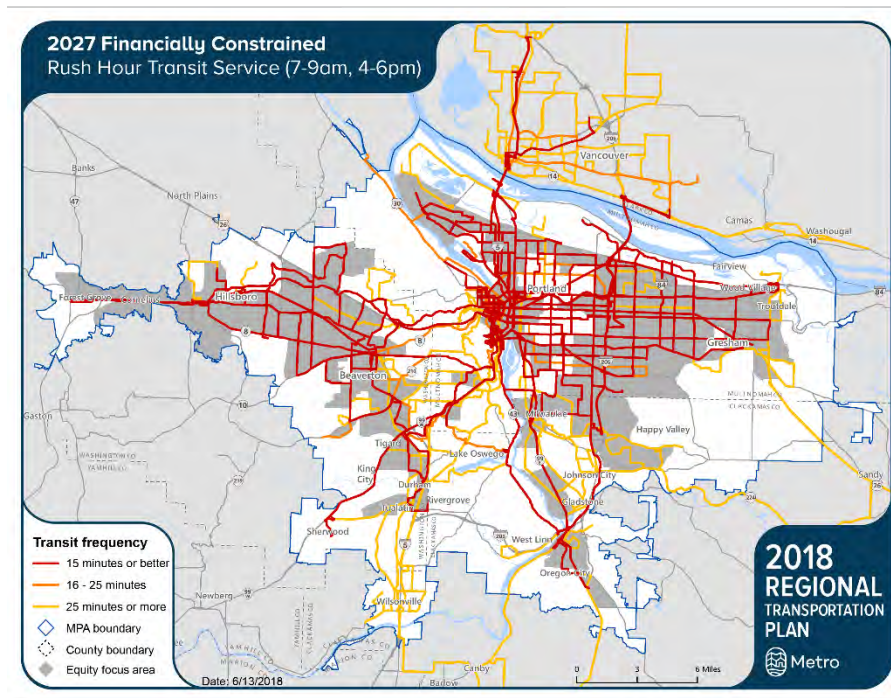
**Figure 63. Number of jobs with access to transit during the Rush Hour**

(1/4-mile proximity to bus, 1/3-mile proximity to streetcar and 1/2-mile proximity to MAX and WES)



The following figures show the jobs and households with access to transit by Investment Strategy.

**Figure 64. 2027 Financially Constrained transit service for rush hour**



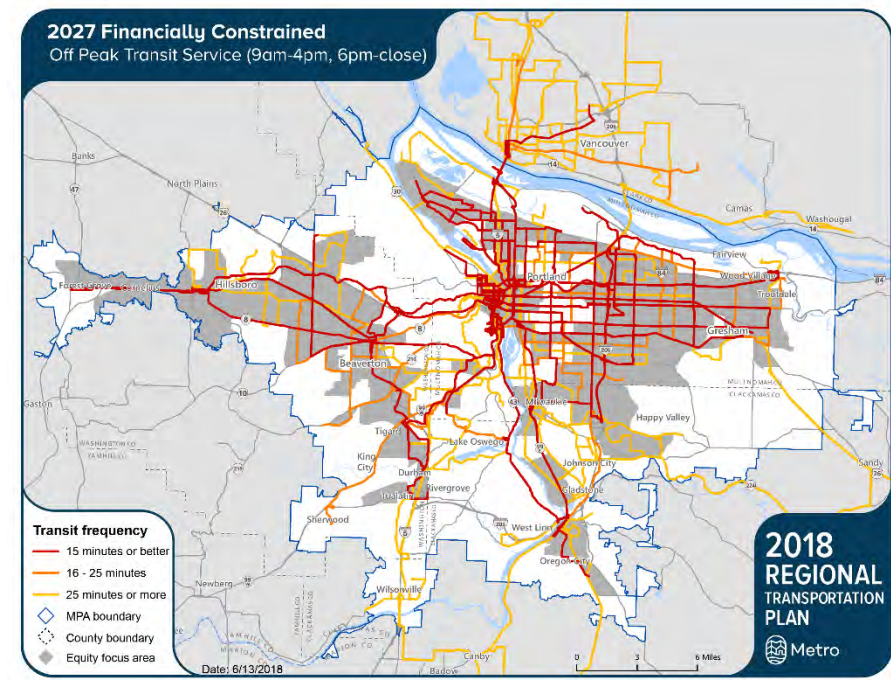
**10-year constrained**

Results of projects scheduled in the first 10 years of the constrained list

**Estimated jobs and households near 15-minute or better rush hour service by 2027:**

75% jobs  
63% households  
72% low-income households  
82% low-income households in the equity focus areas

**Figure 65. 2027 Financially Constrained transit service for off-peak**



**10-year constrained**

Results of projects scheduled in the first 10 years of the constrained list

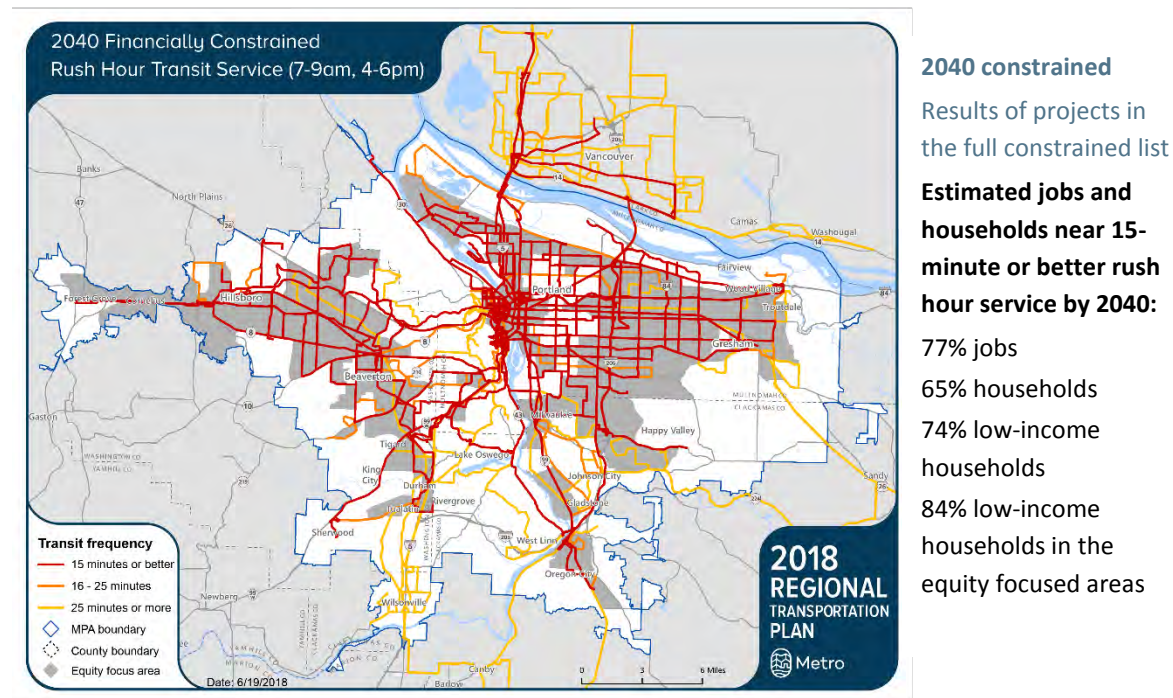
**Estimated jobs and households near 15-minute or better daytime and evening service by 2027:**

67% jobs  
53% households  
63% low-income households  
72% low-income households in the equity focus areas

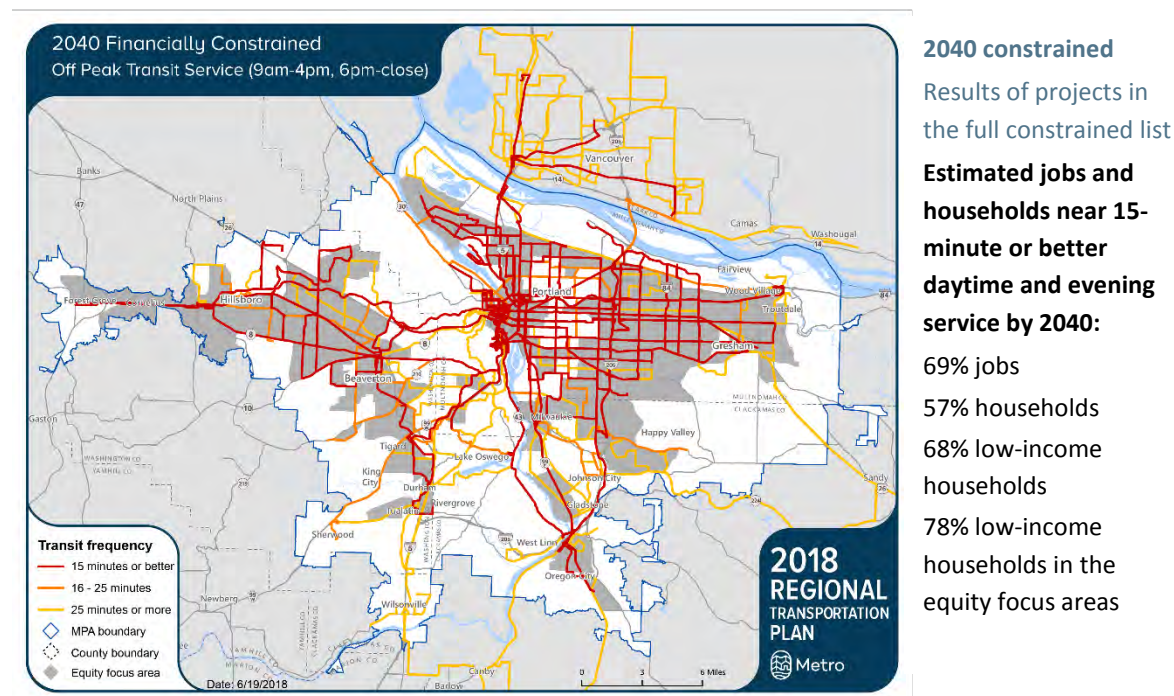
Source: Metro Travel Demand Model



**Figure 66. 2040 Financially Constrained transit service for Rush Hour**

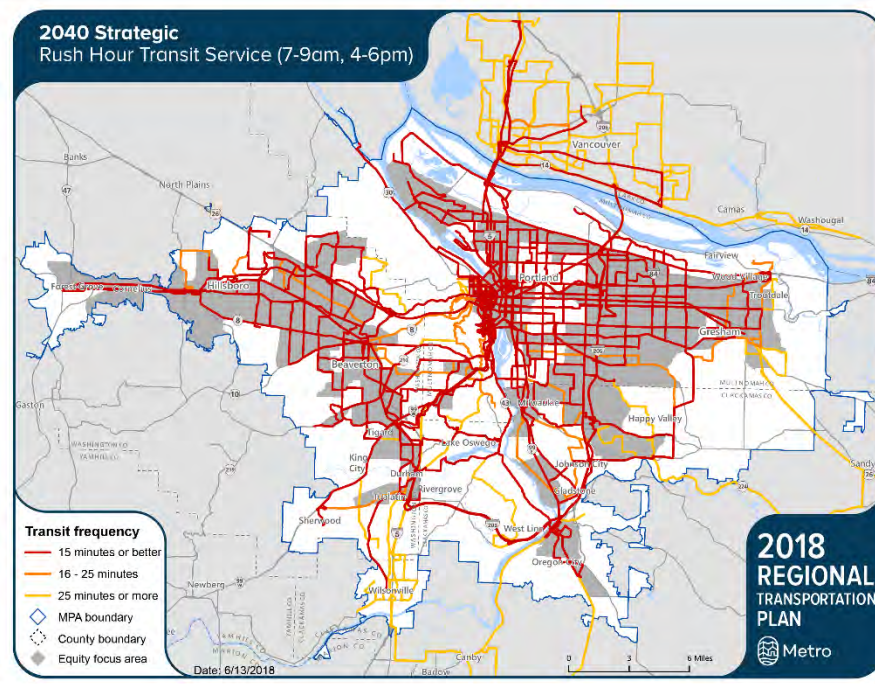


**Figure 67. 2040 Financially Constrained transit service for Off-peak**



Source: Metro Travel Demand Model

**Figure 68. 2040 Strategic transit service for Rush Hour**



**2040 strategic**

Results of projects in the full constrained list and additional strategic priority investments

**Estimated jobs and households near 15-minute or better rush hour service by 2040:**

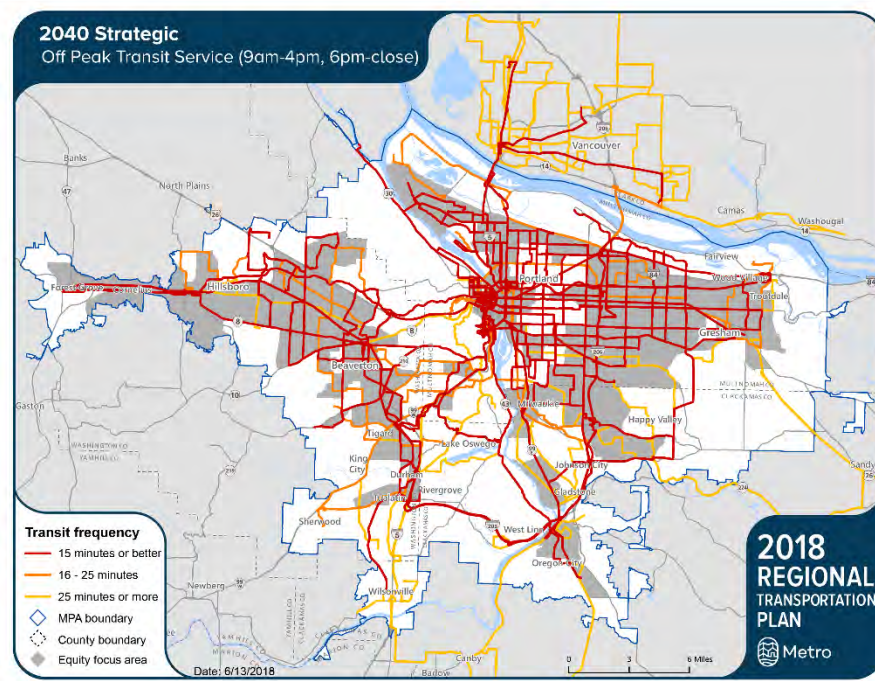
82% jobs

71% households

79% low-income households

88% low-income households in the equity focus areas

**Figure 69. 2040 Strategic transit service for Off-peak**



**2040 strategic**

Results of projects in the full constrained list and additional strategic priority investments

**Estimated jobs and households near 15-minute or better daytime and evening service by 2040:**

77% jobs

65% households

74% low-income households

84% low-income households in the equity focus areas

Source: Metro Travel Demand Mode



Increasing transit service and frequencies is a priority for the region. Under each of the investment scenarios, the majority of the households and jobs have access to 15 minute better transit service. Somewhere between 70-85 percent of the jobs in the region would be accessible by frequent service transit. The majority of the households, 60 – 70 percent, in the region would also have access to frequent service transit. The low-income households and low-income households in the equity focus areas would have greater percentage of households with access to frequent service compared to the region as a whole.

Determining the ease, comfortably, and directness of our transit system is no easy task. Our models show that at the very least we are headed in the right direction. Due to social preferences there will always be a percentage of people who purposefully distance themselves from the transit network.

### Travel time access to jobs and community places

**Table 15** shows the change in the number of jobs (by wage profile) accessible within a 45-minute commute time region-wide for the 2027 and the 2040 constrained investment scenarios, compared to the 2027 and 2040 no build scenarios.

**Table 15. Change in total number of jobs accessible by transit for the 2027 and 2040 Constrained scenarios**

	2027 Constrained		2040 Constrained	
	Transit – Rush Hour	Transit – Off Peak	Transit – Rush Hour	Transit – Off Peak
All Jobs	21,448	19,371	40,694	40,185
Low Wage Jobs	10,197	9,192	18,671	18,452
Middle Wage Jobs	5,883	5,322	10,929	10,829
High Wage Jobs	5,368	4,857	10,065	9,960

*Source: Metro Regional Travel Demand model*

In general, the 2027 and 2040 constrained investment strategy increases the number of jobs the average household can reach within a 45-minute commute time. With the first ten years of investment, the average household will a little more than 21,000 more jobs by transit accessible due to the investment strategy. The investment in transit in the 2018 RTP show larger gains in the number of jobs accessible, where nearly 25 percent more jobs become accessible to the average household within a 45 minute transit trip.

For the average household within an equity focus area, the number of jobs accessible within a typical commute time by different forms of travel is expected to increase. The average household in an equity focus area will see over 24,000 more jobs in 45 minute transit trip due to the 2027 constrained investment strategy.

With the addition of investments beyond 2027 to 2040, the increase in the number of jobs accessible for the average household in equity focus areas goes up to over 44,000 more jobs in a 45-minute transit trip. When looking more specifically at low-wage and middle-wage jobs, as a

result of the 2018 RTP investment strategy the average household in equity focus areas see the number of middle and low wage jobs accessible in a 45-minute transit commute increase 42 percent by 2040.

The positive take away from the 2027 and 2040 constrained investment strategies is there is an increase in the number of jobs accessible to the average household in the equity focus areas within a typical 45-minute transit commute trip. This pattern holds true regardless of the time of day (e.g. rush hour travel, where typically more transit service is out on the streets, or non-rush hour travel, which is any other time of day).

Home and work are important, but they aren't the only places we go. Access to community places like grocery stores and medical service locations are things that should also be served by the regional transit system. Across the 10-year, constrained, and strategic models transit access is expected to increase, further, access for historically marginalized communities and communities of color are expected to outperform the region as a whole, something that puts us one step closer to establishing a more equitable transit system.

The 2018 RTP transportation equity evaluation also measured two other dimensions of accessibility: access to jobs and access to community places by different form of travel (e.g. driving, transit, bicycling, and walking) in a reasonable travel time. When looking at the RTP investment strategy's effect on whether the average household in historically marginalized communities are able to get to a greater number of jobs and community places (e.g. libraries, grocery stores, credit unions, medical facilities) in general accessibility will increase. In particular, the 2018 RTP investment strategy will provide significant benefit and increase the number of jobs (regardless of low, middle, or high wage profile) and community places accessible within a reasonable transit commute for historically marginalized communities. The transit result is significant and positive in light of knowing from survey data that historically marginalized communities use transit for more trips. Upwards of 42 percent of transit trips are taken by people of color and people in poverty for commuting to work or school purposes. The increased number of jobs and community places accessible within reasonable transit trip will provide significant benefits to historically marginalized communities in the near and long-term.

Additional analysis will be included in the final transit strategy. For more detailed information see the RTP Appendix E, Transportation Equity Analysis.

### **7.3.5 How efficient is travel in our region?**

Transit productivity is measured by boardings per revenue hour, which represents the total riders boarding a transit vehicle on a route divided by the in-service time.

#### **7.3.5.1 Transit travel times**

In general, most corridors see a decrease or maintaining of travel times in from 2015 Base Year to the 2040 Constrained; some corridors see decreases in transit time between 10 and 46 minutes. There are modest increases in transit travel times during the PM peak travel period from 2015 Base Year to the 2040 Constrained in some corridors. For example:

- Gateway to Vancouver Mall - decrease in travel time of 15.4 minutes in the 12-1 travel period and a decrease of 13.2 minutes in the 4-6 PM peak.
- Gateway to Oregon City - decrease in travel time of 12.4 minutes in the 12-1 travel period and a decrease of 12.8 minutes in the 4-6 PM peak.
- Clackamas Town Center to Oregon City- decrease in travel time of 13.4 minutes in the 12-1 travel period and a decrease of 9.5 minutes in the 4-6 PM peak.
- Tualatin to Oregon City - decrease in travel time of 35.3 minutes in the 12-1 travel period and a decrease of 12.4 minutes in the 4-6 PM peak.
- Tigard to Sherwood decrease in travel time of 10.5 minutes in the 12-1 travel period and an increase of 6.2 minutes in the 4-6 PM peak.
- Tualatin to Sherwood - decrease in travel time of 46.4 minutes in the 12-1 travel period and a decrease of 26.9 minutes in the 4-6 PM peak.

### 7.3.5.2 Congestion

As our region grows and congestion increases, the need to connect people to their jobs, homes and daily activities is becoming more challenging. Any additional delay or unreliability of the bus system limits access to places by transit within a reasonable travel time and makes transit less desirable travel options.

**Figure 70** shows where buses, and all the people on the bus, experience the most delay during the peak congested time of the day. This map displays bus travel speed variability over the course of the day and helps identify the influence of traffic congestion on delaying transit during typical peak periods. The greater the percentage is, the longer it takes the bus to travel the route segment during peak congested periods versus more free flow traffic conditions. A higher value indicates a higher level of variability and thus a higher delay. The time point segments colored red are where there is the greatest variability and delay to buses.

As of 2018, TriMet spends roughly \$1-2 million per year to add more buses to routes just to keep up with published route schedules and account for greater variability and longer travel times to complete a route.<sup>5</sup> Without substantial improvements to the bus and streetcar network, it is very likely that transit service speed and reliability will continue to deteriorate. The Enhanced Transit Corridors (ETC) concept and toolbox of actions identified in Chapter 3 and the 2018 Regional Transit Strategy is a significant first step toward implementing lower cost, flexible, and effective



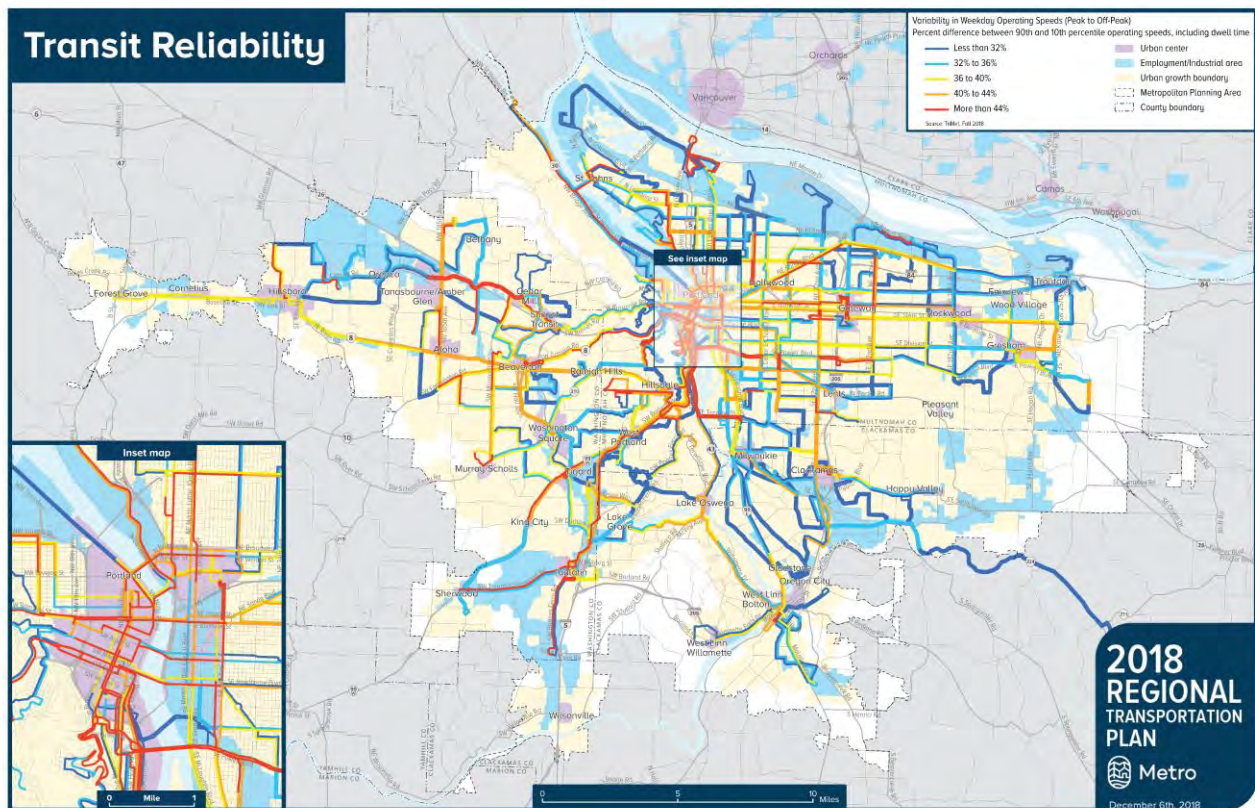
"The greatest barriers to the use of public transportation are time and reliability. If people can't count on transit to get them there at a specific time, they're not going to use it."

—Adria Decker Dismuke, Milwaukee resident

<sup>5</sup> City of Portland Enhanced Transit Corridors Plan (June 2018)

transit priority treatments that will in turn support more transit ridership throughout the greater Portland region.

**Figure 70. Transit reliability in the greater Portland region, 2018**



Source: TriMet

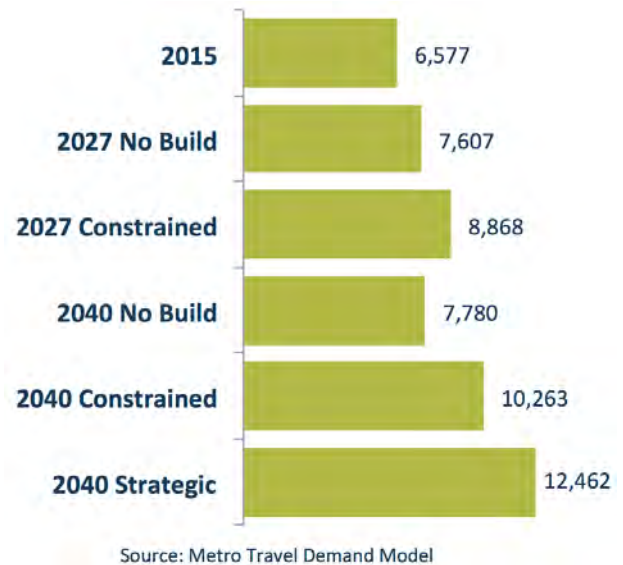
### 7.3.5.3 Transit efficiency and productivity

Total boardings and revenue hours of transit service both increase dramatically between 2015 and 2040 for all investment strategies. The 2040 Financially Constrained and Strategic Investment Scenarios show significant increase in total boardings and revenue hours of service over the 2040 No Build reflecting the increase in high capacity transit and increase in transit service expected.

Figure 71. Average weekday boardings

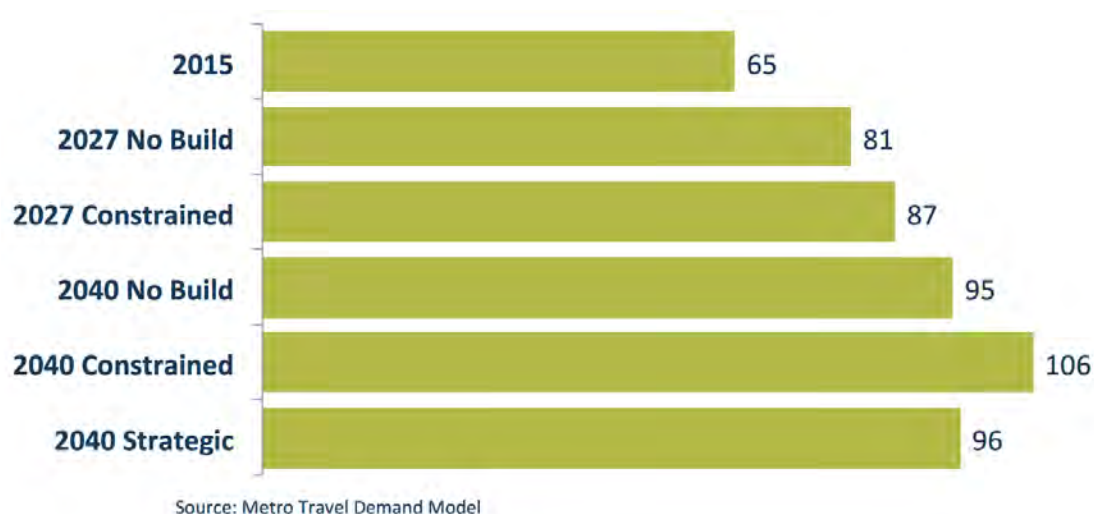


Figure 72. Average weekday revenue hours of service



As the region grows and transit services increase, the transit demand and number of boardings increase as well. **Figure 73** illustrates the average weekday boardings per revenue for each investment scenario. As shown in the figure below, the 2040 constrained scenario has the highest boardings per revenue hour.

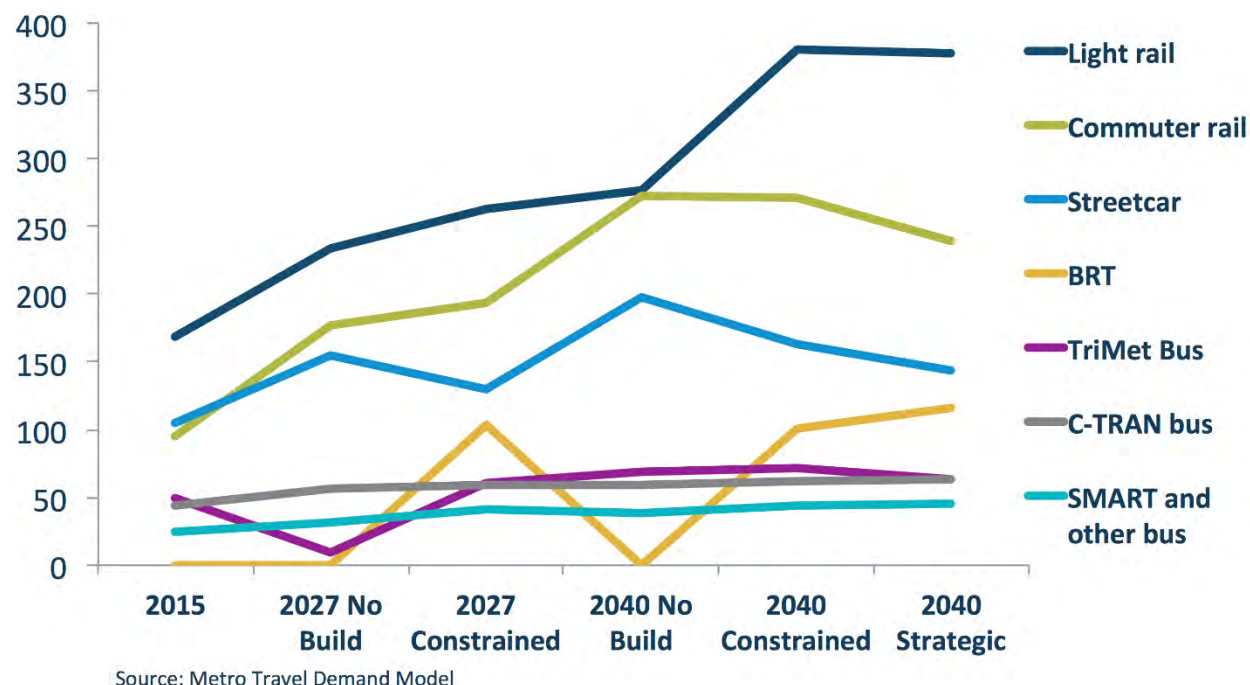
Figure 73. Average Weekday Boardings per Revenue Hour





**Figure 74** shows the boardings per revenue hour by mode. As shown in the figure, rail is the most productive with light rail, commuter rail and streetcar would have the highest boardings per revenue hour.

**Figure 74. Average weekday transit boardings per revenue hour by transit mode**



**Figure 75** presents the TriMet system cost per ride to operate by mode. Light rail costs least to operate, closely followed by fixed route service. Paratransit is the most expensive service to provide.

**Figure 75. TriMet system cost per ride, 2016**



Transit is productive. **Figure 76** shows how the Portland Metro Region compares nationally in productivity.

**Figure 76. TriMet boarding rides per revenue hour compared to other regions, 2015**



As shown in Figure 76, the Portland Metro region is ranked 8<sup>th</sup> in transit productivity (boardings per ride) and 24<sup>th</sup> in population. The 2040 financially constrained investment scenario boardings per ride is estimated to be equal to the boardings per ride to Washington DC transit service today.

### 7.3.6 How will transportation impact climate change, air quality and the environment?

Increasing transit use reduces the number of cars on the road and overall vehicle emissions in the region. Air quality is frequently the lowest in urban areas where traffic congestion is the worst which also means that individuals living in close proximity to major thoroughfares or highways sustain much higher health risks associated with poor air quality.

As mentioned in earlier sections, the Climate Smart Strategy identified key targets to achieving our regions goals of reducing carbon emissions. As we continue to pursue our environmental objectives it will be important to keep the Climate Smart performance measures in mind. **Table 16** compares the Climate Smart monitoring targets to investments strategies.

**Table 16. Comparison of Climate Smart monitoring targets by investment strategy**

Measure	2015 Baseline	2035 Monitoring target	2027 Constrained	2040 Constrained	2040 Strategic
Daily transit service revenue hours	5,900	<b>9,400</b>	8,100	9,500	11,700
Share of households within ¼ mile all day frequent service*	38%	<b>37%</b>	53%	58%	65%
Share of low-income households with ¼ mile of all day frequent transit *	46%	<b>49%</b>	63%	69%	74%
Share of employment within ¼ mile of all day frequent service*	68%	<b>52%</b>	67%	72%	78%

\*Climate Smart Strategy calculated the access to transit as a ¼ mile from any transit stop or station, the RTP analysis was more tailored and calculated the access for a ¼ mile from bus stop, 1/3 mile from streetcar station and ½ mile from light rail station. Revenue hours does not include C-TRAN revenue hours and have been rounded.

Source: Metro Travel Demand Model

Investment in transit projects can also support higher density land development which reduces the distance and time people need to travel from place to place. Less distance means fewer emissions and cleaner air. Transit-oriented development also preserves land for other uses like parks, wildlife preserves, or agriculture.

If preserving the region’s natural beauty for generations to come is a shared objective, reducing negative environmental impacts must be collaborative effort. Transit use is a tool proven to work. There is still a lot of work to do if we want to reach our goals, but a region wide effort makes the task less daunting.

## 7.4 High Capacity Transit (HCT) Assessment and Readiness Criteria

The HCT Assessment and Readiness Criteria is an update to the Transit System Expansion Policy, adopted in 2009, as part of the Regional High Capacity Transit Plan. The HCT assessment and readiness criteria f provides a framework for the region to screen and prioritize major capital investments in transit. This concept was originally developed in 2009 as part of the Regional High Capacity Transit System Plan.

This framework aims to identify transit corridor capital projects that best meet regional outcomes and position projects for potential federal and other funding opportunities. The outputs of this assessment can help illustrate the strengths and weaknesses of each project and will allow project sponsors to understand opportunities to enhance how a given project will score in future evaluations.

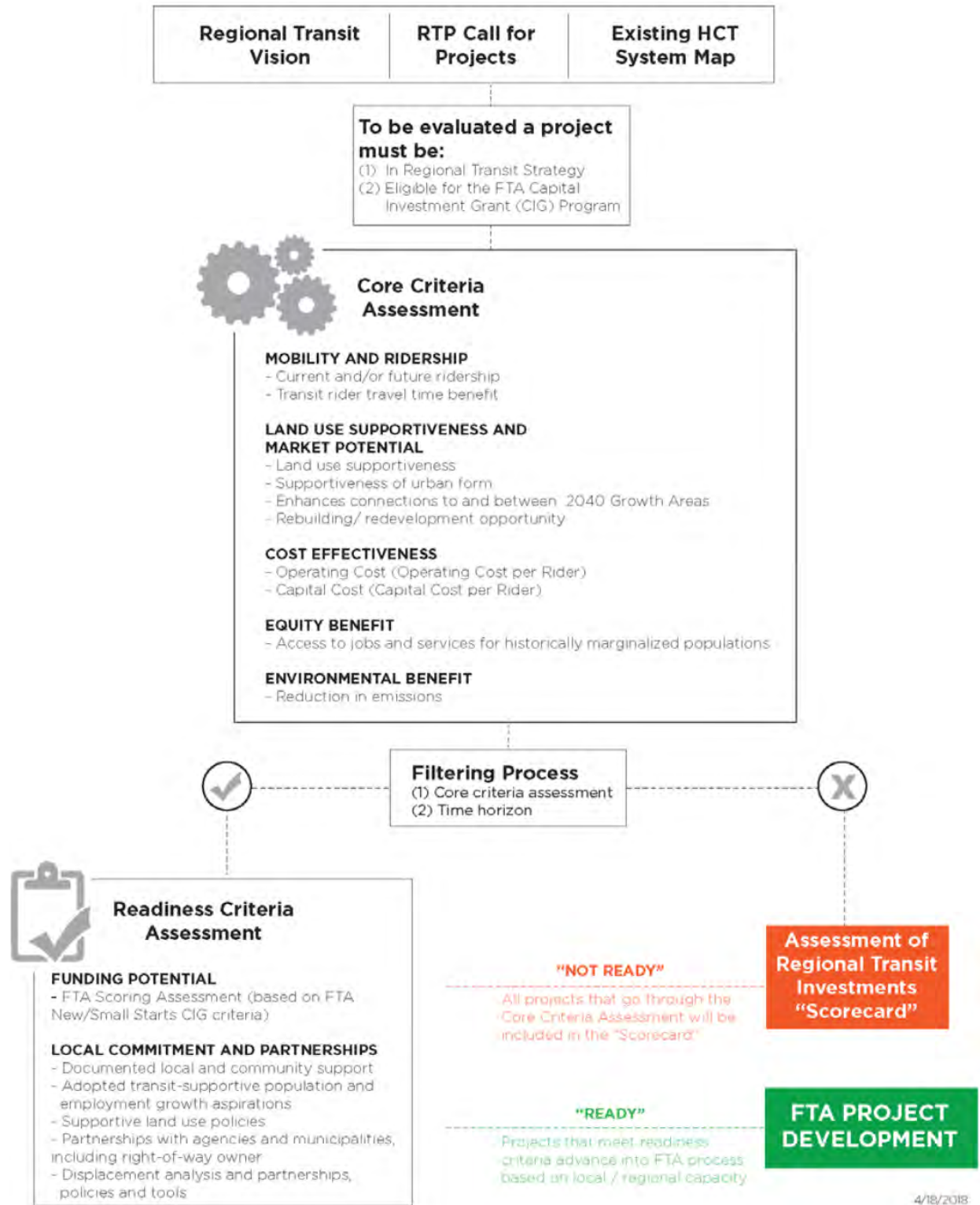
The HCT assessment and readiness criteria includes a multi-phased evaluation that includes core criteria as well as readiness criteria. The Core Criteria is comprised of measures that describe the benefit of the projects consistent with regional values, as well as assess the competitiveness of projects for funding through the FTA CIG program. The Readiness Criteria is the second filter and is evaluated separately from the core criteria when a project is better positioned for implementation. Project readiness factors include funding potential (a simulated scoring based on the FTA CIG program criteria) and local aspirations (measure of local commitment and established agency partnerships to ensure successful project delivery).

The HCT assessment and evaluation criteria align with recent regional priorities including the six desired outcomes for the Portland metropolitan region, the Climate Smart Strategy outcomes related to transit and the RTP System Performance Measures. It also aligns with the FTA Capital Investment Grant (CIG) program, which provides capital funding for high-capacity transit projects.

This process applies to any projects that are seeking Federal funding through the FTA Capital Investment Grant Program. This information along with local support is meant to help guide the regional decision making process to advance HCT investments. This additional assessment would only apply to those investments seeking FTA Capital Investment Grant (CIG) program funding (e.g. New Starts, Small Starts or Core Capacity).

**Figure 77** below identifies the process, including how projects are defined (e.g., which projects are run through this process), the criteria, and the outcomes of the process.

Figure 77. HCT Assessment and Readiness Criteria Process



Source: Nelson\Nygaard Consulting Associates, Inc.



## Regional transit investments assessment and readiness criteria

**Table 17** describes the proposed evaluation criteria and identifies the rationale and other notes related to the proposed analytical methods.

**Table 17 High Capacity Transit (HCT) assessment and readiness criteria**

Criteria	Measures
<b>Mobility and Ridership</b>	<ul style="list-style-type: none"><li>▪ Current and/or future ridership</li><li>▪ Transit rider travel time benefit</li></ul>
<b>Land Use Supportiveness and Market Potential</b>	<ul style="list-style-type: none"><li>▪ Land use supportiveness</li><li>▪ Supportiveness of urban form</li><li>▪ Enhances connections to, within, and between 2040 Growth Areas</li><li>▪ Rebuilding/ redevelopment opportunity</li></ul>
<b>Cost Effectiveness</b>	<ul style="list-style-type: none"><li>▪ Operating Cost (Operating Cost per Rider)</li><li>▪ Capital Cost (Capital Cost per Rider)</li></ul>
<b>Equity Benefit</b>	<ul style="list-style-type: none"><li>▪ Access to jobs and services for historically marginalized populations</li><li>▪ Reduction in emissions</li></ul>
<b>Funding Commitment/ Partnerships/Local Support (Readiness Phase)</b>	<ul style="list-style-type: none"><li>▪ Local Commitment and Partnerships</li><li>▪ Funding Potential</li></ul>

*Source: Nelson\Nygaard Consulting Associates, Inc*

This analysis helps inform the conversations regarding advancing a project forward towards implementation. This process is not meant to represent a detailed corridor analysis, but rather a high level assessment of the project based on benefits and readiness. Individual corridor modeling and analysis typically happens when a corridor is defined and there is a planning process for that specific corridor. During the project planning phase, the regional travel demand model, as well as other planning tools, can be utilized at a corridor level to identify specific benefits and tradeoffs.

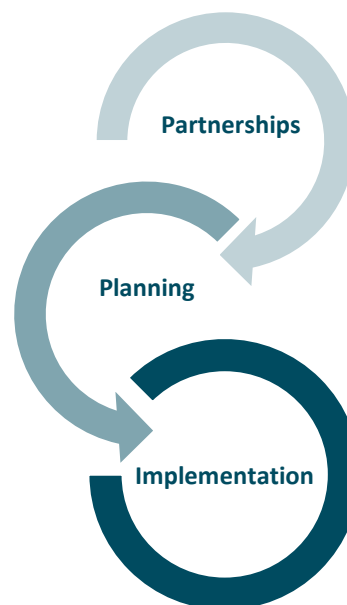
## CHAPTER 8 IMPLEMENTATION

Metro worked with federal, state and local government partners as well as residents, community groups, and businesses to develop the Regional Transit Strategy as part of the 2018 Regional Transportation Plan.

The result of that collaboration is a set of regionally identified values and policies that guide our transportation planning and investment decisions, strategies to help meet our regional transit vision, and a shared understanding about existing financial resources. This strategy and collection of projects aim at addressing our growing transit needs and challenges and our regional transit vision **to make transit more frequent, convenient, accessible and affordable for everyone.**

This chapter has four parts to it:

1. Transit funding
2. Transit plans and programs
3. Major transit projects
4. Next steps



### 8.1 Transit funding

Transit service is funded through federal, state and local sources.

#### 8.1.1 Federal funding

Since December 2015 and through fiscal year 2020, the Fixing America's Surface Transportation (FAST) Act has authorized several FTA programs to improve public transportation across the United States. Programs established by the Act vary in purpose and competitiveness.

**FTA Formula**, or non-competitive, funds are designated to the region and allocated amongst TriMet, SMART, and C-Tran. These funds are marked as Section 5307 for transit capital, planning, and job commute programs, Section 5339 for bus and bus facilities programs, and 5310 to improve mobility for seniors and individuals with disabilities.

Competitive FTA funding sources include the Low or No Emission Vehicle Program, of which both SMART and TriMet have both been successful. Other competitive funding opportunities include the **Better Utilizing Transportation Investment to Leverage Development (BUILD)** Program for multi-modal and multi-jurisdictional transit projects that will enhance the economy and the

Public Transportation Innovation grant for innovative products that assist the transit agency with better meeting customer needs.

**FTA's Capital Investment Grant (CIG) Program** is FTA's discretionary funding source for funding major transit capital investments, including heavy rail, commuter rail, light rail, streetcars, and bus rapid transit. It is a discretionary grant program unlike most others in government. Instead of an annual call for applications and selection of awardees by the FTA, the law requires that projects seeking CIG funding complete a series of steps over several years to be eligible for funding. For New Starts and Core Capacity projects, the law requires completion of two phases in advance of receipt of a construction grant agreement – Project Development and Engineering. For Small Starts projects, the law requires completion of one phase in advance of receipt of a construction grant agreement – Project Development. The law also requires projects to be rated by FTA at various points in the process according to statutory criteria evaluating project justification and local financial commitment. A project can receive up to 50 percent of federal funding under the FTA CIG Program.

FTA's CIG Program is the primary funding source used by our region in developing our commuter rail, light rail, streetcar and bus rapid transit projects. We have been extremely successful in the past in receiving federal funding through this program. Because of this success, it is not unrealistic that this trend would continue. As previously mentioned, this is a discretionary and competitive grant program and includes projects to be rated at various points.

### **8.1.2 State funding**

Oregon Department of Transportation provides several funding opportunities to support public transportation throughout the state. State funding comes by way of the Special Transportation Fund (STF), the *ConnectOregon* program, planning grants, the statewide transportation improvement fund (STIF) and more. The STF provides revenue in support of transportation need for seniors and people with disabilities. This program is funded through a combination of non-highway use gas tax, cigarette tax, and general funds. The *ConnectOregon* program is a grant initiative funded by lottery-based bonds to promote stronger, more diverse and efficient transportation options throughout Oregon.

**Keep Oregon Moving, House Bill 2017 (HB2017)** provides a huge boost for transit services and programs across Oregon. Oregon lawmakers passed House Bill 2017(Section 122) the first comprehensive transportation package to receive legislative approval since 2009. At \$5.3 billion, the package makes significant investments in transit and many other transportation initiatives across the state. The measure creates a statewide employee payroll tax dedicated to transit improvements.

It is expected to generate \$35-\$40 million in additional annual revenue for TriMet. An Advisory Committee is guiding TriMet on how to allocate the additional funds.

SMART is expecting receive an additional \$1 million in annual revenue to increase transit coverage, increase transit service to weekend service, convert their fleet to electric vehicles and to eliminate transit fares entirely.

In addition, 9 percent of the total House Bill revenues will be open to all transit agencies in Oregon in the form of competitive grants for a variety of projects that promote intercommunity services, enhance technology and use as a match to obtain other grants.

### **8.1.3 Regional funding**

The **Metropolitan Transportation Improvement Program (MTIP)** serves as the federally required schedule of transportation investments administered by Metro, ODOT, TriMet and SMART. It also monitors implementation of federal and regional policies for the Portland metropolitan region during a four-year cycle. The MTIP is comprised of three major components: transportation funding allocations administered by the state department of transportation (ODOT), transit agencies (SMART and TriMet), and the metropolitan planning organization (Metro). Additionally, the MTIP also includes state and local transportation programming which affects the regional transportation system.

Metro's transportation funding process is known as the **Regional Flexible Funds Allocation (RFFA)**. Metro takes a collaborative approach to allocating regional flexible funds to support transportation investments that achieve the region's vision and goals for the transportation system, as defined by the Regional Transportation Plan. The Plan's vision and goals include reducing the region's greenhouse gas emissions, keeping neighborhoods safe, supporting sustainable economic growth, and making the most of the existing investments our region has already made in public infrastructure.

### **8.1.4 Local funding**

A predominant source of funding for both TriMet and SMART are local payroll taxes levied on businesses performing work in their respective transit districts assessed on gross payroll and/or self-employment earnings. SMART utilizes this source of revenue to run operations and leverage state and federal grants. This section is underdevelopment.

## **8.2 Planning and programs that advance implementation of the RTS**

This section summarizes local, regional and state transit planning and programs that advance implementation of the RTS. Chapter 8 of the RTP includes a more comprehensive discussion of the planning and programs that advance implementation of the transportation system as a whole.

### **8.2.1 Local Implementation**

Local planning efforts which help implement the regional transit vision, include updates to the transit providers service plans, local transportation system plans, concept plans for designated urban reserves and topical, modal or subarea plans needed for consistency with the regional transit vision and the RTP or to address specific local or subarea transit needs or emerging issues.

The Transportation Planning Rule (TPR) includes provisions for local TSPs to be updated within one year of adoption of the updated RTP, but allows for the RTP to determine a schedule for local plan compliance. A schedule for local transportation system plan updates is available at [www.oregonmetro.gov/tsp](http://www.oregonmetro.gov/tsp). The local plan updates are phased appropriately to support local desires for completing plan updates in a timely manner, in coordination with other planning efforts and to take advantage of state and regional funding opportunities. The schedule will be updated following adoption of the RTP.

In addition, the Portland metropolitan region has emerging communities-areas that have been brought into the urban growth boundary since 1998, that have 2040 land use designations, and that lack adequate transportation and transit infrastructure and financing mechanisms. Additional work is needed to define the needs of emerging communities and strategies needed to facilitate development in these areas, consistent with the 2040 Growth Concept.

### **8.2.2 Metro's Regional Programs**

Metro is responsible for several on-going regional programs that provide a combination of grants, technical assistance and planning support to support local jurisdictions in implementing the 2040 Growth Concept and RTP. Modal experts provide expertise and support on freight, bicycle, pedestrian, motor vehicle, transit, Intelligent Transportation Systems (ITS) and operations planning, and topic experts provide support on climate change, equity, safety, emerging technology, shared mobility, connected and automated vehicles, street design, safe routes to school, resilience, transportation funding, brownfields, equitable housing and transit-oriented development. Metro's Regional Flexible Funds provide programmatic funding to help support that technical assistance, and capital funds to support implementation. The region's 2040 Grant Program supports planning processes to align land use and transportation goals, and the Equitable Housing grant program specifically focuses on supporting planning efforts to increase access to affordable housing across the region.

Regional programs are identified in the Unified Planning Work Program, adopted annually by the Joint Policy Advisory Committee on Transportation (JPACT) and the Metro Council, include:

- Regional Transportation Safety Program,
- Regional Active Transportation Program,
- Regional Freight Program,
- Regional Travel Options (RTO) and Safe Routes to School Programs,
- Air Quality and Climate Change Monitoring,
- Complete Streets Program,
- Regional Transit-Oriented Development Program, and
- Investment Areas Program.

Many of these programs are essential for transit planning at the regional level.



### **8.2.2.1 Regional Travel Options (RTO) and Safe Routes to School Programs**

The Regional Travel Options Program implements RTP policies and the Regional Travel Options Strategy to reduce drive-alone auto trips and personal vehicle miles of travel and to increase use of travel options. The program improves mobility and reduces greenhouse gas emissions and air pollution by carrying out the travel demand management components of the RTP. The program maximizes investments in the transportation system and eases traffic congestion by managing travel demand, particularly during peak commute hours. Specific RTO strategies include promoting transit, shared trips, bicycling, walking, telecommuting and the Regional Safe Routes to School Program. The program is closely coordinated with other regional transportation programs and region-wide planning activities. The program is closely coordinated with other regional transportation programs and region-wide planning activities.

### **8.2.2.2 Air Quality and Climate Change Monitoring**

The Air Quality and Climate Change Monitoring Program ensures the RTP and the MTIP address state and federal regulations and are carrying out the commitments and rules set forth as part of the Portland Area State Implementation Plan (SIP), the Climate Smart Strategy and the Metropolitan Greenhouse Gas Emissions Reduction Target Rule. The program also coordinates with other air quality and climate change initiatives in the region and monitors federal and state rulemaking that may impact forecasted emissions profiles. Metro is participating in a work group of the Department of Environmental Quality (DEQ) to develop a regional clean air construction strategy for clean diesel equipment and vehicles on select public improvement projects. The DEQ air quality program changes are implemented through the State Implementation Plan as part of ongoing implementation of the Transportation Control Measures. The regional and RTP will adhere to the changes once adopted.

### **8.2.2.3 Complete Streets Program**

Metro's Complete Streets Program was established to provide transportation design guidelines, regional arterial and throughway design classifications and other tools to support local jurisdictions to design streets that implement context-sensitive design solutions that support the 2040 Growth Concept and achieving regional goals, including the Vision Zero target, increased transportation options for people of all ages and abilities, efficient and reliable travel for all modes, healthy people and environment, security, reduced green house gas emissions, sustainable economic prosperity, racial and income equity, vibrant communities, resiliency and fiscal stewardship. Program elements include providing technical assistance to cities and counties as transportation projects go through project development and design, and convening workshops, forums and tours to increase understanding and utilization of best practices in transportation design. The program is closely coordinated with other regional transportation programs and region-wide planning activities, and with Metro's Parks and Nature Department.

#### **8.2.2.4 Regional Transit-Oriented Development Program**

Since 2001, Metro’s Transit-Oriented Development (TOD) program has had a unique and critical role in implementing the 2040 Growth Concept vision for vibrant, walkable centers and station areas linked by transit. The program invests in compact mixed-use projects near light rail stations, along frequent service bus corridors and in regional and town centers throughout the region increasing opportunities for people live, work and shop in neighborhoods with easy access to high-quality transit. The program provides financial incentives for TOD projects to increase transit ridership, stimulate private development of mixed-use buildings that would otherwise not proceed, and increase affordable housing opportunities near transit in high cost and gentrifying neighborhoods through land acquisition and project investments. With an increased focus on affordable housing, the program supports construction of housing near transit and services that is more affordable for older adults and lower- income households compared to what would otherwise be built on a property. Related program activities include opportunity site acquisition, investment in urban living infrastructure, and technical assistance to communities and developers.

#### **8.2.2.5 Investment Areas Program**

Metro’s Investment Areas program helps communities build their downtowns, main streets and corridors and leverage public and private investments that implement the region’s 2040 Growth Concept. Projects include supporting compact, transit oriented development in the region’s mixed use areas, evaluating high capacity transit and other transportation improvements that cross city and county lines, and integrating freight and active transportation projects into multimodal corridors.

The Investment Areas program completes system planning and develops multimodal projects in transportation corridor refinement plans identified in the Regional Transportation Plan. It also works on finance plans to align public investments in areas that support the region’s growth economy. It includes ongoing involvement in local and regional transit and roadway project conception, funding, and design. Metro provides assistance to local jurisdictions for the development of specific projects as well as corridor-based programs identified in the RTP.

#### **8.2.2.6 Emerging Technology Program**

Metro’s Emerging Technology program is new and will be guided by the Regional Emerging Technology Strategy. The Emerging Technology Strategy identifies steps that Metro and our partners can take to harness new developments in transportation technology—including automated, connected and electric vehicles; new mobility services like car share, bike share and ride-hailing services (for example, Uber and Lyft); and the increasing amount of data available to both travelers and planners—to create a more equitable and livable greater Portland region and meet the goals in the 2018 RTP.

The Strategy forecasts how technology is likely to impact transportation over the coming decades, discusses how transportation agencies can respond in an era of increasingly rapid change and

identifies policies and actions that Metro and partners can take to stay on track to achieve our regional goals as technology continues to develop.

### **8.2.3 Region-wide planning efforts**

This section summarizes near-term region-wide planning efforts at the regional-scale to advance implementation of the plan. Each planning effort is needed to address regional transportation policy or planning issues that could not be resolved or continues on beyond the plan update. This work will be completed by multiple partners as resources are available, pending future Metro Council and JPACT policy direction.

The following sections describe the region-wide planning efforts that relate to implementing the regional transit vision. The transit specific planning efforts are described here. For other planning efforts see the 2018 RTP, Implementation Chapter 8 for more detail.

#### **8.2.3.1 Regional Mobility Policy Update**

As part of adopting the 2000 RTP, the first transportation plan to fully implement the Region 2040 Growth Concept, Metro developed a new approach to managing mobility. The new policy came from an extensive conversation with regional elected officials and policy makers over a two-year period, including an alternatives analysis to help officials better understand the tradeoffs with making mobility investments.

The interim regional mobility policy reflects volume-to-capacity targets adopted in the RTP for facilities designated on the Regional Motor Vehicle Network as well as volume-to-capacity targets adopted in the Oregon Highway Plan for state-owned facilities in the urban growth boundary. In effect, the policy is used to evaluate current and future performance of the motor vehicle network, using the ratio of traffic volume (or forecasted demand) to planned capacity of a given roadway, referred to as the volume-to-capacity ratio (v/c ratio) or level-of-service (LOS).

Traditionally, motor vehicle LOS has been used in transportation system planning, project development and design as well as in operational analyses and traffic analysis conducted during the development review process. As a system plan, the RTP uses the interim regional policy to diagnose the extent of motor vehicle congestion on throughways and arterials during different times of the day and to determine adequacy in meeting the region's needs. LOS is also used to determine consistency of the RTP with the OHP for state-owned facilities.

The interim mobility policy broke from the historic practice of "one size fits all" congestion standards for roads and freeways to a more tailored approach that coordinates our region's land use goals with the role of our major streets, focuses auto and freight mobility expectations on the freeway system and emphasizes the role of transportation choices in moving people throughout the region. The policy allows for more congestion during the peak period in locations that have good travel options available, such as high capacity transit, while aiming to protect the off-peak period for freight mobility. This new emphasis on a tailored mobility policy and multimodal solutions was also incorporated into the Oregon Transportation Plan (OTP) in 2006, the policy document that frames and organizes all of the state's modal plans for transportation.

The policy also recognizes that past practice of "building our way out" of peak-hour highway congestion is not only fiscally and technically unattainable, but also has unintended impacts that are inconsistent with the adopted 2040 Growth Concept vision, including encouraging development on rural lands outside the urban growth boundary and undermining the broader public and private investments being made in centers and transit corridors. The policy prioritizes investment in a multimodal transportation system in order to make sure that our transportation investments also help us meet our economic development, public health, climate change and fiscal responsibility goals.

In the 2010 RTP, Metro expanded on the concept with the development of a series of regional mobility corridors that provide the geography for monitoring and reporting on mobility. Twenty-four mobility corridors, encompassing the entirety of the region's transportation system, were developed, with each corridor framed by Region 2040 land use outcomes, and bundling throughways, transit, arterial streets and bikeways in each mobility corridor as complementary parts of an integrated system. Metro publishes a periodic Regional Mobility Atlas to provide ongoing tracking performance of these corridors as a foundation for planning and project development work in the region.



### **Regional Mobility Policy Update**

There has been increasing discussion of the role of motor vehicle LOS as a performance metric. The region and local communities across the region have adopted goals such as improving safety for all roadway users (e.g., pedestrians, bicyclists, freight and transit users) and encouraging infill development to implement the 2040 Growth Concept, which often conflict with meeting LOS thresholds.

The region has committed to updating the interim regional mobility policy to better align with the comprehensive set of goals and desired outcomes identified in the RTP. This section describes a proposed work plan for considering measures aimed at system efficiency, including people-moving capacity, person throughput and system completeness.

In 2013, ODOT published the Corridor Bottleneck Operations Study (CBOS), another tool for understanding and responding to congestion bottlenecks on throughways within the regional mobility corridors. This tool has since been used to prioritize system management and operational investments on the region's throughways system with an eye toward fine-tuning a mature throughway system with strategic capacity improvements. The few major throughway projects envisioned in the RTP are focused on bottlenecks that are part of this shift toward maintaining, managing and operating a mature system.

Despite these efforts to keep pace with traffic growth in the region, congestion has continued to grow since the 2000 RTP mobility policy was adopted. During this time, the region has experienced significant population and employment growth, straining all parts of our transportation system. During the same period, state investments in the region's freeway system continued to decline from historic levels due to slowing state and federal transportation funding.

Congestion and its impacts on mobility and the region's economic prosperity and quality of life are a top public concern. The update identified current traffic congestion on many of the region's throughways and arterials, and predicts that many of these facilities are unlikely to meet the adopted interim mobility policy targets in the future, including I-5, I-205, I-84, OR 217 and US 26.

ODOT's 2016 Traffic Performance Report<sup>6</sup> shows what many of us have experienced: traffic congestion in the greater Portland region today can occur at any time of the day or week, and is no longer only a weekday peak hour problem. In 2013, about 11 percent of all travel in the greater Portland region occurred during congested periods. This increased to nearly 14 percent in 2015. This increase in congestion is a reflection of the both the region's continued growth, including our substantial economic rebound from the Great Recession that began in 2008.

More recently, the U.S. Department of Transportation issued new regulations (through MAP-21 and the FAST Act) for states and MPOs that will require greater monitoring of mobility on our throughway system and other facilities designated on the National Highway System and setting targets for system performance. While these new requirements differ somewhat from the current mobility policy for the region, the approach is similar.

ODOT and Metro propose to work in partnership on a refinement plan to update the regional mobility policy adopted in the RTP and the OHP Policy IF3 (Highway Mobility Policy) upon completion of the 2018 RTP. The process must comply with the provision of OHP Policy 1F3 and associated Operational Notice PB-02, and must include findings to demonstrate compliance. That means the project will set forth a Portland area-specific process(es) and documentation requirements and identify measures and targets for identifying needs and for demonstrating the adequacy of regional and local actions and projects in transportation system plans, and of mitigation measures for plan amendments during development review.

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<sup>6</sup> The 2016 Traffic Performance Report establishes a baseline for long-term monitoring that will help Metro and ODOT better understand the performance of the region's freeway system and supports the region's Congestion Management Process.



Metro and ODOT will engage TPAC, JPACT and other interested stakeholders in development of the scope of work (and desired outcomes) beginning in early 2019, after adoption of the 2018 RTP. The agreed upon scope of work and budget will also be reflected in the 2019-20 Unified Planning Work Program (UPWP). This work is expected to take two years and result in amendments to the RTP and regional functional plans and OHP Policy 1F3 for consideration by JPACT, the Metro Council and the Oregon Transportation Commission prior to the 2023 RTP update.

Expected outcomes of the update include:

- A mobility policy framework will be developed for the regional throughways, which generally correspond with expressways designated in the Oregon Highway Plan (OHP). This policy will be incorporated into the RTP, Regional Transportation Functional Plan (RTFP) and OHP Policy 1F3 for the purpose of evaluating the performance of throughways.
- A mobility policy framework will be developed for arterial streets. This policy will be incorporated into the RTP and RTFP for the purpose of evaluating the performance of county and city-owned arterials, and in OHP Policy 1F3 for the purpose of evaluating the performance of state-owned arterials.

Together, these new policy frameworks will guide transportation system planning as part of future RTP and local TSP updates and monitoring activities in support of the region's ongoing Congestion Management Process (CMP). The policy frameworks will also be applied to the evaluation of transportation impacts of plan amendments during development review, and will provide guidance for operational decisions.

### **8.2.3.2 Regional Congestion Pricing Technical Analysis**

Growing congestion on the greater Portland area's throughways is increasing travel delays and unpredictability. This congestion affects quality of life as travelers sit in cars or on the bus, and impacts the economy through delayed movement of merchandise and lost productivity.

Ongoing efforts to address congestion in the region include investments in system and demand management strategies, improving transit service and reliability, increasing bicycle and pedestrian access and adding highway capacity in targeted ways. But it is clear that these strategies are not sufficient and will result in continued congestion in our region. We cannot address congestion through supply alone; we must also manage demand.

Through the end of 2018, ODOT is conducting a feasibility analysis to explore the options available and determine how congestion pricing, also known as value pricing, could help ease congestion in the greater Portland area.

Oregon's House Bill 2017, also known as Keep Oregon Moving, directs the OTC to develop a proposal for congestion pricing on I-5 and I-205 from the state line to the junction of the two freeways just south of Tualatin, to reduce congestion. The State Legislature directed the OTC to

seek approval from the Federal Highway Administration no later than December 31, 2018. If FHWA approves the proposal, the OTC is required to implement congestion pricing.

The OTC formed a policy advisory committee in fall 2017 to provide a recommendation after considering technical findings, likely effects (traffic operations, diversion, equity, environmental and air quality, and others), mitigation opportunities and public input. This work is focused on identifying potential strategies to manage demand on I-205 and I-5. In its early stages, it has focused attention on the need to price comprehensively, rather than High Occupancy Toll lanes and to identify key mitigation strategies, such as increased transit service.

The project's limited scope has raised larger questions about how demand management pricing strategies could be implemented throughout the region; further study is needed in this area and should be undertaken to better understand different ways that pricing could work regionally and the different policy outcomes that various pricing programs, including cordon pricing, VMT-based pricing and network-based pricing might have. In addition, the study should evaluate issues and outcomes related to equity, safety and alternative investments, including the interaction between pricing and increased transit access. A comprehensive, regional study should be undertaken before the next update to the RTP in order to provide policy guidance as to how different types of pricing programs might impact traffic congestion, people and vehicle throughput, freight mobility, greenhouse gas emissions, air pollution, outcomes for under-served communities, mode share and overall traffic volumes and whether they improve the regional transportation system.

### **8.2.3.3      Transportation System Management and Operations Strategy Update**

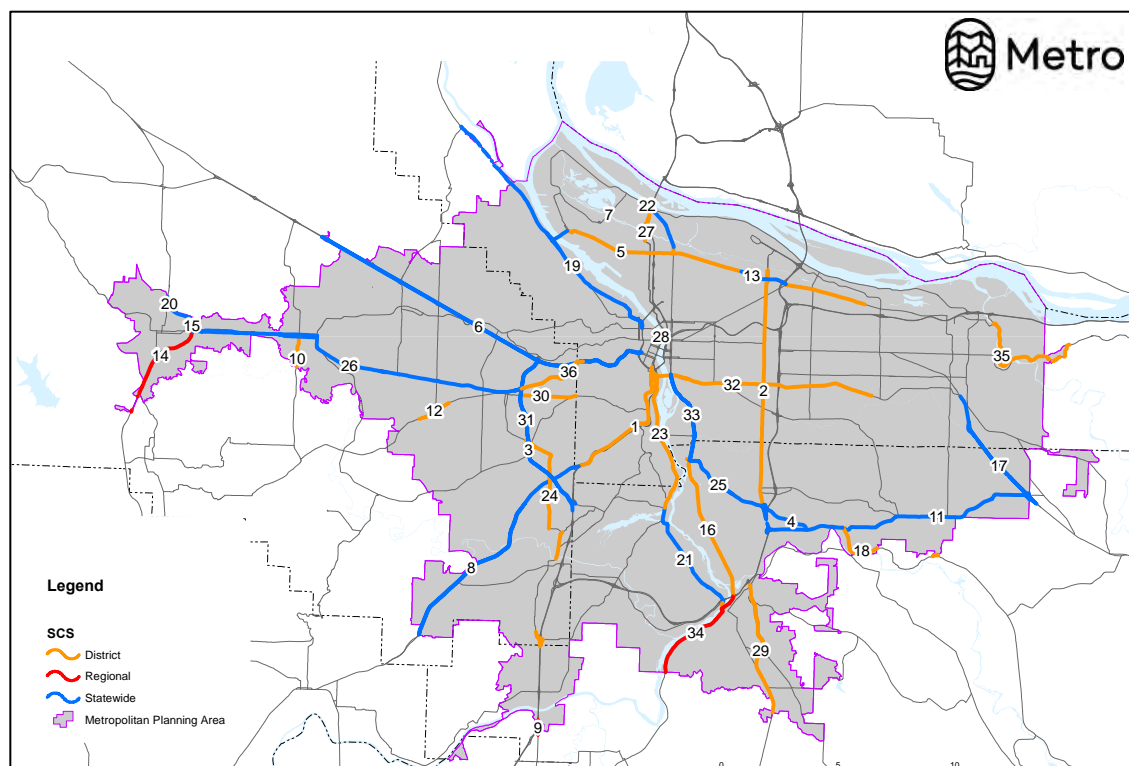
The region's Transportation System Management and Operations (TSMO) program follows a 10-year plan that ends in 2020. Consequently, the Metro will update the TSMO Strategy before it expires, and to reflect the changing transportation technology-driven infrastructure and system needs.

The strategy will be considered for adoption by JPACT and the Metro Council when the update is complete. The TSMO Strategy will guide program investments using federal funding allocated by Metro through the Regional Flexible Fund Allocation process, state funding, additional federal grant funds and local funds, building on investments to increase transportation system efficiency and support innovative ways to use technology to actively manage demand, manage the system and to improve operations, such as building on the foundation of the region's Intelligent Transportation Systems (ITS) investments. The TSMO Strategy will include key components of the system monitoring, performance measurement and the federally-required Congestion Management Process (CMP) defined in the RTP. Most of the required CMP activities are related to performance measurement and monitoring.

#### 8.2.3.4 Jurisdictional Transfer Assessment Program

The purpose of a jurisdictional highway transfer assessment program is to ensure that roadways in the Portland metropolitan region are owned by the agency best positioned to ensure the transportation infrastructure supports the land use and improves safety for all users. This means identifying which state-owned routes in the region should be evaluated and considered for a jurisdictional transfer; gaps and deficiencies on those routes; priorities among the routes; and barriers and opportunities to transfer the prioritized routes from state to local ownership.

**Figure 78. Oregon Highway Plan State Highway Classifications**



Existing and/or planned frequent transit service and reliability will be evaluated through this process.

This process will help prepare the region, local governments and the state to identify priorities and readiness. The process will not commit funding sources, but it will help project partners identify roadways that are good candidates for transfer, expected cost ranges to fund state of good repair improvements, cost ranges to fund additional improvements and potential funding sources and timelines for implementation.

This process does not include decision-making on whether improvements on these roadways should be made before or after a jurisdictional transfer. Those decisions are context-sensitive and may be best determined based on the corridor and the partners involved.

### **8.2.3.5 Transit Service Planning**

The TriMet and SMART (South Metro Area Regional Transit) conduct annual transit service planning in coordination with Metro, cities, counties and other transit providers to implement the RTP, Regional Transit Strategy, Coordinated Transportation Plan for Seniors and People with Disabilities, TriMet Service Enhancement Plans and the SMART Master Plan. One of the key themes of this RTP is the need for more transit capital investment and service, needed to provide safe, convenient, reliable, and affordable transit options and prioritize roadway capacity for freight mobility and trips that do not have functional alternatives.

These efforts will be completed consistent with the RTP goals, policies and strategies. A lead agency, project partners and proposed timing for completion is identified for each planning effort along with a description of the issues to be addressed and expected outcomes from the work. This work will be completed by multiple partners as resources are available and pending future Metro Council and JPACT policy direction and will be coordinated through the development and approval of the annual Unified Planning Work Program (UPWP).

#### ***TriMet Service Guidelines Framework and Annual Service Planning Process***

TriMet's Service Guidelines Framework is intended to paint a clearer picture of how and when the agency makes decisions that affect transit service. The Framework describes how TriMet thinks about the demand for transit service in the communities it serves and makes the best use of scarce taxpayer resources in line with regional goals. TriMet uses these same guidelines to develop Annual Service Plans, which typically include any major service change each fall and smaller service changes in the winter, spring and summer.

TriMet's Board of Directors took action in December 2014 to set policy and strategic direction for TriMet's service planning decisions by adopting a Service Guidelines Policy, which emphasizes five priority considerations to provide the framework for service planning decision-making: Equity, Demand, Productivity, Connections and Growth.

The Framework was developed in consultation with TriMet's Committee on Accessible Transportation and Transit Equity Advisory Committee. Public comment was also solicited and reviewed, and all input was incorporated into the final version approved by the General Manager in January 2015. To implement the Board-adopted Service Guidelines Policy, the General Manager has approved a detailed Service Guidelines Framework document that describes the process, approaches and tools that staff will use in using the Board's direction to develop Annual Service Plans.

Each year, TriMet develops an Annual Service Plan for enhancements, changes or reductions to service. The Plan is shared with the public online and through other channels with an emphasis on short, understandable materials that allow riders and other stakeholders to engage with TriMet and provide more information on their needs and request to make it easier to engage in our service planning.

TriMet generally makes its major service changes in the Fall of each year, so the Plan's annual calendar is based on Fall service changes. Smaller schedule adjustments may be made each quarter. Each year, starting and ending in the fall, TriMet's annual service planning process occurs in three sequential steps: 1) Engage, 2) Understand and 3) Make it Happen.

1. **Engage** – TriMet engages with riders and the community to understand service needs. To better understand the complete picture and explore options, TriMet collects data on ridership, costs, demographics, development and employment activity, and adopted land use plans. TriMet also conducts an Annual Performance Review which reviews the productivity of existing services, and the success of service changes made in the recent past. The Future of Transit shared visions provide the basic menu of options for any year during which increases of service are possible.
2. **Understand** – TriMet uses information from this engagement and analysis to understand needs and define service options in response. We take into account near-term and long-term needs for service improvement and growth, including both immediate concerns such as overloaded and/or late buses and trains, as well as changing dynamics in population and employment. This incorporates demand in current areas and evaluating underserved areas for potential new coverage. TriMet also has established standards for predictability of service and passenger loads on vehicles. TriMet aims to provide quality service equitably; we conduct specific analyses to ensure that service design and operations do not result in discrimination or disparate impacts on the basis of race, color, national origin or income level. Proposals are reviewed with the general public, employers and various communities both through specific service proposals and as part of the overall budget process. Engagement often leads to changes or adjustments in proposals before a final plan is defined.
3. **Make it Happen** – This process of Engaging and Understanding leads to a specific set of service changes which become part of the budget process for the upcoming fiscal year.

Each year that budget allows, TriMet's Annual Service Plan includes investments in one or more of the following categories:

1. **Maintain** – Investments in capacity and reliability to help bring service in line with TriMet's standards for crowding and on-time performance. This category primarily involves adjustments to schedules, more service on specific lines at specific times, and other detailed improvements to maintain the performance of existing service. TriMet's long-term budget projection provides for annual investment in this maintenance function for bus and MAX service.
2. **Optimize & Restore** – Route restructuring to optimize the performance of existing services and investments in frequency to restore previously-provided service levels. Restoring bus and MAX to Frequent Service levels is a recent example of an important investment implemented in this category.



3. **Increase** – Investments in new and reconfigured lines, including improvements in how often and/or how long lines provide service each day, to make progress towards the shared visions described in the Service Enhancement Plans.

Moving forward, TriMet is committed to seeking and incorporating new information to refine tools and analytic approaches that can help us better understand and act on the five priority considerations for service planning, as well as the other considerations as described in the Service Guidelines Framework. As new tools and information become available, TriMet will update the Framework as needed to most effectively address service planning considerations.

### ***Wilsonville's SMART Transit Service Improvements***

In order to make positive and impactful changes to the transit system, SMART conducts an annual rider survey to determine current travel trends and demographics of customers. The collected information provides a base for SMART staff to review current services and make adjustments or re-prioritize service improvements on an annual basis.

Long-term service improvements are developed through the transit master planning process. The City of Wilsonville City Council adopted the 2017 Transit Master Plan (TMP) after an extensive two-year public involvement process. The TMP highlights future investments, service changes and agency goals for the next four to seven years.

Upon further public outreach, SMART will create an amendment to the TMP to include projects that qualify for House Bill 2017 funding. SMART aligns its service planning with the City fiscal year (July 1-June 30) in order to budget accordingly.

### **8.2.3.6 Enhanced Transit Concept (ETC) Pilot Program**

This is a critical time in our region to consider how transit fits into our larger regional goals. As our region deals with significant population and employment growth, we must turn to more efficient modes of moving people around in order to ensure that our freeway system meets a basic level of mobility necessary for freight movement. The Climate Smart Strategy, adopted by JPACT and the Metro Council in 2014, provided clear direction to invest more in our transit system in order to meet regional goals and objectives related to sustainability and carbon emissions.

Recent, current and future growth rates require us to expand transit service to provide people with attractive transportation options while minimizing congestion. Significant and coordinated investment is needed to continue providing today's level of transit service as our region grows. Increasing transit service will require dedicated funding, policies, and coordination from all jurisdictions. Improving transit also helps the region meet its equity and access goals as it is a primary mode of transportation for the elderly, people with disabilities and youth, providing them with a way to get to work, school, and attain access to daily needs. Transit will become even more critical as our region's population ages. In order to make transit a more attractive mode in a quick timeframe with limited financial resources, the region is rolling out a new tool box of "enhanced transit concepts" which are implemented quickly and lead to faster, more reliable transit service.

To meet the greater Portland region’s environmental, economic, livability and equity goals today and as we grow over the next several decades, new partnerships are needed to deliver transit service that provides increased capacity and reliability yet is relatively low-cost to construct, context-sensitive, and able to be deployed quickly throughout the region where needed. Producing “Enhanced Transit,” through the co-investment of multiple partners could be a major improvement over existing service such as our region’s existing and future Frequent Service bus lines, but less capital-intensive and more quickly implemented than larger scale high capacity transit projects the region has built to date. Investments serve our many rapidly growing mixed-use centers and corridors and employment areas that demand a higher level of transit service but may not be good candidates for light rail, or bus rapid transit with fully dedicated lanes at this time.

Goals of the ETC pilot program are:

- Increase transit ridership to a level that will be sufficient to meet regional and local mode split goals by improving transit reliability, speed, and capacity through hotspot bottleneck locations in congested corridors and throughout the region. This will be accomplished through moderate capital and operational investments from both local jurisdictions and transit agencies.
- Identify, design and build a set of Enhanced Transit projects, either to relieve hotspot bottlenecks or across whole congested corridors or in partnership with local jurisdictions and facility owners where improvements are most needed and can be deployed quickly to produce immediate results.
- Develop a pipeline of Enhanced Transit projects so they are ready to advance forward to construction as jurisdictions identify funding.

On October 2017, JPACT authorized utilization of bond proceed revenue of \$5 million to support the funding of the Enhanced Transit Concept Pilot Program. The program will support the development of ETC projects and build partnerships between transit agencies and jurisdictions to implement improvements quickly.

ETC can include regional scale, corridor scale, and/or spot-specific improvements that enhance the speed and reliability for buses or streetcar. A list of different types of ETC treatments by scale can be found in the Transit Policy section in Chapter 3.

### **Enhanced Transit Concept Workshops**

The ETC Pilot Program is focusing on hotspot improvements that can be implemented quickly on frequent service lines that are experiencing the most reliability issues. As part of the pilot program, Metro and TriMet held a series of 14 workshops, between January and April 2018, to identify where and what kind of ETC treatments could be implemented. Each workshop looked at 3-5 roadway segments or hotspots across the region where existing and future frequent service bus lines have the highest ridership and are experiencing the most congestion and reliability issues. These hotspots were reviewed with local partners and potential ETC treatments were

recommended to understand feasibility and project readiness based on context and local jurisdictional partner input.

Metro issued the Request for Interest (RFI) in May of 2018 and received a total of 38 ETC applications, demonstrating significant interest from regional partners. The applications built upon the series of workshops conducted with regional partners earlier in the year. Within the ETC applications, 49 individual projects were identified. While the pilot program has \$5 million to spend, the total value of requested design services is estimated to be between \$15 million and \$20 million.

Projects received through the RFI process will be evaluated based on their readiness, transit need and potential benefit. ETC projects will include concept design, traffic analysis and transit benefit depending on the transit need and potential improvement. A portion of these projects will continue through project development, design and construction.

### **8.2.3.7 Central City Transit Capacity and Steel Bridge Analysis**

This study would explore ways to alleviate transit operational issues caused by the Steel Bridge. The bridge is a critical link between downtown Portland and the east side of the greater Portland region for the Blue, Green, Red, and Yellow MAX Lines, as well as for several bus routes. The 106 year old bridge constrains light rail throughput, requires frequent maintenance that impacts system-wide light rail reliability and presents structural risks. The Steel Bridge with its current two-track configuration cannot reliably accommodate anticipated growth in service.

Preliminary analysis by TriMet identified more than 20 concepts that were consolidated into representative alternatives and evaluated to understand the potential benefits and drawbacks. While TriMet will consider a full range of options at the start of any formal project, initial study suggests that two concepts appear most promising:

- a new transit bridge south of and parallel to the Steel Bridge
- a transit tunnel between Lloyd Center station and Goose Hollow station

A project of this magnitude could take a decade or more to plan, design and construct, including the steps necessary to comply with the National Environmental Policy Act (NEPA) and the Federal Transit Administration's Project Development process. This study would begin a regional conversation about solutions, opportunities and funding strategies. It would build upon the preliminary analysis completed by TriMet in order to define a single preferred project and identify the scope and resources needed to complete the future environmental review process as well as the risks that could impact planning.

### **Current issues**

#### Capacity and travel time

Today, transit on-time performance around the Steel Bridge does not meet TriMet's 90 percent target. TriMet is in the process of making a \$12 million investment in the Steel Bridge to improve

travel times and address system reliability issues. Some projects have already been completed resulting in fewer delays for TriMet riders. However, with the tight headways required to accommodate additional trains, on-time performance could fall to 55 percent in 2040 and minor delays could impact the entire system.

#### Conflicting train and traffic movements

The ability to get trains across the Steel Bridge is about more than just capacity on the bridge itself. The traffic signal on the bridge's east side at North Interstate Avenue impacts light rail operations. Though light rail trains can preempt vehicular traffic at the signal, trains often must wait while the pedestrian cycle clears. At both the bridge's west and east approaches, signals are located at the same place as track switches leading to delay from conflicting train movements as well as vehicles.

#### Operational and structural risks

Light rail operations on the Steel Bridge are complex and pose risks to TriMet. The bridge, built in 1912, would not likely survive a major earthquake. Even without a natural disaster, the bridge requires maintenance as it ages and bridge loads increase. The bridge is a unique link for all light rail lines and if the bridge is closed for any reason it would create system-wide operational challenges. Further, the bridge is owned by Union Pacific Railroad and any structural or seismic changes to the bridge would need to be approved by Union Pacific Railroad.

### **Long-Term Improvement Concepts**

**A new transit bridge option:** A new transit bridge south of the Steel Bridge would include four light rail tracks. Station locations would remain as they are today. It would increase system ridership by 3,000 riders and decrease travel time by approximately two minutes. Planning of a new bridge would need to consider navigational clearance, structure type, and approach locations and bridge uses. The bridge would cost an estimated \$300-650 million (\$2017) without right-of-way or utility relocation.

**A new tunnel option:** A tunnel would extend from the vicinity of the Lloyd Center Station to the Goose Hollow Station, with approximately four underground stations in between. TriMet would retain some service on the existing surface alignment to continue to serve all stations. The tunnel would increase system ridership by 7,500 to 15,200 riders and decrease travel time by approximately 15 minutes between Lloyd Center and Goose Hollow, while improving system resiliency and redundancy. Planning of a tunnel would need to evaluate the locations of portals and determine the optimal number and locations of stations. Estimated cost is \$900 million to 1.94 billion (in 2017 dollars) without right-of-way or utility relocation.

With either project, reconfiguration at the Rose Quarter and the west approaches to the Steel Bridge could create opportunities to support redevelopment in concert with other anticipated projects in the area.

#### **8.2.3.8 Transportation Equity Analysis and Monitoring**

The 2018 RTP transportation equity analysis identified the need for improved data to inform future planning and decision-making. The improved data will help develop a disparities baseline of communities of color and lower-income communities in terms of access, affordability, safety, and environmental health outcomes. Information about the disparities these communities experience will help to facilitate ongoing monitoring and evaluation of how transportation projects are making progress towards implementing regional goals and objectives regarding transportation equity, accessibility, affordability, and safety.

The disparities baseline should include an in-depth existing conditions analysis which would be disaggregated by demographic characteristics, with a particular focus on different dimensions of accessibility, affordability (see H + T expenditure tool described in section 5 – Data and Research), safety, and environmental health outcomes, such as localized air pollution exposure.

#### **8.2.3.9 Funding Strategy for Regional Bridges**

The region continues to struggle with a long-term strategy for maintaining major bridges that serve regional travel, particularly local bridges spanning the Willamette River. Currently, Multnomah County has primary responsibility for five of the ten bridges. Within 20 years, four of Multnomah County's five Willamette River Bridges will be 100 years old. The county's capital program for these bridges is estimated to cost \$450 million, yet only \$144 million in federal, state and county revenues has been identified. All the region's bridges face maintenance challenges that come from age and use.

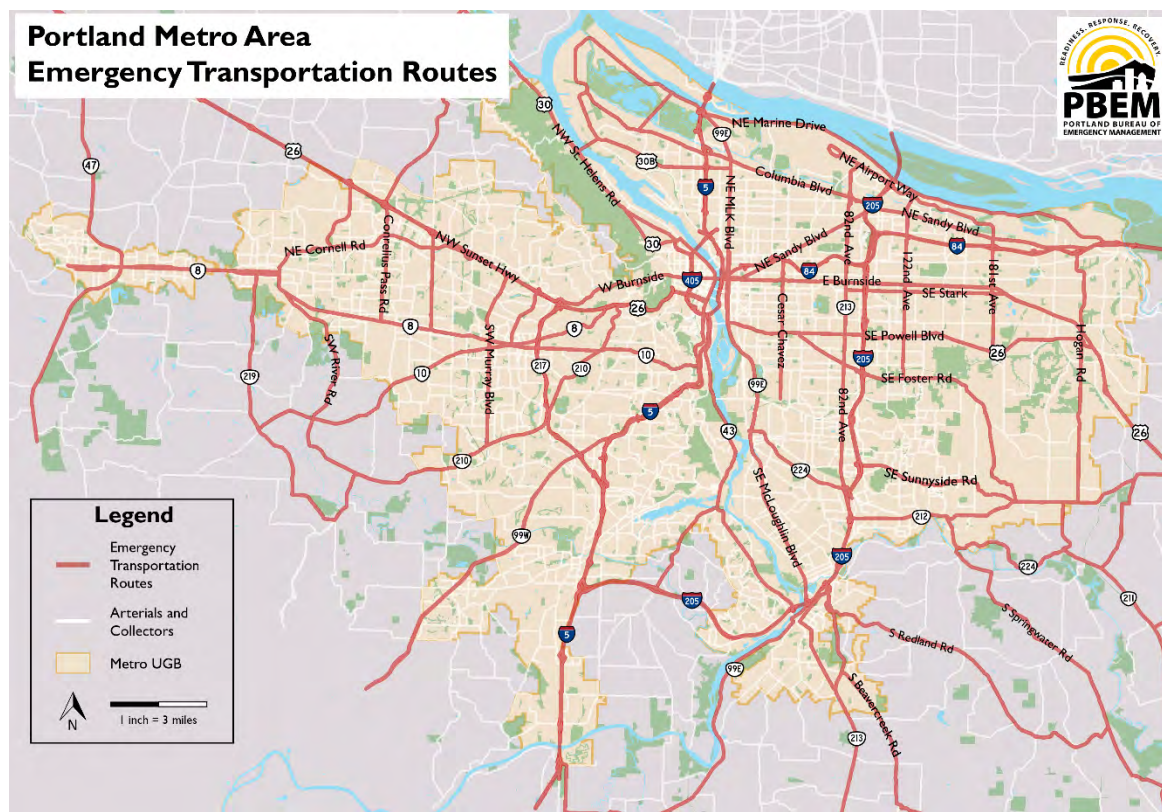
More collaboration and work is needed to identify a list of regional bridges and to develop a financial plan for ensuring ongoing operations and maintenance and other transportation needs of regional bridges, given the regional economic importance of keeping the Willamette River Bridges and other regional bridges fully functional in the long-term.

#### **8.2.3.10 Regional Emergency Transportation Routes Project**

Natural disasters can happen anytime, and the transportation system needs to be prepared to withstand them and to facilitate life-saving and life-sustaining activities, including the transport of first responders (e.g., police, fire and emergency medical services), fuel, essential supplies, and patients. The Emergency Transportation Routes (ETRs) project will aim to update the existing ETRs and MOU for the 5-county region in partnership with the [Regional Disaster Preparedness Organization](#) (RPDO). This project would apply a seismic resilience lens to update existing designated routes. The purpose of revisiting the existing ETR routes with a seismic lens is to evaluate whether the routes have a high likelihood of being damaged or cut-off during an earthquake and determine whether other routes may be better suited to prioritize as ETRs as a result.



**Figure 79. Designated Regional Emergency Transportation Routes (2006)**



First designated in 1996, regional ETRs are priority routes targeted during an emergency for debris-clearance and transportation corridors to facilitate life-saving and sustaining response activities. The current regional ETRs were established in a Memorandum of Understanding (MOU) between Oregon Department of Transportation (ODOT), Washington State Department of Transportation (WSDOT), Metro and local jurisdictions in the Portland-Vancouver metropolitan region in 2006. That MOU outlines responsibility for the Regional Disaster Preparedness Organization (RDPO) Emergency Management working group (REMTEC) to coordinate an update of the ETRs on a five-year cycle. However, no updates have been made since 2006.

Given the time that has elapsed and given the advances in our understanding of seismic risks and resilience in our transportation infrastructure, the time is right to update the ETRs. Updating the ETRs is strategic since Oregon House Bill 2017 dedicates \$5.3 billion in seismic funding. The analysis from this project will support advocacy to direct transportation investments toward enhanced seismic resilience of our region's roads, bridges and transit and freight routes, increasing regional transportation resilience and security.

This work will be coordinated through the RPDO and appropriate RPDO work groups, emergency management staff from across the region, the Southwest Washington Regional Transportation Council and technical advisory committee, and the Metro Council and Metro's technical and policy advisory committees. The project will also provide opportunities for stakeholder input. In 2017, Metro partnered with the RPDO to submit a grant application to help fund this work, which, if awarded, would allow this work to begin in summer 2019 pending sufficient resources.

### **8.2.3.11 Regional Transportation Functional Plan Update**

Since the adoption of the 2040 Growth Concept in 1995, cities and counties across the region have updated their comprehensive plans, development regulations and transportation system plans to implement the 2040 Growth Concept in locally tailored ways. The RTP provides a long-range blueprint for implementing the transportation element of the 2040 Growth Concept and presents the overarching vision, policies and goals, system concepts for all modes of travel and strategies for funding and local implementation for the region. Projects submitted to the RTP are from adopted local, regional or state planning efforts that provided opportunities for public input. Cities and counties are responsible for creating transportation system plans that are periodically updated to stay consistent with the RTP and reflect local transportation priorities and needs. Each city and county develops its own process for engaging the public in the development of the plans.

Most communities throughout the region have an adopted transportation system plan that serves as the transportation element of a comprehensive plan consistent with the Regional Transportation Functional Plan (RTFP). The functional plan implements the goals, objectives and the policies of the RTP and its constituent strategies, including the Climate Smart Strategy and strategies for safety, freight, transit, transportation system management and operations, regional travel options and emerging technology.

Under state law, the RTFP directs cities and counties within the metropolitan planning area boundary as to how to implement the RTP through local transportation system plans and associated land use regulations and transportation project development. Local implementation of the RTP will result in a more comprehensive approach for implementing the 2040 Growth Concept, help communities achieve their aspirations for growth and support current and future efforts to achieve the goals and objectives of the RTP.

### **8.2.3.12 Parking Management Policy Update**

Parking management refers to various policies and programs that result in more efficient use of parking resources. Managing parking works best when used in a complementary fashion with other strategies; it is less effective in areas where transit or bicycle and pedestrian infrastructure is lacking. Parking management is implemented through locally-adopted zoning and development codes.

This update is needed because current regional parking requirements were adopted more than 20 years ago. Despite minor updates, the requirements are out of date in terms of where they are applied and the amount of parking to be provided. Some of the factors affecting parking include: presence of high capacity transit, presence (or absence) of frequent bus service as well as infrastructure supporting bicycling and walking in an area and population and employment density of an area.

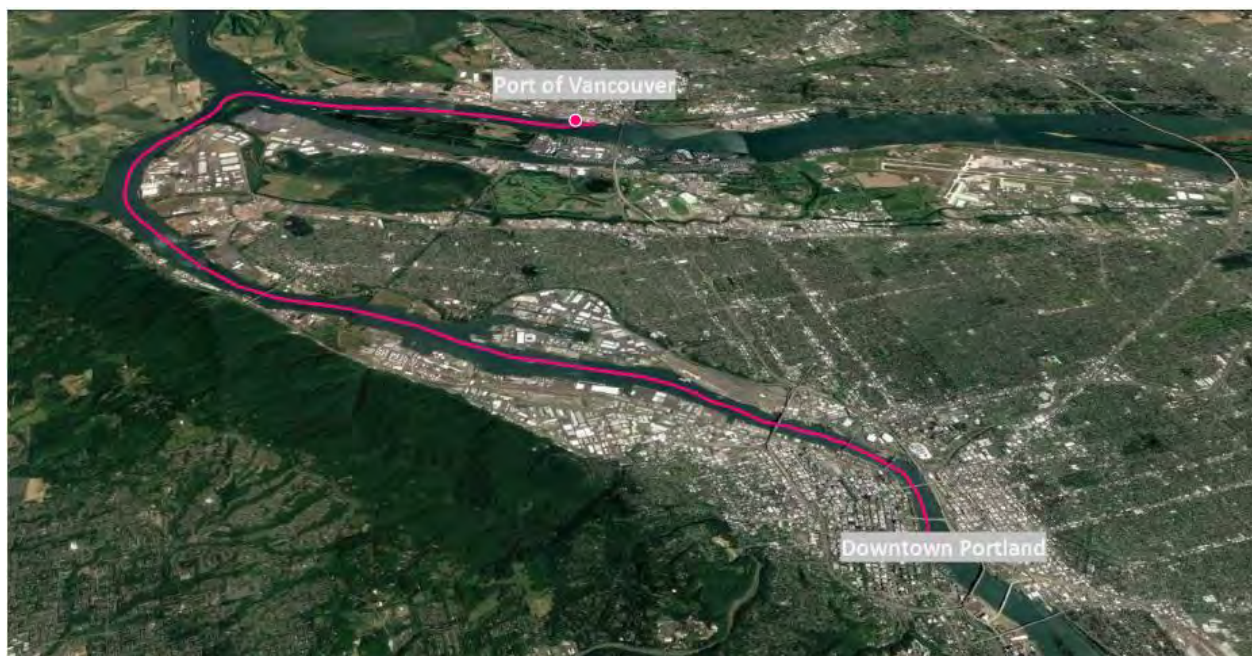
The region needs to be prepared to consider parking management programs as a tool to meet greenhouse gas emissions reduction, transportation demand management and stormwater management goals. New parking management approaches may be required as a tool to effectively

reduce greenhouse gas emissions. The region needs to know more about the effect of different approaches on emissions to inform policy development.

New 'smart' technologies and other approaches to financing and managing parking may be available. The region may be missing new applications or technologies that can facilitate parking management and would benefit from a quick survey of best practices.

#### **8.2.3.13 Frog Ferry Passenger River Taxi Service Study**

A non-profit group, Friends of Frog Ferry, is pursuing the study of a passenger river taxi service connecting Vancouver, WA with central Portland. Friends of Frog Ferry proposes a public / private partnership structure operating a 149 passenger ferry with room for bikes. Their proposal calls for two stops initially, with the potential for others. The ferry service could serve commuters as well as tourists, and provide a transportation option in case of a seismic event that impacts bridges. Increased regional congestion and improvements in boat technology suggest the current RTP cycle is an opportunity to again evaluate a ferry service. A study would analyze stops and travel times to model ridership and service patterns, as well as land development partnerships.



Source: Friends of Frog Ferry

## 8.2.4 Corridor Refinement Planning

This section identifies areas in the region – called mobility corridors - that are recommended for more detailed refinement planning to identify multimodal investment strategies adequate to serve regional transportation needs in the corridor, as reflected in Chapter 8 of the 2018 RTP<sup>7</sup>.

### Corridor Refinement Planning and the Transportation Planning Rule

Corridor refinement planning is a response to the Oregon Transportation Planning Rule (TPR). Section 660-012-0020 of the TPR requires that transportation system plans (TSPs) establish a coordinated network of planned transportation facilities adequate to serve regional transportation needs. The RTP is the region's TSP. Section 660-012-0025 of the TPR allows jurisdictions to defer decisions regarding mode, function, and general location of improvements to address identified needs as long as it can be demonstrated that the refinement effort will be completed in the near future.

A corridor refinement plan must identify the capital and operational improvements that a mobility corridor needs consistent with the region's congestion management process. This is particularly critical for planning efforts that may result in significant expansion of roadways beyond the planned system. A CMP analysis is required for capacity-increasing projects that go beyond the planned RTP system before federal funds may be applied. For such projects, the CMP looks at road expansions beyond the planned system as a last resort and, as appropriate, requires that they be coupled with complementary operational and travel demand management strategies.

In the Portland region, in order to stay consistent with our regional transportation and land use goals, our corridor refinement process includes a multimodal look at transportation needs, as well as a review of existing and planned land use and projected growth. See Section 8.5.4 in Chapter 8 of the RTP and Appendix L for more information about the region's CMP.

Consistent with the region's congestion management process, corridor refinement plans will provide decision-makers with more comprehensive information regarding safety, accessibility, environmental impact, mobility, reliability and congestion as they relate to the movement of persons and goods in the mobility corridor. They should also consider land use, economic opportunity, equity, travel demand and system management, street connectivity, walking and biking solutions in addition to increasing transit and road capacity. The corridor refinement plan will recommend a wide range of strategies and projects to be implemented at the local, regional and/or state levels.

Individual project and program solutions identified in the RTP may move forward to project development at the discretion of the facility owner/operator. Planning and project development efforts should be conducted with an understanding of the corridor refinement planning

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<sup>7</sup> Twenty-four subareas of the region – called mobility corridors - have been identified in the RTP. Each mobility corridor is defined by the designated 2040 Growth Concept land uses that are connected by an integrated system of throughways, arterial streets, transit and freight routes, and regional pedestrian and bike networks located within the subarea.



anticipated in the RTP and not preclude any strategies or potential solutions identified for consideration in the corridor refinement plan. The MOU or IGA from a corridor refinement plan is intended to provide more accountability and to formalize agreements across implementing jurisdictions on moving forward to implement the corridor refinement plan recommendations. This is particularly important in mobility corridors with multiple jurisdictions.

### **Mobility Corridors Recommended for Future Corridor Refinement Plans**

The main objective of the RTP mobility corridor framework is to organize information needed to help define the need, mode, function, performance standards, and general location of facilities within each mobility corridor consistent with the Transportation Planning Rule to ensure land use and transportation planning and decision-making are integrated. The needs assessment was developed based on the RTP policy framework and guided the identification of projects and programs during development of the RTP.

Under the mobility corridor framework, when determinations of need(s), mode(s), function(s), and general location(s) of solutions cannot be made, the mobility corridor needs a refinement plan. Corridor refinement plans are intended to be multimodal evaluations of possible land use and transportation solutions to address identified needs and develop a shared investment strategy, consistent with RTP goals, objectives and policies. This includes conducting an evaluation that considers the potential impact on regional and community goals for equity, housing, economic development, environmental protection and access to nature.

The RTP has identified a list of mobility corridors that do not meet the outcomes-based performance standards of the RTP and/or do not fully answer questions of mode, function and general location. These corridors need refinement planning and are listed in **Table 18**. The corridors are not listed in priority order. Potential high capacity transit corridors are likely to require corridor refinement plans to develop shared land use and transportation investment strategies and determine transit mode, function, general location and any associated changes in road or freight rail functions and performance standards of existing transportation facilities.

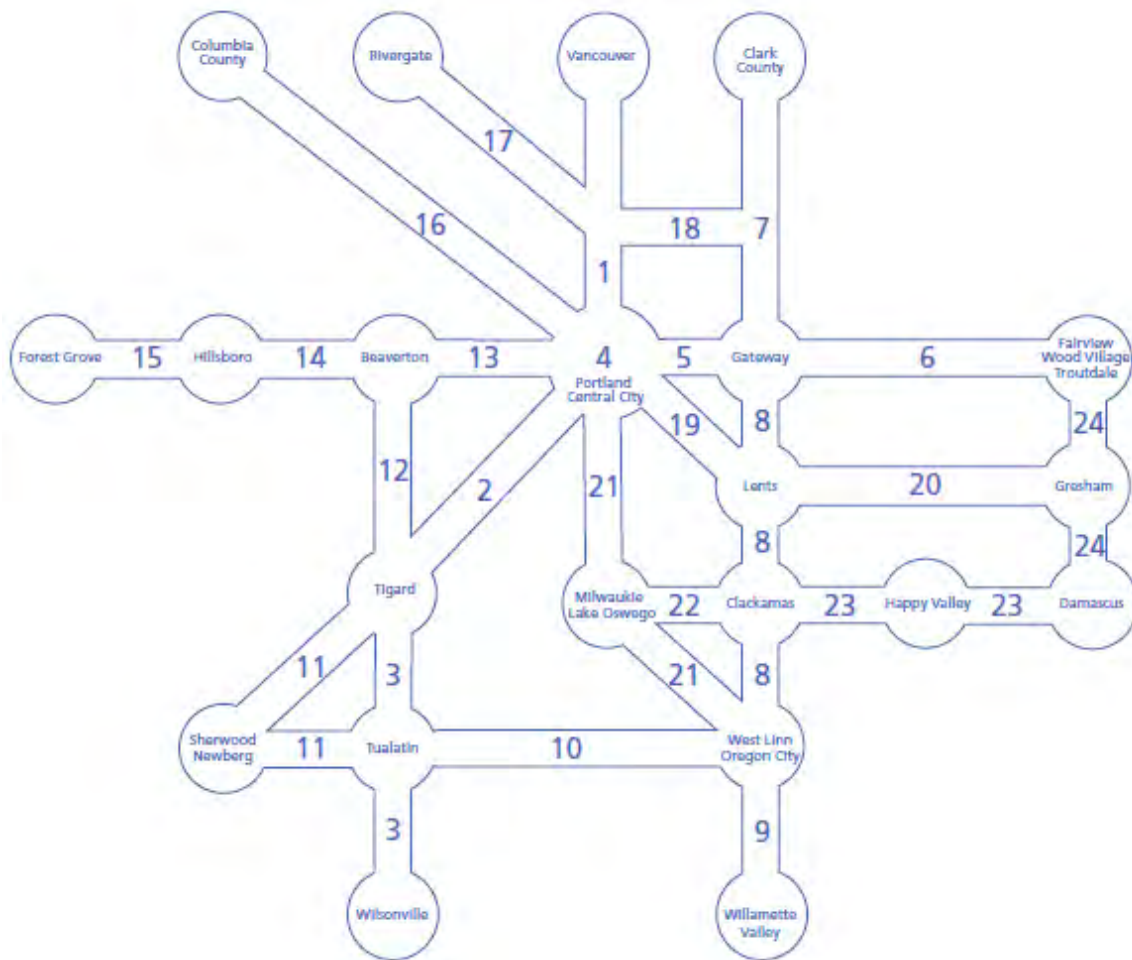
**Table 18. Mobility Corridors Recommended for Future Corridor Refinement Planning**

Regional Mobility Corridor	General Geographic Scope of Mobility Corridor
<b>Mobility Corridors #3</b>	Tigard to Wilsonville which includes I-5 South <sup>8</sup>
<b>Mobility Corridor #4</b>	Portland Central City Loop, which includes I-5/I-405 Loop
<b>Mobility Corridors #7, #8 and #10</b>	Clark County to I-5 via Gateway, Oregon City and Tualatin, which includes I-205
<b>Mobility Corridor #14 and #15</b>	Beaverton to Forest Grove, which includes Tualatin Valley Highway
<b>Mobility Corridors #13, #14 and #16</b>	Hillsboro to Portland, which includes US 26 and US 30
<b>Mobility Corridors #19 and #20</b>	Portland Central City to Lents and Lents to Gresham, which includes US 26/Powell Boulevard
<b>Mobility Corridor #24</b>	Clackamas to Fairview/Wood Village/Troutdale, which includes OR 212 and Sunrise Corridor

<sup>8</sup> In coordination with project development activities for Mobility Corridor #10.



**Figure 80. Illustrative Map of Mobility Corridors in the Portland Metropolitan Region**



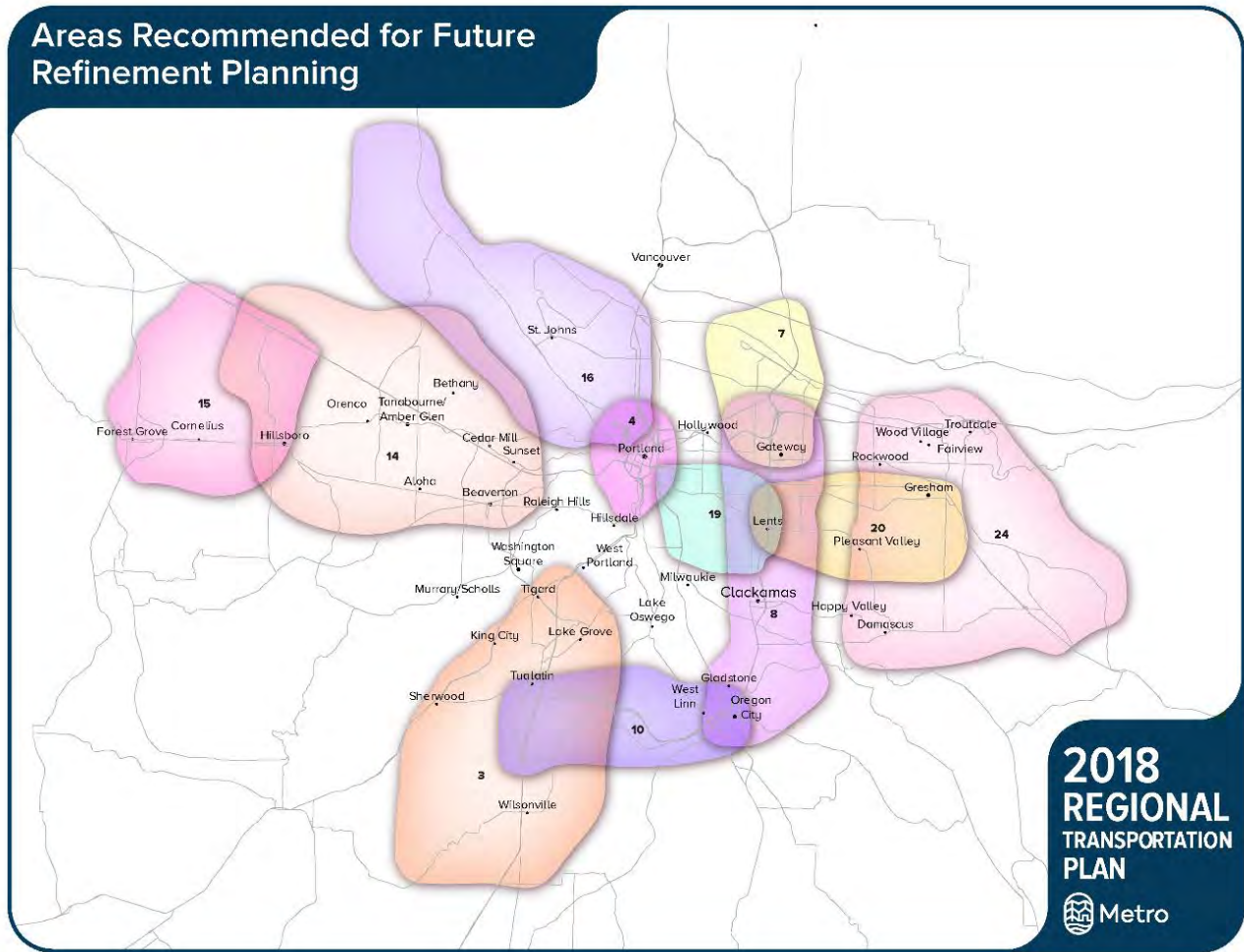
#### **Corridor Refinement Plans that have been partially completed since 2014**

- Portland Central City Loop (Mobility Corridor #4)
- Tualatin Valley Highway Corridor Plan (Beaverton to Forest Grove - Mobility Corridor #14 and #15)

#### **Corridor refinement plans that have been completed since 2014**

- Southwest Corridor Plan and Shared Investment Strategy (Portland central city/Southwest Portland, Tigard, Durham, King City, Tualatin, Sherwood, east Beaverton, small portion of west Lake Oswego – Mobility Corridor #2)
- East Metro Connections Plan (Gresham/Fairview/Wood Village/Troutdale to Damascus – Mobility Corridor #24)

**Figure 81. Regional Mobility Corridors Recommended for Future Refinement Planning**



#### **8.2.4.1 Tigard to Wilsonville (Mobility Corridor 3)**

This mobility corridor provides the major southern access to and from the central city. The corridor also provides important freight access, where Willamette Valley traffic enters the region at the Wilsonville “gateway,” and provides access to Washington County via OR 217.

The 2018 RTP identifies a wide range of effects to address as part of a corridor refinement plan for Mobility Corridor #10. The RTP also identifies design elements that should be considered including:

- Congestion pricing and HOV lanes for expanded capacity;
- Provide regional transit service, connecting Wilsonville and Tualatin to the central city;
- Increase WES service frequency and hours/days of operation; and
- Extend commuter rail service from Salem to the Portland Central City, Tualatin transit center and Milwaukie, primarily along existing heavy rail tracks.

#### **8.2.4.2 Portland Central City Loop (Mobility Corridor 4)**

##### **Context**

In 2005, the I-5/405 Freeway Loop Advisory Group (FLAG) completed its review of the near- and long-term transportation, land use, and urban design issues regarding the I-5/405 Freeway Loop. Appointed by Mayor Vera Katz and the ODOT Director in 2003, the 24-member group developed and evaluated concepts to address identified transportation issues and needs. The concepts represented a range of options that included modest improvements within existing right-of-way, a One-Way Loop System, and a full tunnel that would connect the Freeway Loop to I-84 and Sunset Highway. The three concepts were evaluated against the region’s proposed transportation system, along with projected employment and household growth, for the year 2030.

In completing its initial review, FLAG found that additional master planning work is needed to identify, prioritize and fund specific projects, and that short-term or interim investments should move forward while the master planning work is being completed. FLAG recommended that planning on I-84/I-5 interchange and the I-5 elements of South Portland Plan contemplated in the area of the interchange of I-405 and I-5 may proceed independent of the Master Plan with the understanding that the final plan for any such project would be consistent with the Master Plan. In addition, the study recommended advancing a corridor refinement plan to begin to identify short-term and long-term investments and a recommended scope, problem statement and set of principles:

The recommendations of the N/NE Quadrant Plan were incorporated in the recently adopted Central City 2035. In addition, as part of the plan, ODOT and the City worked to designate the Central City as a Multimodal Mixed-Use Area (MMA). MMAs are State designated high density, mixed use areas that are well served by multimodal transportation. MMA areas are exempt from mobility standards as part of land use amendments (safety and other State mandated policies remain in effect). As a condition of the MMA, the City and ODOT worked to identify safety

improvements for the Loop (including the I-5 Broadway/Weidler Project), which were subsequently added to the City's list of TSP projects and submitted to Metro as part of the 2018 RTP.

Proposed Mobility Corridor Purpose Statement: The purpose of the study is to develop alternative design concepts for Portland Central City Loop. Improvements to the I-5/4-5 Freeway Loop must address long-term transportation and land use needs in a system-wide context. Because the movement of people and goods is a vital economic function, changes must be considered in relation to local, regional, and statewide geographies. Freeway Loop improvements should enhance, not inhibit, high-quality urban development, and should function as seamless and integral parts of the community.

The 2018 RTP identifies a wide range of objectives that will guide the selection and evaluation of options in the next phase.

#### **8.2.4.3 Clark County to I-5 via Gateway, Oregon City and Tualatin (Mobility Corridors 7, 8 and 10)**

Improvements are needed in this corridor to address existing deficiencies and expected growth in travel demand in Clark, Multnomah and Clackamas counties. The 2018 RTP identifies transportation solutions in this corridor should address as well as the following transit needs and opportunities:

- Expanded transit service in the corridor including provision of I-205 express bus service between Clackamas regional center and Bridgeport in Tualatin, and frequent bus service between Clackamas regional center and Clackamas Community College via downtown Oregon City;
- Extend high capacity transit service from Milwaukie to Oregon City along McLoughlin Boulevard;
- Potential for rapid bus transit service or light rail from Oregon City to Gateway; and
- Potential for extension of rapid bus service or light rail north from Gateway into Clark County.

#### **8.2.4.4 Beaverton to Forest Grove (Mobility Corridors 14 and 15)**

A number of improvements are needed in this corridor to address existing deficiencies and serve increased travel demand. One primary function of this route is to provide access to and between the Beaverton and Hillsboro regional centers. Tualatin Valley Highway also serves as an access route to Highway 217 from points west along the Tualatin Valley Highway corridor. As such, the corridor is defined as extending from Highway 217 on the east to Forest Grove to the west, and from Farmington Road on the south to Baseline Road to the north.

The Tualatin Valley Highway Corridor Plan (TVCP) is a “mobility corridor refinement” plan completed in June 2013. The TVCP studied the Beaverton to Hillsboro portion of the Beaverton to Forest Grove mobility corridor between Cedar Hills Boulevard (Beaverton Regional Center) and SE 10<sup>th</sup> Avenue/Maple Street (Hillsboro Regional Center). The northern boundary of the study

area was Baseline Road/Jenkins road and the southern boundary was Farmington Road, Oak Street, Davis Street and Allen Boulevard. There are still two outstanding sections of the corridor left to be studied: within Beaverton (OR 217 to SW Cedar Hills Blvd) and from Hillsboro (west of SE 10<sup>th</sup> Avenue/Maple Street) to Forest Grove.

The TVCP was a joint effort between ODOT, Metro, the City of Hillsboro, the City of Beaverton and Washington County that focused an examination of the transportation system to identify needs and improvements for all modes of transportation. A number of improvements have been identified in this corridor to address existing deficiencies and safety concerns and serve increased travel demand.

A long-term transit solution for Tualatin Valley Highway has yet to be identified. In advance of this transit study additional land area is to be preserved for Business Access Transit (BAT) / High Capacity Transit (HCT) uses. This land area is not intended to be used for general purpose through lanes. Development along Tualatin Valley Highway shall consider opportunities so as to not preclude a future BAT lane in the westbound direction, and to not preclude bus pullouts in the eastbound direction.

Early in the project, the TVCP PG gave policy direction to maintain the design and function of TV Hwy as an urban arterial that will not exceed motorized vehicle capacity of two through travel lanes in each direction. Consistent with this decision, proposed actions along TV Hwy will be developed during subsequent refinement planning and design work to maximize the use of the typical 100 feet to 107 feet of existing right-of-way (ROW) to serve multimodal travel. Additionally, the RTP Arterial & Throughway map and System Design Classification maps are amended. TV Highway will be changed from “Principal arterial” to “Major Arterial” on the Arterial & Throughway map. It will be changed from “Throughway” to “Regional Street” on the System Design map.

The TVCP recommendations fall into 3 categories: 1) Near Term Actions, 2) Opportunistic Actions, and 3) Longer Term Refinement Planning Needs.

#### Near Term Actions

The proposed improvements described below will address existing needs, including multimodal system completeness and safety, and can reasonably be expected to be completed within the next 15 years with a strong commitment from one or more of the partner agencies that have jurisdiction over subject transportation facilities, including:

- Complete detailed multi-agency study to determine future potential for high capacity transit solutions within the Tualatin Valley Highway corridor;
- The Moving Forward TV Highway Plan will be developed as a multi-agency study that determine nature and feasibility of HCT in the Tualatin Valley Highway corridor between SW 160<sup>th</sup> Ave and Cornelius Pass Road;
- Improve bus stops along Tualatin Valley Highway;
- More frequent bus service;



- Add street lighting on Tualatin Valley Highway;
- Improve Tualatin Valley Highway pedestrian crossings;
- Complete Planning and Conceptual design for a Multi-use path;
- Fill gaps in sidewalks and add landscape buffers along Tualatin Valley Highway;
- Add directional way finding signs;
- Complete the (currently discontinuous and narrow) bike lanes on Tualatin Valley Highway;
- Improve bike crossings of Tualatin Valley Highway;
- Develop continuous east-west parallel bike routes north and south of Tualatin Valley Highway;
- Public community rail safety education;
- Support and promote employer incentive programs to reduce driving;
- Improve signal timing, transit prioritization and traffic operations monitoring;
- Signal prioritization for transit;
- Adaptive signal control (“smart signals” that adjust timing to congestion levels);
- Improve operations at signalized intersections along Tualatin Valley Highway;
- Intersection modification to address safety and mobility; and
- Left-turn signal improvements.

### **Opportunistic Actions**

Understanding that funding opportunities (whether public funding or public funding in combination with private sources) may arise for transportation improvements within the TVCP Project Area to work towards to meet the goals and objectives of the TVCP, while attempting to:

- Encourage private contributions by developers to implement the near term improvements, including reserving ROW for future transportation improvements (*City of Hillsboro, City of Beaverton, Washington County*).
- Acquire the ROW to develop a westbound business access transit (BAT) lane as redevelopment opportunities arise on Tualatin Valley Hwy. The City of Hillsboro may also require all half-street improvements be constructed to include the setback curb, planter strip, and sidewalk improvement to create an amenable environment for future transit solutions on Tualatin Valley Highway. This redevelopment should be consistent with ODOT standards. The City of Hillsboro has determined that a BAT lane would not provide the anticipated benefit for transit service and therefore the city isn’t acquiring ROW to develop the BAT lane as redevelopment opportunities occur on TV Hwy check with Gregg Snyder about this. The Moving Forward TV Highway Enhanced Transit and Access Plan will look at whether there are benefits of using a BAT lane in part of the corridor from 160<sup>th</sup> to Cornelius Pass Road.

- As projects arise from appropriate categories examine whether opportunities are available to use other funds to leverage this funding (e.g., safety) (*ODOT, consulting with partners*).
- As land use and transportation system conditions change and near term improvements are completed, consider the opportunity to update this adaptive corridor management strategy (*all partners*).
- Improve existing north-south routes for all modes to reduce travel demand on Tualatin Valley Highway and congestion at intersections. Improvements to roadways such as Brookwood Avenue, Century Boulevard, Cornelius Pass Road, 209<sup>th</sup> Avenue, 198<sup>th</sup> Avenue, 185<sup>th</sup> Avenue, and 170<sup>th</sup> Avenue would provide the greatest benefit to the overall transportation system. Five improvements on 198<sup>th</sup> Avenue south of Tualatin Valley Highway are scheduled in the next five years through Washington County's Major Streets Transportation Improvement Program. The other three corridors will require a more opportunistic approach, including working with developers of South Hillsboro to help improve 209<sup>th</sup> Avenue (*City of Hillsboro, City of Beaverton, Washington County*).
- Improve east-west connectivity (such as those proposed in the upcoming South Hillsboro UGB development mitigation) in addition to the near term actions proposed in South Hillsboro such as the Kinnaman and Rosa Road extensions (*City of Hillsboro, City of Beaverton, Washington County*).
- Complete the bicycle and pedestrian system in the TVCP Project Area to increase connectivity and access.
- Examine transit service for enhancements and improvements in the near term improvements list to leverage added service or other capital enhancements. TriMet has been awarded two Statewide Transportation Improvement Program (STIP) projects (Highway 8 Corridor Safety and Access to Transit) for improved safety, active transportation, access to transit and transit operations by improving bus stops, constructing landing pads, and enhancing crossings. ODOT will be enhancing two pedestrian crossings, infilling sidewalks, consolidating bus stops, providing transit queue jumps at one location and improving a bus stop. For the second application (between 110<sup>th</sup> Avenue and SW 209<sup>th</sup> Avenue on TV Hwy), the project will enhance four pedestrian crossing locations, install buffered bike lanes between 153<sup>rd</sup> and 182<sup>nd</sup> Aves, consolidate bus stops, install illumination, ped actuation and signal interconnect at 141<sup>st</sup>/142<sup>nd</sup> and 174<sup>th</sup>, install physically separated walkways and bike lanes on bridge sections between 153<sup>rd</sup> and 160<sup>th</sup> Ave and the between 30<sup>th</sup> and 40<sup>th</sup> Aves.
- Reduce vehicle turn movements to/from driveways on TV Highway. This would improve safety and mobility of pedestrians, bicyclists, and motorists on TV Hwy. Further access consolidations are recommended in conjunction with other property redevelopment.

#### Long Term Refinement Planning Needs

The refinement plan was unable to adequately address some longer term planning aspirations for the corridor. The following should be addressed as part of a future corridor refinement plan:

- The preferred location (e.g. on or adjacent to Tualatin Valley Highway) and most viable transit mode (e.g., bus rapid transit, express bus service, light rail, streetcar, or commuter rail) and

amount of right-of-way needed for a long-term HCT solution for Tualatin Valley Highway. This transit alternative analysis study may explore enhanced signal operations for transit and/or the viability of a Business Access Transit (BAT) lane in appropriate locations. The Moving Forward TV Highway Enhanced Transit and Access Plan will determine the nature and feasibility of HCT in the corridor primarily between 160<sup>th</sup> and Cornelius Pass Rd.

- The location of a multi-use pathway parallel to Tualatin Valley Highway.
- The location of new local street connections, in concert with access management along Tualatin Valley Highway.
- While grade separated intersections are not included in the plan, it is recognized that in the long term, all tools should be considered to maintain acceptable intersection performance to serve future transportation and community needs.

#### **8.2.4.5 Powell-Division Corridor: Portland Central City to Lents Town Center and Lents Town Center to Gresham Regional Center (Mobility Corridors 19 and 20)**

The Powell-Division Corridor is included in Mobility Corridors #19 and #20. The Mobility Corridor Strategy identified in 2014 RTP Appendix 3.1 notes that both corridors are anticipated to experience high levels of growth in employment and population by the year 2040.

A number of investments are needed in these corridors to address existing deficiencies and serve increased travel demand.

The Powell-Division Transit and Development Plan alternative analysis identified a project – now called the Division Transit Project - that addresses some of the needs identified for the Powell-Division Corridor by improving transit and safety on Division Street with a bus rapid transit project. The Division Transit Project is a part of the financially constrained RTP project list. The Division Transit Project does not fully address the transit, safety, and mobility needs that remain on Powell Boulevard.

Project development analysis and public input has resulted in a Locally Preferred Alternative for a Division Transit Project that includes bus rapid transit running from downtown Portland to downtown Gresham on Division Street through southeast Portland. Project partners recognized that Powell Boulevard improvements are still needed to address safety and mobility needs for all modes and supply essential transit connections in this corridor. Also, a number of steering committee members qualified their votes of support for the Locally Preferred Alternative as contingent upon a commitment to further study Powell Boulevard to address safety and mobility needs moving forward. Based on community feedback and analysis during the Powell-Division Transit and Development project, the City of Portland included language documenting this recommendation in their LPA adopting resolution, as follows:

BE IT FURTHER RESOLVED, that Metro advance Powell Boulevard for regional consideration and prioritization within the High Capacity Transit planning process, and amend the Regional Transportation Plan to assert continued need for Powell Boulevard transit improvements.

This recommendation was codified by the City of Portland in its ordinances adopting the Locally Preferred Alternative and in the accompanying Powell-Division Transportation and Development Strategy (an attachment to the jurisdiction's LPA resolution).

The Powell-Division Corridor is included in Mobility Corridors #19 and #20. The Mobility Corridor Strategy identified in 2014 RTP Appendix 3.1 notes that both corridors are anticipated to see high levels of growth in employment and population by the year 2040.

Mobility Corridor #19 provides an important connection between the Portland Central City and the Lents Town Center and provides important freight access to rail facilities at Brooklyn Yard and access from Powell Boulevard and McLoughlin Boulevard to the Central Eastside Industrial District. This corridor also serves statewide and regional travel on Powell Boulevard (US 26), which serves as a statewide and regional freight route between I-5 and I-205.

The corridor does not meet regional performance thresholds (does not perform as it should) for its throughways (Powell Boulevard) and arterials (Division and Holgate streets) as defined in the RTP due to high volume to capacity ratios.

Strategies adopted in 2014 RTP Appendix 3.1 to improve the corridor include:

Near term:

- System and demand management along Powell Boulevard and parallel facilities for all modes of travel.
- Improved, safe pedestrian and bicycle crossings of Powell Boulevard.
- Modify existing signals, coordinate and optimize signal timing to improve traffic operations on Powell Boulevard.
- Prioritize and construct safety and streetscape improvements from SE 50th to SE 84th Avenue.

Medium term:

- Improve safety by all modes and enhance opportunities for use of bicycles, walking and transit on Powell Boulevard.
- Identify and implement potential changes to the cross section of Foster Road based on the Foster Streetscape Plan.

Mobility Corridor #20 provides an important connection between the Lents Town Center and the Gresham Regional Center. The corridor provides important freight access, connecting I-205 to Gresham and the Springwater Industrial Area. In addition, the corridor serves statewide travel, connecting to routes that lead to destinations outside the region such as the Mt Hood Recreational Area and Sandy Oregon.

Similar to Mobility Corridor #19, Mobility Corridor #20 is expected to experience high levels of employment and population growth by 2040 and does not meet regional performance thresholds

for its throughways (Powell Boulevard) and arterials (Division and Foster streets) as defined in the Regional Transportation Plan due to high volume to capacity ratios.

Strategies adopted in 2014 RTP Appendix 3.1 to improve the corridor include:

- Near term: System and demand management along the Powell Boulevard and parallel facilities for all modes of travel.
- Medium term: Implement a three-lane cross-section on Powell Boulevard from I-205 to SE 174th Avenue with bicycle and pedestrian improvements.
- Long term: Implement additional capacity enhancements along Powell Boulevard from 162nd to 174th Avenue as needed. Additional enhancements may include intersecting north-south streets along Powell Boulevard.

Project development analysis and public input resulted in a Locally Preferred Alternative for a Division Transit Project that includes bus rapid transit running from downtown Portland to downtown Gresham on Division Street through southeast Portland. The jurisdictions recognized that Powell Boulevard improvements are still needed to address safety and mobility needs for all modes and supply essential transit connections in this corridor. Also, a number of steering committee members qualified their votes of support for the Locally Preferred Alternative as contingent upon a commitment to further study Powell Boulevard to address safety and mobility needs moving forward. Based on this conclusion, the RTP was amended to include an additional, future corridor refinement plan for Powell Boulevard as part of the adoption.

In addition, during the Division Transit Project's LPA process, project partners (TriMet, Metro, City of Gresham, Multnomah County, and Mount Hood Community College) developed a Memorandum of Understanding (MOU), in which TriMet committed to improve service to Mount Hood Community College with more frequent service on the Line 20, which will connect the college to the new bus rapid transit line and neighborhoods, and new transit amenities added at the college. The MOU also included a commitment to engage with the college and other signatories to identify future transit improvements in the area, and to seek to identify potential improvements at the Gresham Transit Center in coordination with the City of Gresham. Likewise, a number of steering committee members shared their support for the LPA was contingent upon these actions.

#### **8.2.4.6 Hillsboro to Portland (Mobility Corridors 13, 14 and 16)**

Improvements are needed in this corridor to address existing deficiencies and future growth in freight, commuters, and commercial traffic between Hillsboro's Silicon Forest, Northern Washington County's agricultural freight, and the Portland Central City, the international freight distribution hub of I-5 and I-84, the Port of Portland marine terminals, rail facilities, and the Portland International Airport. This corridor is generally defined by US 26 (Sunset Highway), which extends from the Oregon Coast through the Vista Ridge Tunnel where it intersects with the I-405 loop accessing I-5, and I-84. The Sunset Highway Corridor Study is recommended to evaluate multi-modal improvement needs between I-405 and the US 26/Brookwood Parkway interchange.



## **Corridor Growth Demand**

Corridor #13, which extends east to the Willamette River including the western portion of Portland's Central City and Corridor #14 extending west from Murray Boulevard to North Plains will account for 22 percent of the region's households, 20 percent of the region's population, and 31 percent of the region's employment by 2040.

## **Freight Mobility Challenges**

Much of the existing and projected employment in Corridor #14 is traded-sector manufacturing employment, which places a high priority on its ability to import raw materials and export finished goods to the national and international market through Portland's air, water, rail, and trucking distribution infrastructure.

## **Safety and Reliability**

With congestion becoming more pervasive on US 26 in the area of the Vista Ridge Tunnels and the I-405 interchange, traffic crashes have continued to increase. Cumulatively, there are 10 discreet locations on US 26 between I-405 and Highway 217 that rank in the state's top 10 percent of crash high-priority locations statewide.

## **Hazardous Materials and Natural Hazards**

Sunset Highway at the Vista Ridge tunnels prohibits the hauling of hazardous materials. Petroleum products used to fuel vehicles in the Tualatin Valley and chemicals, including but not limited to industrial gases used in the manufacturing of silicon wafer products, commonly use Cornelius Pass Road with Highway 217 as the secondary route.

Both the Sunset Highway corridor and the secondary freight route of Cornelius Pass Road are susceptible to recurring incidents such as crashes, landslides, and trees blocking the roadways. In both cases, the regional transportation system lacks "redundancy" to accommodate any unforeseen impediments to travel. Similarly, both corridors (and their Willamette River bridges) are not likely to prove reliable and sustainable in the event of a Cascadia earthquake.

## **Commuter and Commercial Travel Demand**

Corridor #13, which includes Sunset Highway and its array of complementary parallel arterial roadways (Cornelius Pass Road, Germantown Road, Cornell Road, Barnes/Burnside Road, and Beaverton-Hillsdale Highway), carry approximately 229,150 vehicles per day comprising roughly 390,000 person-trips per day. Of the total vehicle trips, Sunset Highway carries 160,000 vehicles per day, including 6,000 trucks, and Cornelius Pass Road serves approximately 11,000 vehicles per day.

At present, transit carries approximately 29,000 person-trips per day on the MAX Blue Line, the MAX Red Line, and multiple bus routes serving the parallel arterials in the corridor (23,600 on Blue/Red MAX). Together, transit is serving approximately more than 7 percent of the person-trips on the corridor connecting Portland's Central City to the northern Tualatin Valley, but about 17 percent of peak hour travel on the Sunset Highway corridor itself. The MAX Blue Line operates

at near capacity presently during peak periods, prompting TriMet to plan the western extension of the MAX Red Line to Hillsboro's Airport/Fair Complex Station by approximately 2022.

Hillsboro has also been working with TriMet, Washington County, and the City of Portland to advance a potential new Sunset Highway Express Bus service which is envisioned to operate from Forest Grove through the north Hillsboro industrial area to Portland via US 26 with regional park-and-rides at Hillsboro Stadium and potentially near the US 26/ Cornell-Bethany interchange.

### **Potential Solutions**

Potential transportation solutions in this corridor should evaluate the costs and benefits of the following range of investments intended to reduce congested hours of operations through the corridor, improve travel time reliability, reduce crash frequency, and improve transit utilization. The study would identify a set of potential improvements that would be subsequently advanced for further study and potential project development and funding. The following transit related concepts should be addressed as part of a future corridor refinement plan:

- Evaluate system and demand management options to expand travel options over the west hills, including employer shuttle buses and carpools, on-demand ride sharing carpools, etc.
- Expanded transit service on the corridor including provision of a Sunset Highway express bus service between the Portland Central City via the SW Jefferson Street interchange and Hillsboro (or Forest Grove).
- Evaluate the potential for bus-on-shoulder operations for bypassing of traffic queues on US 26 during periods of congestion.
- Expand the Sunset Transit Center park-and-ride capacity.
- Extend high capacity transit service from Portland to north Hillsboro along Sunset Highway including additional park-and-ride locations west of Highway 217. This improvement could consider use of paid parking at park-and-ride locations as a potential public-private partnership funding opportunity.
- Increase the frequency of MAX Blue Line and MAX Red Line and extend the MAX Red Line west to the Hillsboro Airport/Fair Complex station.
- Develop a transit service route that connects US 26 from Powell Boulevard to Sunset Highway to better accommodate demand between SE Portland/Clackamas County and northern Washington County.
- Improved transit connections to MAX/HCT in the corridor, including Columbia County Rider connectivity and better local access to the Sunset Transit Center.

#### **8.2.4.7 Clackamas to Columbia (Mobility Corridor 24)**

This effort will create a consistent, coordinated, multi-jurisdictional transportation plan that focuses on needed improvements for all modes along the 181st/182nd/190th/172nd corridor that connects I-84 in Multnomah County and Highway 212 in Clackamas County. The corridor crosses a wide variety of land uses, both existing and planned. The effort will use the results of the

planning projects that have been initiated locally (e.g., Pleasant Valley TSP Refinement Project, Happy Valley Pleasant Valley/North Carver Comprehensive Plan, 172<sup>nd</sup> Avenue/190<sup>th</sup> Drive Corridor Management Plan and the Clackamas County TSP Update), and evaluate packages of multimodal improvements that will improve mobility and access along the corridor to jobs, housing and key commercial and industrial areas. This effort will identify a preferred package of transportation improvements and detail how they can be phased for implementation. This effort will also provide recommendations on urban street design as well as recommend amendments to local TSPs and the Regional Transportation Plan to implement the preferred multimodal package.

### **Potential Solutions**

This effort will recommend a shared mobility corridor investment strategy, including long-term needs and improvements for auto, bicycle, freight, pedestrian, and transit mobility and connectivity. This effort will expand on already adopted planning efforts in the corridor to create a multi-jurisdictional implementation strategy that provides a clear path from existing conditions to desired transportation improvements that support community and regional goals for equity, housing, economic development, environmental protection and access to nature. The planning process will include extensive public involvement and identify a set of potential improvements that would be subsequently advanced for further study and potential project development and funding.

The study will include a needs assessment for auto, freight, transit, bicycle and pedestrian modes within the corridor to identify existing gaps and system deficiencies. The assessment and solutions will address completing regional trails gaps, including the Troutdale to Springwater Trail, the Sunrise Corridor Trail and the Butler Buttes Trail - to provide a continuous off-street active transportation route through the length of the mobility corridor. A full list of recommended projects from other related transportation planning efforts will be developed. Data for key performance metrics will be collected from the related transportation plans and analyzed. If necessary, additional projects will be identified and proposed if unmet needs are found. The projects will then be evaluated, and recommended projects will be grouped into investment packages and grouped geographically. The preferred investment packages for all modes will then be fully documented in the final plan along with implementation strategies focusing on timelines and funding strategies.

More information is available at: <https://greshamoregon.gov/Clackamas-to-Columbia-Corridor>.

## **8.3 Transit Projects and Project Development**

Major transit projects have been identified through the 2009 HCT Plan and local and regional planning efforts. Major transit projects, refers to project that may go through the FTA CIG Program for funding. Project planning and project development is completed jointly by Metro, the transit agency and the local governing jurisdictions. Major projects typically have a high level of public and require an environmental analysis through the National Environmental Protection Act (NEPA).

### **8.3.1 Transit Projects underway**

The HCT Plan identified the near term HCT priorities to move forward, including the Division Transit Project and the Southwest Corridor Project. The region is committed to advancing and continues to implement these two regionally significant transit projects. Another project that is currently underway is the MAX Red Line Improvement Project, to improve the capacity and reliability of the light rail system through the Gateway Transit Center as well as extending the Red Line to Hillsboro.

#### **8.3.1.1 Division Transit Project**

The Division Transit Project will improve travel between Downtown Portland, Southeast and East Portland and Gresham with easier, faster and more reliable bus service. The Steering Committee recommended a Locally Preferred Alternative (LPA) in November and was adopted by the local jurisdictions in December 2016. The LPA for the transit project includes the transit mode (bus rapid transit), the route (from downtown Portland on the transit mall to Southeast Division Street to the Gresham Transit Center), and the general stop locations (approximately 1/3 mile apart). The project began the NEPA process by documenting potential impacts and benefits in accordance with federal requirements. With local adoption of the LPA, TriMet is leading the design, traffic analysis, and outreach with support from Metro and other project partners. In June 2017, the Metro Council adopted the LPA by Resolution No. 17-4776 at the same time the Council amended the 2014 RTP by Ordinance No. 17-1396 to include the LPA in the plan.

TriMet is working with partners to finalize the project's design, and Metro is leading the NEPA process by conducting a Documented Categorical Exclusion. The land use investment strategy is being led by Portland and Gresham, moving forward on their locally adopted Local Action Plans. The Local Actions Plans outline their vision for implementing land use and economic development that complements the transit investment. Construction is anticipated to begin in 2019 with a targeted opening date of fall 2022.

Additional project information is available at: [www.trimet.org/division](http://www.trimet.org/division).

#### **8.3.1.2 Southwest Corridor Transit Project**

The Southwest Corridor Plan is a comprehensive effort focused on supporting community-based development and placemaking that targets, coordinates and leverages public investments to make efficient use of public and private resources. In August 2011, the Metro Council adopted Resolution 11-4278 that appointed the Southwest Corridor Steering Committee, and a charter defining how the partners will work together was adopted by the Steering Committee in December 2011. This work has been guided by a Steering Committee comprised of representatives from the cities of Beaverton, Durham, King City, Portland, Sherwood, Tigard and Tualatin, Multnomah and Washington County; TriMet, ODOT and Metro. Steering Committee members agreed to use a collaborative approach to develop the Southwest Corridor Plan and a Shared Implementation Strategy to align local, regional, and state policies and investments in the corridor.

In October 2013, the Metro Council adopted Resolution No. 13-4468A, endorsing the Southwest Corridor Shared Investment Strategy and directing staff to coordinate and collaborate with project partners on refinement and analysis of HCT alternatives and local connections in the Southwest Corridor, along with associated roadway, active transportation and parks/natural resource projects that support the land use vision for the corridor. This resolution also directed staff to work with project partners to involve stakeholders at key points in the process and seek input from the public.

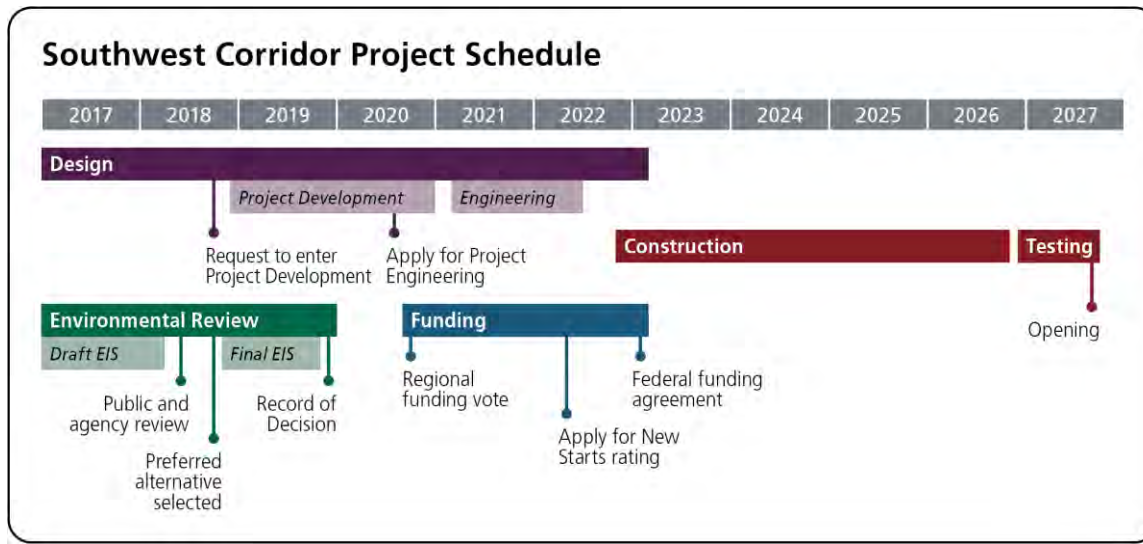
In June 2014, the Metro Council adopted Resolution No. 14-4540, which included direction to staff to study the Southwest Corridor Transit Design Options under NEPA in collaboration with the Southwest Corridor Plan project partners and with the involvement of stakeholders and public, pending Steering Committee direction on the results of the focused refinement analysis

The Southwest Corridor Light Rail Project has emerged as the preferred high capacity transit investment of the Southwest Corridor Shared Investment Strategy. The project is a proposed 12-mile MAX light rail line serving SW Portland, Tigard, Tualatin and the surrounding communities. The proposed project also includes bicycle, pedestrian and roadway projects to improve access to light rail stations. In compliance with NEPA, and at the direction of the Metro Council, an Environmental Impact Statement (EIS) will be prepared by Metro, TriMet and the FTA to identify the significant positive and negative impacts the project could have on the built and natural environment, and to determine options to avoid, minimize or mitigate those impacts. The Draft EIS released in summer 2018, assessed the project alternatives remaining from over three years of analysis refinement and suggested ways to avoid, minimize or mitigate significant adverse impacts. The information disclosed in the Draft EIS and public and agency comments on the Draft EIS, informed the Southwest Corridor Steering Committee in its recommendation of a Locally Preferred Alternative (LPA).

TriMet anticipates requesting entry in Project Development with FTA late in 2018. TriMet will be furthering the transit project design while Metro completes the final EIS. The final EIS will analyze and disclose the benefits and the adverse impacts of the preferred alternative, including the effects of mitigation measures identified in the Draft EIS and selected for inclusion in the project. Upon completion of the final EIS, TriMet will request a Record of Decision (ROD) from FTA, which authorizes lead agencies to proceed with design, land acquisition, and construction based on the availability of funds. The general schedule for the Southwest Corridor Light Rail Project is shown below, with anticipated opening in fall 2027.



**Figure 82. Southwest Corridor Project schedule**



More information is available at [www.oregonmetro.gov/public-projects/southwest-corridor-plan](http://www.oregonmetro.gov/public-projects/southwest-corridor-plan).

### 8.3.1.3 MAX Red Line Improvement Project

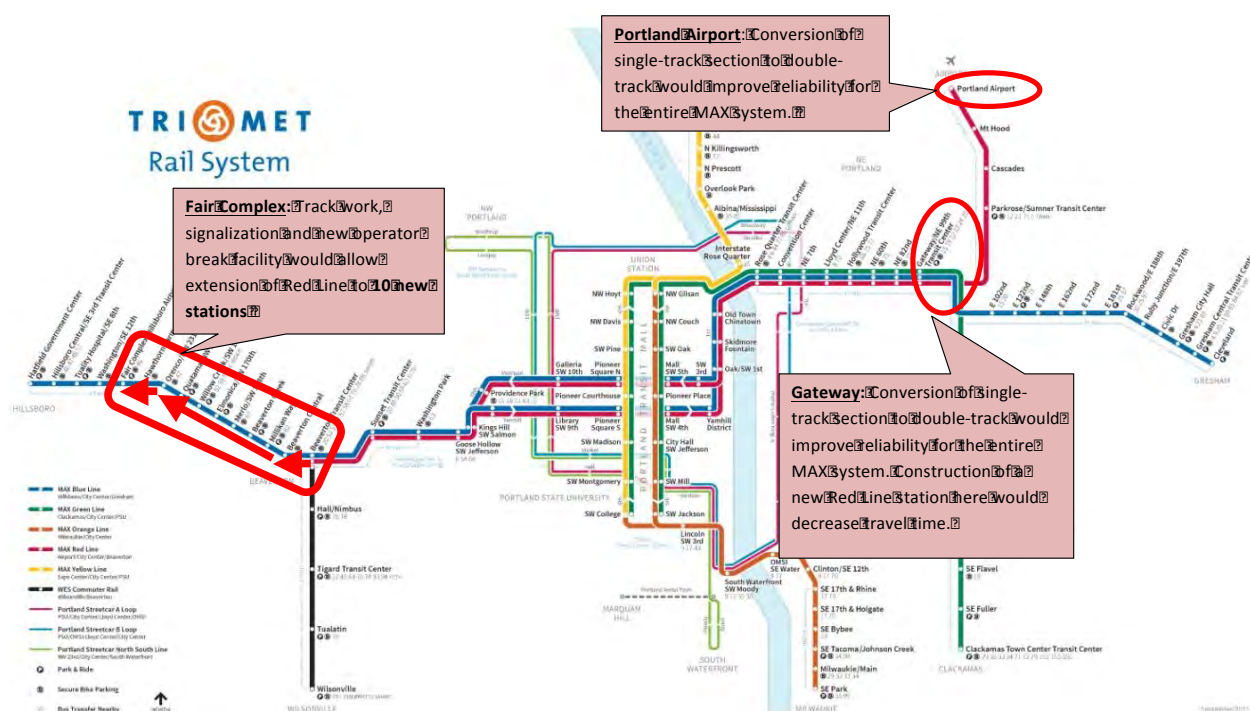
The MAX light rail system provides high capacity transit connecting the major centers of our region. The MAX Red Line has connected the City of Beaverton, downtown Portland, Gateway Regional Center, and Portland International Airport since 2001. Since its opening, there has been substantial growth in the corridor and more demand for reliable transit connecting these important centers. Currently, the Red Line has two single-track sections near Gateway/99th Ave and Portland International Airport, which result in inbound and outbound trains having to wait for each other. If a train is off schedule, these wait times can impact the entire MAX System as trains rely on the same tracks to serve different parts of the region. Adding a second set of tracks in these areas will reduce delays for riders on all five lines. In addition, MAX riders west of Beaverton Transit Center have been requesting Red Line service to better connect this growing part of the region.

The Red Line improvements west of the Beaverton Transit Center include improving track and switches, adding signals and a new operator break facility at the Fair complex/ Hillsboro Airport MAX Station, allowing Red Line trains to serve ten more west side stations. These stations are currently served by the Blue Line, which is often overcrowded.

This project will complete a 2-year design process for the MAX Red Line double tracking and other improvements to increase light rail reliability on all five MAX lines and to improve carrying capacity to meet transit demand west of the Beaverton Transit Center. TriMet and Metro will work with the local jurisdictions and the Port of Portland to scope the project to improve access to major transit origins and destinations, improve reliability of the entire MAX system. TriMet and Metro will also consult with the federal agencies during the scoping phase. TriMet is coordinating with local jurisdictions to avoid and minimize any potential impacts associated with improving

the Red Line. NEPA is expected to be complete in 2019 with construction of improvements in the 2021-2023 timeframe. Completion is targeted for 2023. This work will improve mobility and transit performance throughout the region.

**Figure 83. MAX Red Line improvement project area map**



More information is available at: [www.trimet.org/redlineimprovements](http://www.trimet.org/redlineimprovements).

### 8.3.2 Other major project development underway

The 2018 RTP identifies other major project development projects underway. These projects are not transit specific but may have an important transit component or consideration. For more information about this project, see the *2018 Regional Transportation Plan Update, Chapter 8 Implementation*.

### 8.3.2.1 I-5/Rose Quarter Project

ODOT and the City of Portland are ongoing partners on the I-5 Rose Quarter Improvement Project, which implements the recommendations of the I-5 Broadway-Weidler Facility Plan and the N/NE Quadrant Plan. The purpose of the I-5 Rose Quarter Improvement Project is to improve the safety and operations on I-5 between I-84 and I-405, the Broadway/Weidler interchanges, and adjacent surface streets in the vicinity of the interchange. In achieving the purpose, the Project also supports improved connectivity and multimodal access in the vicinity of the interchange.

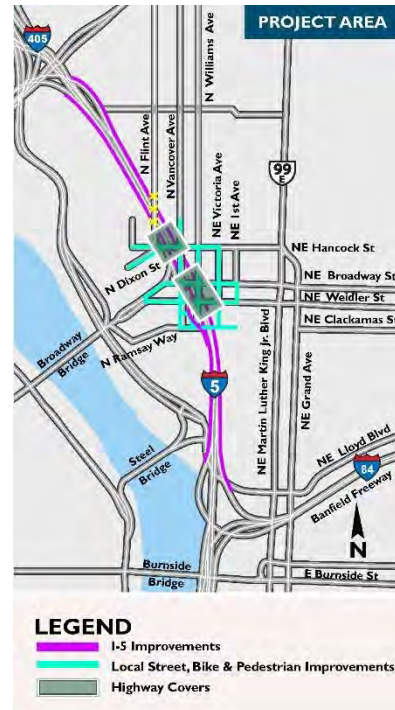
**Figure 84** shows the project location and **Figure 85** illustrates the project features.

The I-5 Rose Quarter Improvement Project is intended to make travel more convenient, reliable, and safe for people driving on I-5, or biking, walking, or taking public transit in the Rose Quarter area. The Project will add:

- one new auxiliary lane in each direction on I-5 between I-84 and I-405 to improve traffic weaves and reduce frequent crashes
- full shoulders in each direction on I-5 between I-84 and I-405 to create space for disabled vehicles to move out of through traffic and allow emergency vehicles access
- relocating the I-5 southbound on-ramp from NE Wheeler to NE Weidler
- highway covers over I-5 at Broadway/Weidler and Vancouver/Hancock to provide space for wide sidewalks, separated bike lanes, roads, and new community spaces
- a bicycle- and pedestrian-only bridge over I-5 from NE Clackamas Street to the Rose Quarter
- new, direct road connection over I-5 between N Hancock Street and N Dixon Street
- new, upgraded pedestrian and bicycle paths in the area of the Broadway/Weidler interchange
- improved pedestrian and bicycle access to transit, including Portland Streetcar and TriMet bus and MAX lines

More information is available at [www.i5rosequarter.org](http://www.i5rosequarter.org).

**Figure 84. I-5/Rose Quarter project area**



**Figure 85. I-5/Rose Quarter Project features**



ODOT initiated the federal environmental review process for the I-5 Rose Quarter Improvement Project in December 2016, with expected publication of an Environmental Assessment by the end of 2018. Project design is scheduled to begin in 2019, with construction beginning as early as 2023.

The I-5 Rose Quarter Improvement Project is one of the projects of statewide significance included in House Bill 2017, with the majority of Project funding provided by this Bill. Per House Bill 2017, ODOT will present a Cost to Complete Report to the State Legislature prior to the programming of State funding.

#### **8.3.2.2 I-205 South Widening and Seismic Improvements Project**

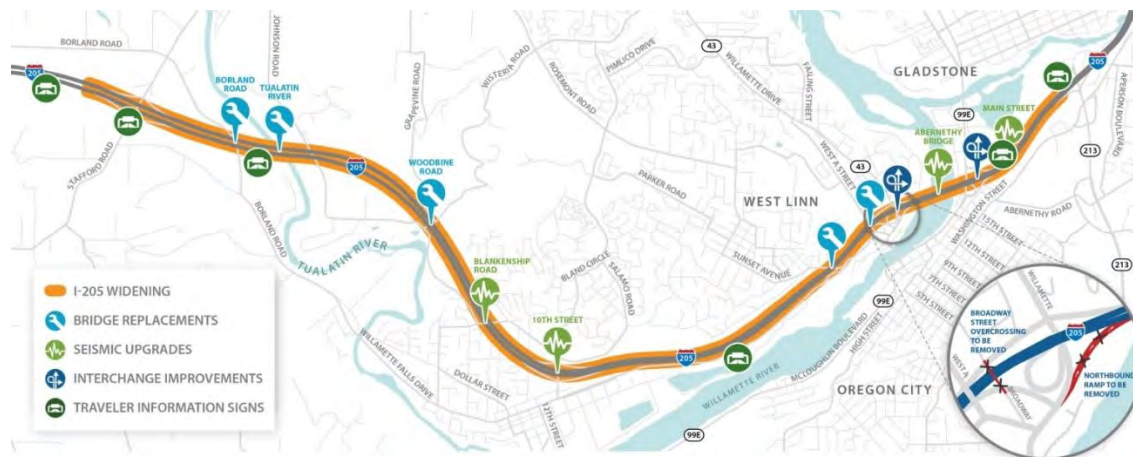
Preliminary design work is underway to widen I-205 between OR 213 and Stafford Road and improve the I-205/Abernethy Bridge to ensure it remains functional after a catastrophic earthquake. The design work was funded through HB 2017. However, construction funding for this project has not been identified.

The I-205 South project widens I-205 to add a third lane in each direction between Stafford Road and OR 213 and an auxiliary lane across the Abernethy Bridge in each direction. The I-205/Abernethy Bridge project provides for seismic upgrades of the Abernethy Bridge and includes seismic retrofit or replacement of eight additional bridges in the corridor. The project also adds Active Traffic Management System improvements, such as Traveler Information Signs, throughout the corridor.

The OTC approved a Cost to Complete Report for the project that was shared with the Oregon Legislature in January 2018, as mandated by HB 2017. The Cost to Complete Report defines the project scope and recommends a project delivery method and phasing plan to complete the project by 2025. Read the report and find more project information at [www.i205corridor.org](http://www.i205corridor.org).



**Figure 86. I-205 South Widening and Seismic Improvements Project Area Map**



### 8.3.3 Other Transit needs

In addition to the projects that are underway, there are other transit needs and projects that are under consideration in the RTP. The following describes the transit project identified under the 2040 Financially Constrained Investment Scenario.

#### 8.3.3.1 Portland to Vancouver project

This heavily traveled route is the main connection between Portland and Vancouver and identified as a need to address. In July 2008, the Metro Council approved a Locally Preferred Alternative for the Columbia River Crossing Project (CRC). It creates a multi-modal solution for the Interstate 5 corridor between Oregon and Washington to address the movement of people and freight across the Columbia River. The LPA includes a replacement bridge with three through lanes in each direction, reconstructed interchanges and, tolls priced to manage travel demand. It would also provide financing of project construction, operation and maintenance, light rail transit to Vancouver, and bicycle and pedestrian investments for this corridor.

More generally in the I-5 corridor, the Portland Metro region should:

- consider the potential adverse human health impacts related to the project and existing human health impacts in the project area, including community enhancement projects to address environmental justice
- consider managed lanes or pricing systems to help manage congestion
- maintain an acceptable level of access to the central city from Portland neighborhoods and Clark County
- maintain off-peak freight mobility, especially to numerous marine, rail and truck terminals in the area
- ensure that there is safe, reliable, affordable, and efficient transit connections between the growing downtown of Vancouver and key job sites in the Portland metropolitan region, including downtown Portland and Washington County

- consider new arterial connections for freight access between Highway 30, port terminals in Portland and port facilities in Vancouver, Washington
- maintain an acceptable level of access to freight intermodal facilities and to the Northeast Portland Highway
- address freight rail network needs.
- develop actions to reduce through-traffic on MLK and Interstate to allow main street redevelopment
- explore opportunities to support economic and land use goals with the Columbia Connections Strategy
- inform and coordinate with the Regional Transportation Council (RTC) and the Bi-State Coordination Committee prior to JPACT and Metro Council consideration of projects that have bi-state significance

### 8.3.3.2 Strategic needs

We have more transit needs than we can afford. The financially constrained investment scenario helps us achieve our Climate Smart Strategy goals. However, we are still able to implement our regional vision and meet all of our needs. The Strategic investment scenario include the largest number of HCT projects. **Table 19** highlights the transit projects that are identified in the RTP Strategic investment scenario.

**Table 19. Transit projects in the RTP Strategic Investment Scenario**

Safety and access improvements	Operating Capital Improvements	Enhanced transit concept	High Capacity Transit
<ul style="list-style-type: none"> <li>• Downtown Milwaukie Transit Center improvements</li> <li>• Gresham Transit Center access &amp; design enhancements</li> <li>• TriMet bike and ride facilities, Phase II</li> <li>• TriMet bus stop amenities, Phase II</li> <li>• TriMet pedestrian access improvements, Phase II</li> <li>• Union Station, Phase III</li> </ul>	<ul style="list-style-type: none"> <li>• HCT optimization, operations and reliability improvements</li> <li>• Merlo bus garage expansion</li> <li>• PDX light rail station/track realignment</li> <li>• SMART Central Informational Center at Wilsonville Station</li> <li>• SMART property acquisition</li> <li>• Transit priority on frequent service routes (Washington County)</li> <li>• TriMet electrification of bus fleet Phase II</li> <li>• TriMet Park&amp; Ride facilities, Phase II</li> </ul>	<ul style="list-style-type: none"> <li>• SE Powell Boulevard ETC (Portland to extent TBD)</li> <li>• Lombard/Caesar Chavez ETC (St. Johns to Milwaukie town center)</li> <li>• Belmont Street ETC (Portland to Gateway transit center)</li> <li>• Streetcar on Martin Luther King Jr. Boulevard in NE Portland</li> <li>• Streetcar in AmberGlen in Hillsboro</li> <li>• Streetcar to Johns Landing in SW Portland</li> </ul>	<ul style="list-style-type: none"> <li>• HCT extension to Oregon City via McLoughlin</li> <li>• HCT on I-205 (Clackamas to Bridgeport)</li> <li>• Expansion of WES to all-day service</li> <li>• WES extension to Salem</li> <li>• Sunset Highway HCT (Sunset transit center to Hillsboro Fairplex)</li> <li>• HCT extension to Forest Grove</li> </ul>



### 8.3.3.3 HCT needs not addressed

The projects in the RTP do not complete the transit system as envisioned by the 2027 constrained, 2040 constrained and 2040 strategic project lists in the RTP. The project list does not complete the adopted HCT Plan and does not include high speed rail. The Regional HCT System Plan was an extensive effort throughout the region to identify the HCT vision and we are continuing to implement the regional vision. The following projects are not in the RTP, but are still included in our transit vision:

- Transit needs on Powell Boulevard – The Powell ETC project is identified for the first 10 years of the RTP to address near term reliability issues on Powell Blvd between the Willamette River and I-205. Further study is needed to define the alignment, transit mode terminus. This should be done through a multi-modal transportation study of the corridor.
- Portland to Lake Oswego Transit Project – A Locally Preferred Alternative (LPA) has been adopted for this corridor. However, the project was placed on hold and has not been identified in this current RTP.
- HCT connection to Sherwood – The original project boundaries identified in the HCT System Plan was Portland to Sherwood in the vicinity of Barbur/Highway 99E. Through the Southwest Corridor Plan, it was concluded that the light rail project would extend to Tualatin. The connection to Sherwood is a future consideration.
- Connection between CTC and Washington Square, connecting Milwaukie and Lake Oswego – An HCT connection on I-205 between Clackamas Town Center and Bridgeport is identified in the RTP Strategic Investment Scenario, which may provide a similar travel market. Further study is needed to identify the right alignment, transit mode and terminus is needed.
- Tanasborne HCT extension - This future HCT extension would provide an HCT connection between the existing Blue Line and the future Sunset Highway HCT through Tanasborne.

## 8.4 Next Steps

While our region continues to be leader in the world of transit planning, there are always opportunities to grow, improve, and innovate. If our objective is to continuously improve the quality of life for communities that call this region home, thoughtful consideration must be placed on our transit system. Exceptional transit planning and investment are critical to a safer, healthier, and happier future.

Successful regional planning requires dedicated effort from a wide range of actors. The region, as a whole needs to come together, from community members to elected officials and cyclist to freight truck drivers, a holistic approach must be taken in an effort to see real change.

This strategy offers a significant starting point and highlights where the region is doing well and highlights opportunities for improvement. As a region we have continuously proved our dedication to positive change, through a united regional effort toward the continued growth of our transit system and services. This is an opportunity to continue our legacy of leadership and ingenuity.

## GLOSSARY OF TERMS

**Accessibility** – The ability or ease to reach desired goods, services, activities and destinations with relative ease, within a reasonable time, at a reasonable cost and with reasonable choices. Many factors affect accessibility (or physical access), including mobility, the quality, cost and affordability of transportation options, land use patterns, connectivity of the transportation system and the degree of integration between modes. The accessibility of a particular location can be evaluated based on distances and travel options, and how well that location serves various modes. Locations that can be accessed by many people using a variety of modes of transportation generally have a high degree of accessibility.

**Access Management** – Enables access to land uses while maintaining roadway safety and mobility through controlling access location, design, spacing and operation.

**Action** – Discrete steps to make progress toward a desired outcome(s).

**Active Living** – Lifestyles characterized by incorporating physical activity into daily routines through activities such as walking or biking for transportation, exercise or pleasure. To achieve health benefits, the goal is to accumulate at least 30 minutes of activity each day.

**Active transportation** – Non-motorized forms of transportation including walking and biking, people using wheelchairs or mobility devices and skateboarding. Transit is considered part of active transportation because most transit trips start with a walking or bicycle trip.

**Active transportation network** – Combined network of streets, trails and districts identified on the *Regional Pedestrian and Bicycle Network Functional Classification Maps* and identified as pedestrian and bicycle parkways, regional bikeways, regional pedestrian corridors and regional pedestrian and bicycle districts, which include station communities. The active transportation network also includes frequent bus routes, all of which are designated as pedestrian parkways, and high ridership bus stops.

**Adaptation** – This term refers to adjustment in natural or human systems in anticipation of or response to a changing environment in a way that effectively uses beneficial opportunities or reduces negative effects.

**Air toxics** – Also known as toxic air pollutants or hazardous air pollutants, are those pollutants that cause or may cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental and ecological effects.

**Amendment** – A revision to a long-range statewide or metropolitan transportation plan, TIP, or STIP that involves a major change to a project included in a metropolitan transportation plan, TIP, or STIP, including the addition or deletion of a project or a major change in project cost, project/project phase initiation dates, or a major change in design concept or design scope (e.g., changing project termini or the number of through traffic lanes or changing the number of stations in the case of fixed guideway transit projects). Changes to projects that are included only for illustrative purposes do not require an amendment. An amendment is a revision that requires

public review and comment and a redemonstration of fiscal constraint. If an amendment involves “non-exempt” projects in nonattainment and maintenance areas, a conformity determination is required.

**Arterial** – A classification of street. Arterial streets interconnect and support the throughway system. Arterials are intended to provide general mobility for travel within the region. Correctly sized arterials at appropriate intervals allow through trips to remain on the arterial system thereby discouraging use of local streets for cut-through travel. Arterial streets link major commercial, residential, industrial and institutional areas. Major arterials serve longer distance through trips and serve more of a regional traffic function. Minor arterials serve shorter, more localized travel within a community. As a result, major arterials usually carry more traffic than minor arterials. Arterial streets are usually spaced about one mile apart and are designed to accommodate bicycle, pedestrian, truck and transit travel.

**Arterial traffic calming** – Designed to manage traffic at higher speeds and volumes, but still minimize speeding and unsafe speeds. Treatments can include raised medians, raised intersections, gateway treatments, textured intersections, refuge islands, road diets, and roundabouts.

**Asset management** – A strategic and systematic process of operating, maintaining, and improving physical assets, with a focus on both engineering and economic analysis based upon quality information, to identify a structured sequence of maintenance, preservation, repair, rehabilitation, and replacement actions that will achieve and sustain a desired state of good repair over the lifecycle of the assets at minimum practicable cost.

**Attainment area** – Any geographic area in which levels of a given criteria air pollutant (e.g., ozone, carbon monoxide, PM<sub>10</sub>, PM<sub>2.5</sub>, and nitrogen dioxide) meet the health-based National Ambient Air Quality Standards (NAAQS) for that pollutant. An area may be an attainment area for one pollutant and a nonattainment area for others. A “maintenance area” (see definition in this section) is not considered an attainment area for transportation planning purposes.

**Autonomous vehicle (AV)** – Also known as a driverless car, self-driving car, robotic car, AVs use sensors and advanced control systems to operate independently of any input from a human driver. Transportation experts have developed a five-level system to distinguish between different levels of automation;<sup>1</sup> in this plan we focus on Level 4 or 5 AVs, which can operate independently under most or all conditions.

**Auxiliary lane** – An auxiliary lane provides a direct connection from one interchange ramp to the next. The lane separates slower traffic movements from the mainline, helping smooth the flow of traffic and reduce the potential for crashes.

**Barrier** – A condition or obstacle that prevents an individual or a group from accessing the transportation system or transportation planning process. Examples include a physical gap or impediment, lack of information, language, education and/or limited resources.

**Best practices** – For purposes of this document, the term “best practices” is used as a general term of preferred practices accepted and supported by experience of the applicable professional discipline. It is not prescriptive to a particular set of standards or a particular discipline.

**Bicycle** – A vehicle having two tandem wheels, a minimum of 14 inches in diameter, propelled solely by human power, upon which a person or persons may ride. A three-wheeled adult tricycle is considered a bicycle. In Oregon, a bicycle is legally defined as a vehicle. Bicyclists have the same right to the roadways and must obey the same traffic laws as the operators of other vehicles.

**Bicycle boulevards** – Sometimes called a bicycle priority street, a bicycle boulevard is a low-traffic street where all types of vehicles are allowed, but the street is modified as needed to enhance bicycle safety and convenience by providing direct routes that allow free-flow travel for bicyclists at intersections where possible. Traffic controls are used at major intersections to help bicyclists cross streets. Typically these modifications also calm traffic and improve pedestrian safety.

**Bicycle district** – An area with a concentration of transit, commercial, cultural, institutional and/or recreational destinations where bicycle travel is attractive, comfortable and safe. Bicycle districts are areas where high levels of bicycle use exist or a planned. Within a bicycle district, some routes may be designated as bicycle parkways or regional bikeways, however all routes within the bicycle district are considered regional. A new concept for the *Regional Transportation Plan* and added to the regional bicycle network through the ATP. The Central City, Regional and Town Centers and Station Communities are identified as bicycle districts.

**Bicycle facilities** – A general term denoting improvements and provisions made to accommodate or encourage bicycling, including parking facilities, all bikeways and shared roadways not specifically designated for bicycle use.

**Bicycle parkway** – A bicycle route designed to serve as a bicycle highway providing for direct and efficient travel for large volumes of cyclists with minimal delays in different urban and suburban environments and to destinations outside the region. These bikeways connect 2040 activity centers, downtowns, institutions and greenspaces within the urban area. The specific design of a bike parkway will vary depending on the land use context within which it passes through. These bikeways could be designed as an off-street trail along a stream or rail corridor, a cycletrack along a main street or town center, or a bicycle boulevard through a residential neighborhood.

**Bicycle routes** – Link bicycle facilities together into a clear, easy to follow route using wayfinding such as signs and pavement markings, connecting major destinations such as town centers, neighborhoods and regional destinations.

**Bike lane** – A portion of a roadway that has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists.

**Bike share** – Systems like Biketown in Portland make fleets of bicycles available for short-term rental within a defined service area. Some bike share systems now offer electric bikes.

**Conventional** bike share systems like Biketown in Portland are operated through exclusive

agreements between a private company and a public agency, and in most cases users must pick up and leave bikes at designated stations, through Biketown and other modern systems also offer users the option of locking a bike anywhere within the service area. Fully **dockless** systems operated by companies such as Ofo, Lime bike and Spin allow users to pick up and leave bikes (or electric scooters, which many companies now offer) within a defined service area and require less coordination between the public and private sector.

**Bike-transit facilities** – Infrastructure that provide connections between the two modes, by creating a “bicycle park-and-ride,” a large-scale bike parking facility at a transit station.

**Bikeable** – A place where people live within biking distance to most places they want to visit, whether it is school, work, a grocery store, a park, church, etc. and where it is easy and comfortable to bike.

**Bikeway** – Any road, street, path or right-of-way that is specifically designated in some manner as being open to bicycle travel, either for the exclusive use of bicycles or shared use with other vehicles or pedestrians, including separated bike paths, striped bike lanes or wide outside lanes that accommodate bicycles and motor vehicles.

**Capacity** – A transportation facility’s ability to accommodate a moving stream of people or vehicles in a given place during a given time period. Increased capacity can come from building more streets or throughways, adding more transit service, timing traffic signals, adding turn lanes at intersections or many other sources.

**Capacity expansion** – Constructed or operational improvements to the regional motor vehicle network that increase the capacity of the system.

**Car share** – Services allow people to rent a nearby vehicle for short trips and pay only for the time that they use. Different car share service types include:

- Stationary car share (ZipCar, in some cases ReachNow), under which cars are kept at fixed stations and users pick up cars from and return them to the same station.
- Free-floating car share (Car2Go, ReachNow), which allows people to pick up and drop off cars anywhere within a defined service area.
- Peer-to-peer car share (Getaround, Turo), which enables people to rent cars from their neighbors on a short-term basis.

**Central city (2040 Design Type)** – Downtown Portland and adjacent areas (like Lloyd District) within the city of Portland.

**Climate change** – Any significant change in the measures of climate lasting for an extended period of time. Climate change includes major variations in temperature, precipitation or wind patterns, among other environmental conditions, that occur over several decades or longer. Changes in climate may manifest as a rise in sea level, as well as increase the frequency and magnitude of extreme weather events now and in the future.

**Collector street** – A class of street. Collector streets provide both access and circulation between residential, commercial, industrial and agricultural community areas and the arterial system. As such, collectors tend to carry fewer motor vehicles than arterial streets, with reduced travel speeds. Collector streets are usually spaced at half-mile intervals, midway between arterial streets. Collectors may serve as bike, pedestrian and freight access routes providing local connections to the arterial street network and transit system.

**Community places** – Key local destinations such as schools, libraries, grocery stores, pharmacies, hospitals and other medical facilities, general stores, and other places which provide key services and/ or daily needs.

**Commute** – Regular travel between home and a fixed location (e.g., work, school).

**Commuter rail** – Short-haul rail passenger service operated within and between metropolitan areas and neighboring communities. This transit service operates in a separate right-of-way on standard railroad tracks, usually shared with freight use. The service is typically focused on peak commute periods but can be offered other times of the day and on weekends when demand exists and where rail capacity is available. The stations are typically located one or more miles apart, depending on the overall route length. Stations offer infrastructure for passengers, bus and LRT transfer opportunities and parking as supported by adjacent land uses. See also Inter-city rail.

**Complete streets** – A transportation policy and design approach where streets are designed, operated and maintained to enable safe, convenient and comfortable travel and access for users of all ages and abilities, regardless of their mode of transportation.

**Complete streets project checklist** – With the realization that street design affects so much more than traffic flow, leading Complete Streets programs have been successful in part because they endeavored to break down silos between city departments. In addition to regular meetings between departments, some cities have instituted a Project Checklist that is circulated for a sign-off from each interested department when street designs are in process. The best known example comes from the City of Seattle. Some Metropolitan Planning Organizations also use project checklists to ensure funding for street improvements adhere to Complete Street goals. Examples include the Bay Area's Metropolitan Transportation Commission, and the Mid-Ohio Regional Planning Commission.

**Congestion** – A condition characterized by unstable traffic flows that prevents movement on a transportation facility at optimal legal speeds. Recurrent congestion is caused by constant excess volume compared with capacity. Nonrecurring congestion is caused by incidents such as bad weather, special events and/or traffic accidents.

**Congestion management** – The application of strategies to improve transportation system performance and reliability by reducing the adverse impacts of congestion on the movement of people and goods. *See Appendix L for more information.*

**Congestion management process** – A systematic and regionally-accepted approach for managing congestion that provides accurate, up-to-date information on transportation system



performance and assesses alternative strategies for congestion management that meet state, regional and local needs. This systematic approach is required in transportation management areas (TMAs) to provide for effective management and operation, based on a cooperatively developed and implemented metropolitan-wide strategy, of new and existing transportation facilities eligible for funding under title 23 U.S.C., and title 49 U.S.C., through the use of travel demand reduction and operational management strategies. *See Appendix L for more information.*

**Congestion Mitigation and Air Quality Improvement (CMAQ) Program** – A federal source of funding for projects and activities that reduce congestion and improve air quality, both in regions not yet attaining federal air quality standards and those engaged in efforts to preserve their attainment status.

**Connected vehicles (CVs)** – Vehicles that communicate with each other, wireless devices or with infrastructure like traffic signals and incident management systems. It seems increasingly likely that vehicles in the near future will be automated and may include some connected elements, we typically use “automated vehicles” to refer to vehicles that include a mix of automated and connected elements, and only use “connected vehicles” to distinguish connected from automated vehicles.

**Connected vehicle (CV) infrastructure** – This refers to the communications, wireless devices and other infrastructure, such as traffic signals and roadside sensors, that offer the ability of vehicles to send and receive message to other vehicles, wireless devices and communication devices to communicate information in order to help them navigate the transportation system safely and efficiently.

**Connectivity** – The degree to which the local and regional street, pedestrian, bicycle, transit and freight systems in a given area are interconnected.

**Consideration** – One or more parties takes into account the opinions, action, and relevant information from other parties in making a decision or determining a course of action.

**Constrained budget** – The budget of federal, state and local funds the greater Portland region can reasonably expect through 2040 under current funding trends presuming some increased funding compared to current levels.

**Constrained list** – Projects that can be built by 2040 within the constrained budget.

**Consultation** – One or more parties confer with other identified parties in accordance with an established process and, prior to taking action(s), considers the views of the other parties and periodically informs them about action(s) taken. This definition does not apply to the “consultation” performed by the States and the Metropolitan Planning Organizations (MPOs) in comparing the long-range statewide transportation plan and the metropolitan transportation plan, respectively, to State and tribal conservation plans or maps or inventories of natural or historic resources (see section 450.216(j) and sections 450.324(g)(1) and (g)(2)).

**Context sensitive design** – A model for transportation project development that requires proposed transportation projects to be planned not only for its physical aspects as a facility serving specific transportation objectives, but also for its effects on the aesthetic, social, economic and environmental values, needs, constraints and opportunities in a larger community setting.

**Cooperation** – The parties involved in carrying out the transportation planning and programming processes work together to achieve a common goal or objective.

**Coordinated public transit-human services transportation plan** – A locally developed, coordinated transportation plan that 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. Trimet leads development of this plan for the region.

**Coordination** – The cooperative development of plans, programs, and schedules among agencies and entities with legal standing and adjustment of such plans, programs, and schedules to achieve general consistency, as appropriate.

**Corridor** – A broad geographical band that follows a general directional flow connecting major sources of trips that may contain a number of streets, highways, freight, active transportation and transit route alignments.

**Corridors (2040 design type)** – A type of land use that is typically located along regional transit routes and arterial streets, providing a place for somewhat higher densities than is found in 2040 centers. These land uses should feature a high-quality pedestrian environment and convenient access to transit. Typical new developments would include row houses, duplexes and one to three-story office and retail buildings, and average about 25 persons per acre. While some corridors may be continuous, narrow bands of higher-intensity development along arterial streets, others may be more nodal, that is a series of smaller centers at major intersections or other locations along the arterial that have high quality pedestrian environments, good connection to adjacent neighborhoods and transit service.

**Countermeasure** – An activity, initiative or design element to prevent, neutralize, or correct a specific safety problem.

**Crash** – A violent collision, typically of one vehicle with another (vehicles include bicyclists, motorcyclists, freight trucks, school buses, transit buses, etc.), a pedestrian, or with a stationary objects such as a pole or guard rail.

**Criteria pollutants** – Carbon monoxide, lead, ground-level ozone, nitrogen oxides, particulate matter, and sulfur dioxides. Criteria pollutants are the only air pollutants with national air quality standards that define allowable concentrations of these substances in ambient air.

**Cycletrack** – Bicycle lanes that are physically separated from motor vehicle and pedestrian travel. A cycle track is an exclusive bike facility that has elements of a separated path and on-road bike lane. A cycle track, while still within the roadway, is physically separated from motor traffic and is

distinct from the sidewalk. Cycle tracks may be one-way or two-way, and may be at road level, at sidewalk level, or at an intermediate level. They all share in common some separation from motor traffic with bollards, car parking, barriers or boulevards.

**Cyclist** – Person riding a bicycle.

**Data-driven safety analysis** – Uses data to promote the integration of safety performance into all roadway investment decisions. Broader implementing of quantitative safety analysis so that it becomes an integral part of safety management and project development decision making in order to lead to better targeted roadway investments that result in fewer fatal and serious injury crashes. Decisions are compelled by data, rather than by intuition or by personal experience.

**Deficiency** – A performance, design or operational constraint that limits, but does not prohibit the ability to travel by a given mode. Examples include locations where throughway capacity is less than six through lanes and arterial street capacity less than 4 lanes that do not meet the thresholds defined in Table 3.6 (Interim Regional Mobility Policy), or that have poor or substandard design features; at-grade rail crossings; height restrictions; bike and pedestrian connections that contain obstacles (e.g., missing curb ramps, distances greater than 330 feet between pedestrian crossings, absence of pedestrian refuges, sidewalks occluded by utility infrastructure, high traffic volumes and complex traffic environments); transit overcrowding, inadequate frequency, or schedule unreliability; and high crash locations).

**Delay** – The additional travel time required by all travelers, as measured by the time needed to reach destinations at posted speed limits (free-flow speed) versus traveling at a slower congested speed. Delay can be expressed in several different ways, including total delay in vehicle-hours, total delay per vehicle miles traveled (VMT) and share of delay by time period, day of week or speed range.

**Design type** – The conceptual areas depicted on the Metro 2040 Growth Concept Map and described in the Regional Framework Plan, including Central City, Regional Center, Town Center, Station Community, Corridor, Main Street, Inner Neighborhood, Outer Neighborhood, Regionally Significant Industrial Area, Industrial Area and Employment Area.

**Electric vehicles (EVs)** – Vehicles that use electric motors for propulsion instead of or in addition to gasoline motors.

**Emergency** – Any human-made or natural event or circumstance causing or threatening loss of life, injury to person or property, and includes, but is not limited to, fire, explosion, flood, severe weather, drought earthquake, volcanic activity, spills or releases of oil or hazardous material, contamination, utility or transportation disruptions, and disease.

**Emergency medical services (EMS)** – The treatment and transport of people in crisis health situations that may be life threatening. Emergency medical support is applied in a wide variety of situations, including traffic crashes.

**Emergency transportation routes** – Priority routes used during and after a major regional emergency or disaster to move people and response resources, including including the transport of first responders (e.g., police, fire and emergency medical services), fuel, essential supplies and patients.

**Emerging technologies** – A blanket term that we use throughout this plan to refer to new developments in transportation technology. We use it to refer both to technologies like automated vehicles or smart phones and services that operate using these technologies, like car and bike share.

**Employer-based commute programs** – Work-based travel demand management programs that can include transportation coordinators, employer-subsidized transit pass programs, ride-matching, carpool and vanpool programs, telecommuting, compressed or flexible work weeks and bicycle parking and showers for bicycle commuters.

**Employment areas** – Areas of mixed employment that include various types of manufacturing, distribution and warehousing uses, and may include commercial and retail development. Retail uses should primarily serve the needs of the people working or living in the immediate employment area. Exceptions to this general policy can be made only for certain areas indicated in a functional plan.

**Employment lands** – Areas of mixed employment that include various types of manufacturing, distribution and warehousing uses, and may include commercial and retail development.

**Enhanced transit concept** – Enhanced transit is a set of street design, signal, and other improvements that improve transit capacity, reliability and travel time along major Frequent Service bus lines. Enhanced Transit actions can include changes to the design and operation of streets and signals, typically owned and operated by the City. It can also include changes to transit vehicle fleet, station equipment and operation systems typically owned and operated by TriMet.

Enhanced transit projects come in a variety of shapes and sizes; for example, the improvements might address bottlenecks, or a portion of a transit line experiencing delay, or in some cases, improvements to a full transit line. Treatments can be applied systematically across a transit network to improve multiple lines or through a corridor approach to improve one or more transit lines. Enhanced Transit is intended to be flexible and context-sensitive during design and implementation. Enhanced Transit encompasses a range investments comprised of capital and operational treatments of moderate cost. It can be deployed relatively quickly in comparison to larger transit capital projects, such as building light rail.

**Environmental justice** – The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. (EPA definition)

**Environmental justice populations** – People living in poverty, people with low-income as determined annually by the U.S. Department of Health and Human Services Low-Income Index,

people of color, elderly, children, people with disabilities, and other populations protected by Title VI and related nondiscrimination statutes.

**Environmental mitigation activities** – Strategies, policies, programs, and actions that, over time, will serve to avoid, minimize, rectify, reduce or eliminate impacts to environmental resources associated with the implementation of a long-range statewide transportation plan or metropolitan transportation plan.

**Equitable Development** – An approach to creating healthy, vibrant, communities of opportunity by creating smart, intentional strategies to ensure that everyone (residents of all incomes, races and ethnicities) can participate in, and benefit from, decisions that shape their neighborhoods and region.

**Equity** – Just and fair inclusion into a society in which all can participate, prosper, and reach their full potential. In transportation, a normative measure of fairness among transportation system users. *See also Racial Equity and Social Equity.*

**Equity focus areas** – Census tracts with higher than regional average concentrations and double the density of one or more of the following: people of color, English language learners, and/or people with lower income. Most of these areas also include higher than regional average concentrations of other historically marginalized communities, including young people, older adults and people living with disabilities.

**Excessive delay** – The extra amount of time spent in congested conditions defined by speed thresholds that are lower than a normal delay threshold. For the purposes of MAP-21 target-setting, the speed threshold is 20 miles per hour (mph) or 60 percent of the posted speed limit, whichever is greater.

**Extreme events** – This term refers to risks posed by climate change and extreme weather events. The definition does not apply to other uses of the term nor include consideration of risks to the transportation system from other natural hazards, accidents, or other human induced disruptions.

**Extreme weather events** – Significant anomalies in temperature, precipitation and winds and can manifest as heavy precipitation and flooding, heatwaves, drought, wildfires and windstorms (including tornadoes). Consequences of extreme weather events can include safety concerns, damage, destruction and/or economic loss. Climate change can also cause or influence extreme weather events.

**Facility** – The fixed physical assets (structures) enabling a transportation mode to operate (including travel, as well as the loading and unloading of passengers). This includes streets, thoroughways, bridges, sidewalks, bikeways, transit stations, bus stops, ports, air and marine terminals and rail lines.

**Federal Highway Administration (FHWA)** – The U.S. Department of Transportation agency responsible for administering the federal highway aid program to individual states, and helping to plan, develop and coordinate construction of federally-funded highway projects. FHWA also

governs the safety of hazardous cargo on the nation's highways. The FHWA implements transportation legislation approved at the congressional level that appropriates all federal funds to states, MPOs and local governments.

**Federal Transit Administration (FTA)** – U.S. Department of Transportation agency that provides financial and planning assistance to help plan, build and operate rail, bus and paratransit systems. The agency also assists in the development of local and regional traffic reduction programs.

**Financial plan** – Documentation required to be included with a metropolitan transportation plan and TIP (and optional for the long-range statewide transportation plan and STIP) that demonstrates the consistency between reasonably available and projected sources of Federal, State, local, and private revenues and the costs of implementing proposed transportation system improvements.

**Financially constrained or fiscal constraint** – This means that the metropolitan transportation plan, TIP, and STIP includes sufficient financial information for demonstrating that projects in the metropolitan transportation plan, TIP, and STIP can be implemented using committed, available, or reasonably available revenue sources, with reasonable assurance that the federally supported transportation system is being adequately operated and maintained.

**Fiscal constraint** – A federal requirement that long-range transportation plans and four-year multistage investments programs (aka Transportation Improvement Program – TIP) include only projects that have a reasonable expectation of being funded, based upon anticipated revenues (for the long-range transportation plan) or secured revenues (for the four-year TIP). In other words, long-range transportation plans or TIP cannot be a wish lists of projects; they must reflect realistic assumptions about revenues that will likely be available or secured.

**Fixing America's Surface Transportation Act (FAST Act)** – A funding and authorization bill to govern United States federal surface transportation spending, signed by President Obama on December 4, 2015. The FAST Act established funding levels and federal policy for our nation's highways and public transit systems for fiscal years 2016-2020. The \$305 billion, five-year bill maintains the core highway and transit funding programs established by its predecessor MAP-21, and establishes the National Highway Freight Program, a formula program focused on goods movement.

**Forecast** – Projection of population, employment or travel demand for a given future year.

**Freeway** – A design for a Throughway in which all access points are grade separated. Directional travel lanes usually separated by a physical barrier, and access and egress points are limited to on-and off-ramp locations or a very limited number of at-grade intersections.

**Freight intermodal facility** – An intercity facility where freight is transferred between two or more freight modes (e.g., truck to rail, rail to ship, truck to air).

**Freight mobility** – The efficient movement of goods from point of origin to destination.



**Freight intermodal facility** – An intercity facility where freight is transferred between two or more freight modes (e.g., truck to rail, rail to ship, truck to air).

**Freight modes** – Freight modes are the means by which freight achieves mobility. These modes fall into five basic types: road (by truck), rail, pipeline, marine (by ship or barge) and air.

**Freight rail** – A freight train that is a group of freight cars hauled by one or more locomotives on a railway, transporting cargo all or some of the way between the shipper and the intended destination.

**Frequent bus** – Frequent bus service offers local and regional bus service with stops approximately every 750 to 1000 feet, providing corridor service rather than nodal service along selected arterial streets. This service typically runs at least every 15 minutes throughout the day and on weekends though frequencies may increase based on demand, and it can include transit preferential treatments, such as reserved bus lanes and transit signal priority, and enhanced passenger infrastructure along the corridor and at major bus stops, such as covered bus shelters, curb extensions, special lighting and median stations.

**Full Funding Grant Agreement (FFGA)** – An instrument that defines the scope of a project, the Federal financial contribution, and other terms and conditions for funding New Starts projects

**Functional classification** – The class or group of roads to which the road belongs. There are three main functional classes as defined by the United States Federal Highway Administration: arterial, collector, and local. Throughways and freeways fall under arterial in the federal classification system.

**Gap** – A missing link or barrier in the “typical” urban transportation system for any mode that functionally prohibits travel where a connection might be expected to occur in accordance with the system concepts and networks in Chapter 3 of the RTP. A gap generally means a connection does not exist at all, but could also be the result of a physical barrier such as a throughway, natural feature, weight limitations on a bridge or existing development.

**Goal** – A broad statement that describes a desired outcome or end state toward which actions are focused to make progress toward a long-term vision.

**Greenhouse gas emissions** – The six gases identified in the Kyoto Protocol and by the Oregon Greenhouse Gas Mandatory Reporting Advisory Committee as contributing to global climate change: carbon dioxide (CO<sub>2</sub>), nitrous oxide (N<sub>2</sub>), methane (CH<sub>4</sub>), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>). Greenhouse gases absorb solar radiation and act like a heat-trapping blanket in the atmosphere, causing climate change. More information is available at [epa.gov/climatechange](http://epa.gov/climatechange).

**Green infrastructure** – A network of multi-functional green spaces and environmental features, both natural and engineered, that use or replicate natural systems to better manage stormwater, protect streams and enhance wildlife corridors—trees, soils, water and habitats. Examples include: permeable paving, vegetated swales, rain gardens, green streets, green roofs, green walls,

urban forestry, street trees, parks, green corridors such as trails, and other low impact development practices.

**Green streets** – An innovative stormwater management approach that captures rain where it falls by using vegetation, soil and engineered systems to slow, filter and clean stormwater runoff from impervious surfaces.

**Greenways** – Greenways generally follow rivers and streams and may or may not provide for public access. In some cases, greenways may be a swath of protected habitat along a stream with no public access. In other cases, greenways may allow for an environmentally compatible trail, viewpoint or canoe launch site. The greenways that are identified in Metro’s regional trails plan do not presently offer public access. Usage of the term “greenway” can be ambiguous because it is sometimes used interchangeably with the word “trail.” For example, “Fanno Creek Trail”, “Fanno Creek Greenway”, and “Fanno Creek Greenway Trail” are used with equal frequency for the same trail. Trail and greenway professionals prefer to make the technical distinction that the “trail” refers to the tread or the actual walking service, while the “greenway” refers to the surrounding park or natural corridor. The term is also ambiguous because the City of Portland recently began referring to its bicycle boulevards as “neighborhood greenways.” Neighborhood greenways differ from traditional greenways in that they generally do not follow an open space corridor aside from local streets.

**Health impact assessment** – A combination of procedures, methods, and tools by which a policy, program or project may be evaluated as to its potential effects on the health of a population, and the distribution of these effects within the population.

**High capacity transit** – High capacity transit is public transit that can have exclusive right of way, non-exclusive right of way, or a combination of both. Vehicles make fewer stops, travel at higher speeds, have more frequent service and carry more people than local service transit such as typical bus lines. It includes:

- Light rail uses high capacity trains (68 seats with room and design for several passengers to stand) and focuses on regional mobility with stops typically one-half to 1 mile apart, connecting concentrated housing or local bus hubs and employment areas. The service has its own right of way. Cars can be doubled, and service frequency increased, during peak hours.
- Commuter rail uses high capacity heavy rail trains (74 seats in a single car, 154 in doubled cars), typically sharing right of way with freight or other train service (though out of roadway). The service focuses on connecting major housing or local bus hubs and employment areas with few stops and higher speeds. The service may have limited or no non-peak service.
- Bus rapid transit uses coach-style or high capacity busses (40-60 seats with room and design for several passengers to stand). The service may be in the roadway with turnouts and signal priority for stops, have an exclusive right of way, or be some combination of the two. The service focuses on regional mobility, with higher speeds, fewer stops, higher frequency and more substantial stations than local bus, connecting concentrated housing or local bus hubs and employment areas. Service frequency can be increased during peak hours.

- Using the same technology as local streetcar, rapid streetcar focuses on regional mobility, offering fewer stops through less populated areas to connect housing areas to jobs or other destinations. Cars can be doubled, and service frequency increased, during peak hours. The service operates in mixed traffic, in exclusive right of way or a combination of the two.

**High crash location** – Highway or road segments identified by the frequency and severity of motor vehicle crashes. Identification of high crash locations is part of the safety problem identification process.

**High injury corridors and intersections (RTP)** – Roadways where the highest concentrations of fatal and severe injury crashes involving people in cars, biking and walking occur on the regional transportation system Corridors and intersections were analyzed to determine aggregate crash scores based on the frequency and severity of crashes, using the following methodology:

- Fatal and Injury A (serious) crashes for all modes are assigned to the network;
- "Injury B", "Injury C", and "PDO (property damage only)" crashes involving bikes and pedestrians are also assigned to the network;
- Fatal and Injury A crashes are given a weight of 10;
- Roadways are analyzed in mile segments; if a segment has only one Fatal or Injury A crash it must also have at least one B/C (minor injury) crash, for the same mode, to be included in the analysis.; and
- Roadway segments are assigned an N-score (or "crash score") by calculating the weighted sum by mode and normalizing it by the roadway length.

To reach 60 percent of Fatal and Severe Injury crashes, roadway segments had to have an N-score of 39 or higher; high injury Bicycle Corridors had to have an N-score of 6 or more, and high injury Pedestrian Corridors had to have an N-score of 15 or more. Intersections with the highest weighted crash scores were also identified; 5 percent of intersections had an N-score (or "crash score") higher than 80 and are also shown on the map, and 1 percent of intersections (the top 1 percent) had to have an N-score higher than 128.

**High risk roadways** – Characteristics if high risk roads are identified by looking at crash history on an aggregate basis to identify particular severe crash types (e.g. pedestrian) and then use the roadway characteristics associated with particular crash types (e.g. arterial roadways with four-or more lanes, posted speed over 35 mph, unlit streets) to understand which roadways may have a higher risk of the same type of severe crash.

**High-occupancy vehicle (HOV)** – A vehicle carrying more than two passengers with the exception of motorcycles.

**High-occupancy vehicle lane** – The technical term for a carpool lane. *See also high-occupancy vehicle.*

**Highway** – A design for a Throughway in which access points are a mix of separate and at-grade.

**Historically marginalized communities** – Communities of people that have been historically excluded from critical aspects of social participation including, voting, education, housing and more. Historical marginalization is often a result of systematic exclusion based on devaluation of any individual existing outside of the dominant culture. For purposes of the RTP, this includes people of color, people with limited English proficiency, people with lower-incomes, youth, older adults and people living with a disability.

**Incident management** – The detection and verification of incidents (crashes, stalled vehicles, etc. blocking traffic) and the implementation of appropriate actions to clear the highway.

**Individualized marketing** – Travel demand management programs focused on individual households. IM programs involve individualized outreach to households that identify household travel needs and ways to meet those needs with less vehicle travel.

**Induced demand** – The process whereby improvements in the transportation system intended to alleviate congestion and delay result in additional demand for the transportation segment, offsetting some of the improvement's potential benefits. For instance, when a congested roadway is expanded from 2 to 3 lanes, some drivers will recognize the increased capacity and take this roadway though they had not done so previously.

**Industrial areas** – Areas set aside for industrial activities. Supporting commercial and related uses may be allowed, provided they are intended to serve the primary industrial users. Residential development and retail users whose market area is larger than the industrial area are not considered supporting uses.

**Intelligent transportation systems (ITS)** – Electronics, photonics, communications, or information processing used singly or in combination to improve the efficiency or safety of the transportation system. ITS can include both vehicle-to-vehicle communication (which allows cars to communicate with one another to avoid crashes and vehicle-to-infrastructure communication (which allows cars to communicate with the roadway) to identify congestion, crashes or unsafe driving conditions, manage traffic flow, or provide alternate routes to travelers.

**Intermodal facilities** – A transportation element that allows passenger and/or freight connections between modes of transportation. Examples include airports, rail stations, marine terminals, and rail-yards that facilitate the transfer of containers or trailers. See also passenger intermodal facility and freight intermodal facility definitions.

**Level-of-service (motor vehicle network)** – A traditional measure of congestion, calculated by dividing the number of motor vehicles passing through a section of roadway during a specific increment of time by the motor vehicle capacity of the section. For example, a LOS of 1.00 indicates the roadway facility is operating at its capacity.

Traditionally, motor vehicle LOS has been used in transportation system planning, project development and design as well as in operational analyses and traffic analysis conducted during

the development review process. As a system plan, the RTP uses the interim regional policy to diagnose the extent of motor vehicle congestion on throughways and arterials during different times of the day and to determine adequacy in meeting the region's needs. LOS is also used to determine consistency of the RTP with the Oregon Highway Plan for state-owned facilities. *See also volume-to-capacity ratio and regional mobility policy.*

**Local bikeways** – Trails, streets and connections not identified as regional bicycle routes, but are important to a fully functioning network. Local bikeways are the local collectors of bicycle travel. They are typically shorter routes with less bicycle demand and use. They provide for door-to-door bicycle travel.

**Local jurisdiction** – For the purpose of this plan, this term refers to a city or county within the Metro boundary.

**Local pedestrian connectors** – All streets and trails not included on the regional network. Local connectors experience lower volumes of pedestrian activity and are typically on residential and low-volume/speed roadways or smaller trails. Connectors, however, are an important element of the regional pedestrian network because they allow for door-to-door pedestrian travel.

**Local streets or roads** – Local streets primarily provide direct access to adjacent land. While Local streets are not intended to serve through traffic, the aggregate effect of local street design impacts the effectiveness of the arterial and collector system when local travel is restricted by a lack of connecting routes, and local trips are forced onto the arterial street network. In the urban area, local roadway system designs often discourage “through traffic movement.” Regional regulations require local street connections spaced no more than 530 feet in new residential and mixed used areas, and cul-de-sacs are limited to 200 feet in length. These connectivity requirements ensure that a lack of adequate local street connections does not result in the arterial system becoming congested. While the focus for local streets has been on motor vehicle traffic, they are developed as multi-modal facilities that accommodate bicycles, pedestrians and sometimes transit.

**Lower income focus area** – Census tracts with higher than regional average concentrations and double the density of people with lower income. Lower income is defined as households with incomes below 200 percent of the federal poverty level, adjusted for household size (i.e., with incomes up to twice the level of poverty), as defined by the U.S. Census Bureau for 2016. The 2016 federal poverty level for a two person household was \$16,020.

**Major transit stop** – Existing and planned light rail stations and transit transfer stations, except for temporary facilities and other existing and planned transit stops which:

- (A) Have or are planned for an above average frequency of scheduled, fixed-route service when compared to region wide service. In urban areas of 1,000,000 or more population major transit stops are generally located along routes that have or are planned for 20 minute service during the peak hour; and

(B) Are located in a transit oriented development or within 1/4 mile of an area planned and zoned for:

(i) Medium or high density residential development; or

(ii) Intensive commercial or institutional uses within 1/4 mile of subsection (i); or

(iii) Uses likely to generate a relatively high level of transit ridership.

**Meaningful involvement** – This term means that the public should have opportunities to participate in decisions that could affect their environment and their health, their contributions should be taken into account by regulatory agencies, and decision-makers should seek and facilitate the engagement of those potentially affected by their decisions. (from EPA)

**Measure** – An expression based on a metric that is used to establish targets and to assess progress toward achieving the established targets.

**Metric** – A quantifiable indicator of performance or condition.

**Metropolitan Planning Area Boundary (MPA)** – The geographic area determined by agreement between the Metropolitan Planning Organization (MPO) and the Governor, in which the metropolitan transportation planning process is carried out by the MPO.

**Metropolitan Planning Organization (MPO)** – A federally-required policy body responsible for the transportation planning, project selection and scheduling the use of federal transportation funds in its region. Governed by policy board, MPOs are required in urbanized areas with populations more than 50,000 and are designated by the governor of the state. Oregon currently has eight MPOs covering the metropolitan areas of Portland, Salem-Keizer, Corvallis area, Eugene-Springfield, Rogue Valley (Medford-Ashland,) Bend area, Albany area, and Middle Rogue. JPACT and the Metro Council constitute the MPO for the Portland region. The MPO conducts federally mandated transportation planning work, including: a long-range Regional Transportation Plan (RTP), the Metropolitan Transportation Improvement Program (MTIP) for capital improvements identified for a four-year construction period, a Unified Planning Work Program (UPWP), a congestion management process (CMP), federal performance-based planning and target-setting and conformity to the state implementation plan for air quality for transportation related emissions.

**Metropolitan Transportation Improvement Program (MTIP)** – The MTIP includes all federally funded transportation projects in the Portland metropolitan planning area, including projects planned by TriMet, the Oregon Department of Transportation and local agencies receiving federal funds allocated by Metro. The MTIP is incorporated in the Statewide Transportation Improvement Program (STIP), which identifies the state's four-year transportation capital improvements. See also transportation improvement program.

**Metropolitan transportation plan** – The official multimodal transportation plan addressing no less than a 20-year planning horizon that the MPO develops, adopts, and updates through the



metropolitan transportation planning process. The Regional Transportation Plan is metropolitan transportation plan for the Portland region.

**Microtransit** – Services such as Via, Chariot and Leap can differ from conventional transit service in several different ways:

- **Dynamic routing:** Some microtransit services operate on flexible routes to pick up and drop off riders nearer to their origins and destinations. Services may deviate from a fixed route to make pickups and dropoffs, crowdsource routes from data provided by riders or make stops anywhere within a defined service area.
- **On-demand scheduling:** Instead of operating on a fixed schedule, microtransit services may allow riders to request a ride when they need it.
- **Smaller vehicles:** Microtransit services often use vans or small buses instead of 40-passenger buses.
- **Private operation:** Many microtransit services are privately operated or operated through partnerships between public agencies and private companies.

We distinguish between microtransit that is coordinated with public transit, for example services that connect people to high-frequency transit or operate in areas that are hard to serve with conventional transit, and luxury microtransit that serve existing transit routes and offer more space or amenities than a public bus at a higher cost.

**Mitigation** – Planning actions taken to avoid an impact altogether, minimize the degree or magnitude of the impact, reduce the impact over time, rectify the impact, or compensate for the impact. Mitigation includes:

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action.
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- (e) Compensating for the impact by replacing or providing substitute resources or environments.

**Mixed use** – Comprehensive plan or implementing regulations that permit a mixture of commercial and residential development.

**Mixed-use development** – Areas of a mix of at least two of the following land uses and includes multiple tenants or ownerships: residential, retail and office. This definition excludes large, single-use land uses such as colleges, hospitals, and business campuses.

**Mobility** – The ability to move people and goods to destinations efficiently and reliably.

**Mobility corridor** – Mobility corridors represent subareas of the region and include all regional transportation facilities within the subarea as well as the land uses served by the regional transportation system. This includes freeways and highways and parallel networks of arterial streets, regional bicycle parkways, high capacity transit, and frequent bus routes. The function of this network of integrated transportation corridors is metropolitan mobility – moving people and goods between different parts of the region and, in some corridors, connecting the region with the rest of the state and beyond. This framework emphasizes the integration of land use and transportation in determining regional system needs, functions, desired outcomes, performance measures, and investment strategies.

**Modal targets** – Performance targets for increased walking, biking, transit, shared ride and other non-drive alone trips as a percentage of all trips made in a defined area. The targets apply to trips to, from and within each 2040 Design Type. The targets reflect desired mode shares for each area for the year 2040 needed to comply with Oregon Transportation Planning Rule objectives to reduce reliance on single-occupant vehicles and per capita vehicle miles traveled.

**Regional 2040 modal targets**

2040 Design Type	Non-drive alone modal target
Portland central city	60-70%
Regional centers Town centers Main streets Station communities Corridors Passenger intermodal facilities	45-55%
Industrial areas Freight intermodal facilities Employment areas Neighborhoods	40-45%

Note: The targets apply to trips to, from and within each 2040 design type

**Mode** – A type of transportation distinguished by means used (e.g., such as walking, bike, bus, single- or high-occupancy vehicle, bus, train, truck, air, marine).

**Mode choice** – The ability to choose one or more modes of transportation.

**Mode share** – The proportion of total person trips using various modes of transportation.

**Moving Ahead for Progress in the 21st Century Act (MAP-21 ) (P.L. 112-141) –**

Reauthorization of Federal highway funding, signed into law by President Obama on July 6, 2012. Subsequent adoption of the FAST Act does not replace MAP-21 in all areas regulation of transportation safety planning and funding, so both must be referenced.

**Multimodal** – Transportation facilities or programs designed to serve many or all methods of travel, including all forms of motor vehicles, public transportation, bicycles and walking.

**Multimodal level of service** – Multimodal level of service (MMLOS) is an analytical tool that measures and rates users' experiences of the transportation system according to their mode. It evaluates not only drivers' experiences, but incorporates the experiences of all other users, such as cyclists and pedestrians.

**National Highway System (NHS)** – Title 23 of the U.S. Code section 103 states that the purpose of the NHS is to provide an interconnected system of principal routes that serve major population centers, international border crossings, ports, airports, public transportation facilities, intermodal transportation facilities, major travel destinations, meet national defense requirements, and serve interstate and inter-regional travel. Facilities included in the NHS are of regional significance.

**Network** – Connected routes forming a cohesive system.

**New mobility services** – Transportation services like ride-hailing, microtransit and car and bike share, which operate using smart phones and other emerging technologies. Many of these services are privately operated by new mobility companies.

**Non-motorized** – Generally referring to bicycle, walking and other modes of transportation not involving a motor vehicle.

**Non-SOV travel** – Any travel mode other than driving alone in a motorized vehicle (i.e., single occupancy vehicle or SOV travel), including travel avoided by telecommuting.

**Objective (in a plan)** – A specific, measureable desired outcome and means for achieving a goal(s) to guide action within the plan period.

**Off-peak hours** – The hours outside of the highest motor vehicle traffic period, generally between 9 a.m. and 3 p.m. and between 6 p.m. and 7 a.m.

**Older adults (vulnerable)** – The Moving Ahead for Progress in the 21st Century (MAP-21) Act created a new Special Rule for older drivers and pedestrians under 23 USC 148(g)(2), which was continued under the Fixing America's Surface Transportation (FAST) Act. If the rate per capita of traffic fatalities and serious injuries for drivers and pedestrians over the age of 65 in a State increases over the most recent 2-year period, this Special Rule requires a State to include strategies to address the increases in those rates in their State Strategic Highway Safety Plan (SHSP). FHWA issued the Section 148: Older Drivers and Pedestrians Special Rule Final Guidance in May 2016.<sup>1</sup> TriMet's *Coordinated Transportation Plan for Seniors and Persons With Disabilities* (2016) identifies several principles and actions related to addressing safety and security concerns getting to and at transit stops and on transit.

**Operational and management strategies** – Actions and strategies aimed at improving the performance of existing and planned transportation facilities to relieve congestion and maximize the safety and mobility of people and goods.

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<sup>1</sup> U.S. Department of Transportation, Federal Highway Administration Older Drivers and Pedestrians Special Rule. <https://safety.fhwa.dot.gov/hsip/older/>

**Oregon Transportation Commission (OTC)** – The Oregon Transportation Commission is a five-member governor-appointed government agency that manages the state highways and other transportation in the state of Oregon, in conjunction with the Oregon Department of Transportation.

**Oregon Transportation Plan (OTP)** – The official statewide intermodal transportation plan that is developed through the statewide transportation planning process by ODOT and approved by the Oregon Transportation Commission.

**Parking management** – Strategies that encourage more efficient use of existing parking facilities, improve the quality of service provided to parking facility users, and improve parking facility design. Examples include developing an inventory of parking supply and usage, reduced parking requirements, shared and unbundled parking, parking-cash-out, priced parking, bicycle parking and providing information on parking space availability. More information can be found at [vtpi.org/park\\_man.pdf](http://vtpi.org/park_man.pdf)

**Passenger car equivalent** – Passenger Car Equivalent (PCE) is a metric used in Transportation Engineering, to assess traffic-flow rate on a highway. A PCE is essentially the impact that a mode of transport has on traffic variables compared to a single car.

**Passenger intermodal facilities** – Facilities that accommodate or serve as transfer points to interconnect various transportation modes for the movement of people. Examples include Portland International Airport, Union Station, Oregon City Amtrak station and inter-city bus stations.

**Passenger rail** – Inter-city passenger rail is part of the state transportation system and extends from the Willamette Valley north to British Columbia. Amtrak already provides service south to California, east to the rest of the continental United States and north to Canada. It is a transit system that operates, in whole or part, on a fixed guide-way. These systems should be integrated with other transit services within the metropolitan region with connections at passenger intermodal facilities.

**Passenger train** – A railroad train for only passengers, rather than goods. Amtrak is the company that controls the railroads that carry passengers in the U.S.

**Passenger vehicles** – Motor vehicles with at least four wheels, used for the transport of passengers, and comprising no more than eight seats in addition to the driver's seat. Light commercial vehicles are motor vehicles with at least four wheels, used for the carriage of goods.

**Peak period or hours** – The period of the day during which the maximum amount of travel occurs. It may be specified as the morning (A.M.) or afternoon or evening (P.M.) peak. Peak periods in the Portland metropolitan region are currently generally defined as from 7–9 AM and 4–6 PM.

**Pedestrian** – A person traveling on foot, in a wheelchair or in another health-related mobility device.

**Pedestrian connection** – A continuous, unobstructed, reasonably direct route between two points that is intended and suitable for pedestrian use. Pedestrian connections include but are not limited to sidewalks, walkways, accessways, stairways and pedestrian bridges. On developed parcels, pedestrian connections are generally hard surfaced. In parks and natural areas, pedestrian connections may be soft-surfaced pathways. On undeveloped parcels and parcels intended for redevelopment, pedestrian connections may also include rights-of-way or easements for future pedestrian improvements.

**Pedestrian corridor** – The second highest functional class of the regional pedestrian network. On-street regional pedestrian corridors are any major or minor arterial on the regional urban arterial network that is not a pedestrian parkway. Regional trails that are not pedestrian parkways are regional pedestrian corridors. These routes are also expected to see a high level of pedestrian activity, though not as high as the parkways.

**Pedestrian district** – A comprehensive plan designation or set of land use regulations designed to provide safe and convenient pedestrian circulation, with a mix of uses, density, and design that support high levels of pedestrian activity and transit use. The pedestrian district can be a concentrated area of pedestrian activity or a corridor. Pedestrian districts can be designated within the following 2040 Design Types: Central City, Regional and Town Centers, Corridors and Main Streets. Though focused on providing a safe and convenient walking environment, pedestrian districts also integrate efficient use of several modes within one area, e.g., auto, transit, and bike.

**Pedestrian facility** – A facility provided for the benefit of pedestrian travel, including walkways, protected street crossings, crosswalks, plazas, signs, signals, pedestrian scale street lighting and benches.

**Pedestrian parkway** – A new functional class for pedestrian routes in the Regional Transportation Plan and the highest functional class. They are high quality and high priority routes for pedestrian activity. Pedestrian parkways are major urban streets that provide frequent and almost frequent transit service (existing and planned) or regional trails. Adequate width and separation between pedestrians and bicyclists should be provided on shared use path parkways.

**Pedestrian-scale** – An urban development pattern where walking is a safe, convenient and interesting travel mode. The following are examples of pedestrian scale facilities: continuous, smooth and wide walking surfaces, easily visible from streets and buildings and safe for walking; minimal points where high speed automobile traffic and pedestrians mix; frequent crossings; and storefronts, trees, bollards, on-street parking, awnings, outdoor seating, signs, doorways and lighting designed to serve those on foot; all well-integrated into the transit system and having uses that cater to pedestrians.

**People of color focus area** – Census tracts with higher than regional average concentrations and double the density of one or more of the following: people of color and/or English language learners.

**Per capita** – Used to describe the rate of something per person.

**Performance-based planning and programming** – Refers to the application of performance management within the planning and programming processes of MPOs and transportation agencies to achieve desired performance outcomes for the multimodal transportation system. Attempts to ensure that transportation investment decisions are made – both in long-term planning and short-term programming of projects – based on their ability to meet established goals.

**Performance management** – A strategic approach that uses data and information to support decisions that help to achieve identified performance outcomes.

**Performance measurement** – A process of assessing progress toward achieving goals using data.

**Performance measure** – A metric used to assess and monitor progress toward meeting an objective using quantitative or qualitative data and provide feedback in the plan’s decision-making process.

Some measures can be used to predict the future as part of an evaluation process using forecasted data, while other measures can be used to monitor changes based on actual empirical or observed data. In both cases, they can be applied at a system-level, corridor-level and/or project level, and provide the planning process with a basis for evaluating alternatives and making decisions on future transportation investments. As used in the RTP, performance measures are used to evaluate transportation system performance and potential impacts of the plan’s investments within the planning period. They are also used to monitor performance of the plan in between updates to evaluate the need for refinements to policies, investment strategies or other elements of the plan..

**Person trip** – A trip made by a person from one location to another, whether as a driver, bicyclist, passenger or pedestrian.

**Per vehicle miles traveled (VMT)** – Used to describe rate of something per the number of motor vehicle miles traveled, such as the crash rate per motorized vehicle miles. Except where otherwise noted, crash rates are per 100-million motorized vehicle miles travelled in this document.

**Physically separated bicycle lanes** – These types of facilities provide a physical buffer between a person riding a bicycle and auto traffic and can be referred to as cycle tracks, trails, paths and buffered bicycle lanes. Buffers can be provided by parked cars, landscaped strips, raised pavement, bollards and planters.

**Planning area boundary** – A boundary used by Metro for planning purposes – also called the metropolitan planning area boundary. Included within the boundary are all areas within the Metro jurisdictional boundary, the 2010 Census urbanized area, designated urban reserves and the urban growth boundary.

**Planning factors** – A set of broad objectives defined in Federal legislation to be considered in both the metropolitan and statewide planning process. The factors are:



- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.
- Increase the safety of the transportation system for motorized and non-motorized users.
- Increase the security of the transportation system for motorized and non-motorized users.
- Increase the accessibility and mobility of people and for freight.
- Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns.
- Enhance the integration and connectivity of the transportation system, across and between modes, people and freight.
- Promote efficient system management and operation.
- Emphasize the preservation of the existing transportation system.
- Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.
- Enhance travel and tourism.

**Policy** – A policy is a statement of intent and describes a direction and a course of action adopted and pursued by a government to achieve desired outcome(s).

**Posted Speed** – The speeds indicated on signs along the roadway. When speeds differ from statutory speeds there must be a posted sign indicating the different speed.

**Practicable** – This term means available and capable of being done after taking into consideration cost, existing technology and logistics, in light of overall project purposes.

**Preparedness** – This term refers to actions taken to plan, organize, equip, train, and exercise to build, apply, and sustain the capabilities necessary to prevent, protect against, ameliorate the effects of, respond to, and recover from climate change related damages to life, health, property, livelihoods, ecosystems, and national security.

**Principal arterial** – Limited-access roads that serve longer-distance motor vehicle and freight trips and provide interstate, intrastate and cross-regional travel. See definition of Throughway.

**Project development** – A phase in the transportation planning process during which a proposed project undergoes a more detailed analysis of the project's social, economic and environmental impacts and various project alternatives to determine the precise location, alignment, and preliminary design of improvements based on site-specific engineering and environmental studies. After a project has successfully passed through this phase, it may move forward to right-of-way acquisition and construction phases. Project development activities include: Environmental Assessment (EA)/Environmental Impact Statement (EIS) work, Design Options Analysis (DOA), management plans, and transit Alternatives Analysis (AA).

**Protected bike lanes** – Separated bike lane, cycle track, a bike lane that is physically separated from auto traffic, typically they are created using planters, curbs, parked cars, or posts and are essential for creating a complete network of bike-friendly routes. For bicyclists, safety increases significantly when there is physical separation from motorists through infrastructure. Fully protected bikeways can reduce bicycle injury risk up to 90 percent.<sup>2</sup> Another report found that on-street bike lanes that use barriers to physically separate bicyclists from motor vehicles are 89 percent safer than streets with parked cars and without bicycling infrastructure. When physical separation is not possible, infrastructure such as striped bike lanes, bicycle boulevards, and bike boxes help reduce the risk of conflict with motor vehicles.<sup>3</sup>

**Public health** – The health of the population as a whole, especially as monitored, regulated, and promoted by the state.

**Racial equity** – When race can no longer be used to predict life outcomes and outcomes for all groups are improved. The removal of barriers with a specific focus on eliminating disparities faced by and improving equitable outcomes for communities of color – the foundation of Metro’s strategy with the intent of also effectively identifying solutions and removing barriers for other disadvantaged groups.

**Ramp meter or metering** – A traffic signal used to regulate the flow of vehicles entering the freeway. Ramp meters smooth the merging process resulting in increased freeway speeds and reduced crashes. Ramp meters can be automatically adjusted based on traffic conditions.

**Refinement plan** – Amendment to a transportation system plan which determines at a systems level the function, mode or general location of a transportation facility, service or improvement, deferred during system planning because detailed information needed to make the determination could not be reasonably obtained at that time.

**Regional bike-transit facility** – The hub where the spokes of the regional bikeway network connect to the regional transit network. Stations and transit centers identified as regional bike-transit facilities have high-capacity bike parking and are suitable locations for bike-sharing and other activities that support bicycling. Criteria for identifying locations are found in the TriMet Bicycle Parking Guidelines.

**Regional bikeway** – Designated routes that provide access to and within the central city, regional centers and town centers. These bikeways are typically located on arterial streets but may also be located on collectors or other low-volume streets. These bikeways should be designed using a flexible “toolbox” of bikeway designs, including bike lanes, cycle tracks (physically separated bicycle lanes) shoulder bikeways, shared roadway/wide outside lanes and bicycle priority treatments (e.g. bicycle boulevards).

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<sup>2</sup> “Route Infrastructure and the Risk of Injuries to Bicyclists: a Case-Crossover Study,” Teschke, et al. American Journal of Public Health, Vol. 102, No. 12, December 2012.

<sup>3</sup> A Right to the Road, p.48, GHSA, 2017.

**Regional centers (2040 design type)** – Compact, specifically-defined areas where higher density growth and a mix of intensive residential and commercial land uses exists or is planned. Regional centers are to be supported by an efficient, transit-oriented, multi-modal transportation system. Examples include traditional centers, such as downtown Gresham, and new centers such as Gateway and Clackamas Town Center.

**Regional destinations** – Include the following types of places: employment sites with 300 or more employees (includes regional sports and attraction sites such as Oregon Zoo, Oregon Museum of Science and Industry, Providence Park, Moda Center); high ridership bus stop locations; regional shopping centers; major hospitals and medical centers; colleges, universities and public high schools; regional parks; major government centers; social services; airports; and libraries.

**Regional Flexible Funds (RFF)** – Regional flexible funds come from three federal grant programs: the Surface Transportation Block Grant Program, the Congestion Mitigation/Air Quality Program and the Transportation Alternatives Program. The regional flexible fund allocation process identifies which projects in the *Regional Transportation Plan* will receive funding. Regional flexible funds are allocated every two years and are included in the Metropolitan Transportation Improvement Program. Unlike funding that flows only to highways or only to transit by a rigid formula, this is money that can be invested in a range of transportation projects or programs as long as federal funding eligibility requirements are met.

**Regional freight network** – Applies the regional freight concept on the ground to identify the transportation networks and freight facilities that serve the region and state's freight mobility needs.

**Regional intelligent transportation system (ITS) architecture** – A regional framework for ensuring institutional agreement and technical integration for the implementation of ITS projects or groups of projects.

**Regional mobility policy** – The minimum motor vehicle performance desired for transportation facilities designated on the Regional Motor Vehicle Network in Chapter 3. Table 3.6 reflects volume-to-capacity targets adopted in the RTP for facilities designated on the Regional Motor Vehicle Network as well as volume-to-capacity targets adopted in the Oregon Highway Plan for state-owned facilities in the urban growth boundary. In effect, the policy is used to evaluate current and future performance of the motor vehicle network, using the ratio of traffic volume (or forecasted demand) to planned capacity of a given roadway, referred to as the volume-to-capacity ratio (v/c ratio) or level-of-service (LOS). As a system plan, the RTP uses the interim regional policy to diagnose the extent of motor vehicle congestion on throughways and arterials during different times of the day and to determine adequacy in meeting the region's needs. LOS is also used to determine consistency of the RTP with the Oregon Highway Plan for state-owned facilities. JPACT and the Metro Council adopted the policy in 2000, agreeing that building a regional arterial and throughway network to accommodate all motor vehicle traffic during peak travel periods is not practical nor would it be desirable considering potential financial, social equity,

environmental and community impacts. The RTP mobility policy can be found in Chapter 2 and Chapter 3 of the RTP.

**Regional trails** – Regional Trails are defined by Metro as linear facilities for non-motorized users that are at least 75% off-street and are regionally significant. Bicycle/pedestrian sidewalks on bridges are also included in this definition. The term “non-motorized” is used instead of “multi-use” or “multi-modal” because some Regional Trails are pedestrian-only. Trails must meet two levels of criteria to be considered “regionally significant.” The criteria are adopted by the Metro Council in the *Regional Trails and Greenways Plan*. Regional trails are physically separated from motor vehicle traffic by open space or a barrier. Bicyclists, pedestrians, joggers, skaters and other non-motorized travelers use these facilities.

While all trails serve a transportation function, not all regional trails identified on Metro’s *Regional Trails and Greenways Map* are included in the RTP. The RTP includes regional trails that support both utilitarian and recreational functions. These trails are generally located near or in residential areas or near mixed-use centers and provide access to daily needs. Trails in the RTP are defined as transportation facilities and are part of the regional transportation system. Regional trails in the RTP are eligible to receive federal transportation funds. Trails that use federal transportation funds need to be ADA accessible according to the AASHTO trail design guidelines. There are some pedestrian only trails or trails near sensitive habitat on the RTP network that would most likely not be paved. Regional bicycle connections are planned parallel to pedestrian only regional trails. Colloquially, terms like “bike path” and “multi-use path” are often used interchangeably with “regional trail,” except when referring to pedestrian-only regional trails.

**Regional Trails and Greenways Map** – A map developed and maintained by Metro. The map was first developed as part of the *Metropolitan Greenspaces Master Plan*. The map includes the existing and proposed trails and greenways in the regional system. Many of the regional trails are included in the Regional Transportation Plan.

**Regional transit network** – The regional transit system includes light rail, commuter rail, bus rapid transit, enhanced transit, frequent bus, regional bus, and streetcar modes as well as major transit stops.

**Regional Transportation Functional Plan (RTFP)** – A regional functional plan regulating transportation in the Metro region, as mandated by Metro’s Regional Framework Plan. The plan directs local plan implementation of the Regional Transportation Plan.

**Regional Transportation Plan (RTP)** – A long-range metropolitan transportation plan that is developed and adopted for the greater Portland metropolitan planning area (MPA) covering a planning horizon of at least 20 years. Usually RTPs are updated every five years through the federally-mandated metropolitan transportation planning process. The plan identifies and analyzes transportation needs of the metropolitan region and creates a framework for implementing policies and project priorities. Required by state and federal law, it includes programs to better maintain, operate and expand transportation options to address existing and

future transportation needs. The RTP also serves as the regional transportation system plan under the Oregon Transportation Planning Rule.

**Regional transportation system** – The regional transportation system is identified on the regional transportation system maps in the Regional Transportation Plan. The system is limited to facilities of regional significance generally including regional arterials and throughways, high capacity transit and regional transit systems, regional multi-use trails with a transportation function, bicycle and pedestrian facilities that are located on or connect directly to other elements of the regional transportation system, air and marine terminals, as well as regional pipeline and rail systems.

**Regional Travel Options (RTO) Program** – Metro program guided by a five-year strategic plan aimed at reducing the demand for roadway travel, particularly single occupant vehicle travel. More specifically, Metro's RTO program includes:

- a coordinated education and outreach effort to efficiently use public dollars to reach key audiences
- an employer outreach program to save employers and employees money
- a regional Safe Routes to School effort that supports local education programs in schools to teach kids how to walk and bicycle to school safely
- a regional rideshare program that makes carpooling safer and easier and helps people with limited transit access have options to get around
- a grant program that funds partner efforts, such as The Street Trust's Bike Commute Challenge, TriMet's and TMA's work with employers, Ride Connection's RideWise travel training program for seniors and people with disabilities, and Portland Sunday Parkways, to name a few
- funding for bicycle racks, wayfinding signage and other tools that help people to walk and bicycle
- funding for pilot projects to test new ways to reach the public through technology or innovative engagement methods.

*See also transportation demand management.*

**Regionally significant industrial area (RSIA)** – 2040 land use designation; RSIA's are shown on Metro's 2040 map. Industrial activities and freight movement are prioritized in these areas.

**Regionally significant project** – A transportation project (other than projects that may be grouped in the TIP and/or STIP or exempt projects as defined in EPA's transportation conformity regulations (40 CFR part 93, subpart A)) that is on a facility that serves regional transportation needs (such as access to and from the area outside the region; major activity centers in the region; major planned developments such as new retail malls, sports complexes, or employment centers; or transportation terminals) and would normally be included in the modeling of the metropolitan area's transportation network. Chapter 3 of the RTP defines the regional transportation system.

**Reliability** – This term refers to consistency or dependability in travel times, as measured from day to day and/or across different times of day. Variability in travel times means travelers must plan extra time for a trip.

**Resilience or resiliency** – This term means the ability to anticipate, prepare for and adapt to changing conditions and withstand, respond to and recover rapidly from disruptions.

**Revision** – A change to a long-range statewide or metropolitan transportation plan, TIP, or STIP that occurs between scheduled periodic updates. A major revision is an “amendment” while a minor revision is an “administrative modification.”

**Ride-hailing services** – Also known as transportation network companies, or TNCs like Uber and Lyft, which use apps to connect passengers with drivers who provide rides in their personal vehicles.

**Rideshare** – A transportation demand management strategy where two or more people share a trip in a vehicle to a common destination or along a common corridor. Private passenger vehicles are used for carpools, and some vanpools receive public/private support to help commuters. Carpooling and vanpooling provide travel choices for areas underserved by transit or at times when transit service is not available.

**Right-of-way (ROW)** – Land that is publicly-owned, or in which the public has a legal interest, usually in a strip, within which the entire road facility (including travel lanes, medians, sidewalks, shoulders, planting areas, bikeways and utility easements) resides. The right-of-way is usually acquired for or devoted to multi-modal transportation purposes including bicycle, pedestrian, public transportation and vehicular travel.

**Road users** – A motorist, passenger, public transportation operator or user, truck driver, bicyclist, motorcyclist, or pedestrian, including a person with disabilities. (23 USC section 148)

**Roadway connectors** – Roads that connect other freight facilities, industrial areas, and 2040 centers to a main roadway route.

**Rural reserves (2040 Design Type)** – Large areas outside the urban growth boundary that will remain undeveloped through 2060. These areas are reserved to provide long-term protection for agriculture, forestry or important natural landscape features that limit urban development or help define appropriate natural boundaries for development, including plant, fish and wildlife habitat, steep slopes and floodplains.

**Safe Routes to School** – A comprehensive engineering/education program focused on youth school travel that aims to create safe, convenient, and fun opportunities for children to walk and roll (bike, scooter, etc.) to and from schools. City or school district based programs incorporate evaluation, education, encouragement, engineering, enforcement, and equity with the goal of increasing walking and rolling to school. Safe Routes to School is a national program that works to nationally, regionally and locally to create safe, healthy, and livable urban, suburban and rural communities. The program works with parents, school districts, local governments, government,



police and community partners to make it easy and safe for kids to walk and bike to school. Results are achieved through investments in small capital projects, educations and outreach such as walking school buses.

**Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU)** – Signed into federal law in 2005, SAFETEA-LU authorized the federal surface transportation programs for highways, highway safety, and transit through 2009. SAFETEA-LU refined and reauthorized TEA-21. SAFETEA-LU was subsequently replaced by MAP-21 and the FAST Act.

**Safety** – Protection from death or bodily injury from a motor-vehicle crash through design, regulation, management, technology and operation of the transportation system.

**Safety benefit projects** – Projects with design features to increase safety for one or more roadway user. These projects may not necessarily address an identified safety issue at an identified high injury or high risk location, but they do include design treatments known to increase safety and reduce serious crashes. Examples include adding sidewalks, bikeways, medians, center turn lanes and intersection or crossing treatments.

**Safety data** – Includes, but is not limited to, crash, roadway, and traffic data on all public roads. For railway- highway grade crossings, safety data also includes the characteristics of highway and train traffic, licensing, and vehicle data.

**Safety project** – Has the primary purpose of reducing fatal and severe injury crashes or reducing crashes by addressing a documented safety problem at a documented high injury or high risk location with one or more proven safety countermeasures.

**Scenario planning** – An analytical approach and planning process that provides a comprehensive framework for evaluating how various combinations of strategies, policies, plans and/or programs may affect the future of a community, region or state. The approach involves identifying various packages or strategies or scenarios against a baseline projection.

**Security (public and personal)** – Protection from intentional criminal or antisocial acts while engaged in trip making through design, regulation, management, technology and operation of the transportation system.

**Serious Crash** – Refers to the total number of Fatal and Severe Injury (Injury A) crashes combined.

**Severity** – A measurement of the degree of seriousness concerning both vehicle impact (damage) and bodily injuries sustained by victims in a traffic crash.

**Shared mobility** – Describes services that allow people to share a vehicle, such as ride-hailing trips, car and bike share and microtransit, as well as traditional shared modes like transit, car- or vanpools and taxis. Some of these services are privately operated by shared mobility companies.

**Shared trips** – Trips taken by multiple passengers traveling in a single vehicle, including carpools, transit trips and some ride-hailing or car share trips.

**Short trip** – Generally defined as a one-way trip less than three miles.

**Sidewalk** – A walkway separated from the roadway with a curb, constructed of a durable, hard and smooth surface, designed for preferential or exclusive use by pedestrians.

**Single-occupant vehicle (SOV)** – A private motorized passenger vehicle carrying one occupant (the driver only). Also referred to as a drive alone vehicle.

**Smart cities** – The way in which public agencies are using technology to collect better data, provide better service, do business more efficiently and make better decisions.

**Social equity** – The idea that all members of a societal organization or community should have access to the benefits associated with civil society – the pursuit of an equitable society requires the recognition that there are a number of attributes that give members of a society more or less privilege and that in order to provide equitable situations the impacts of these privileges (or lack thereof) must be addressed. For transportation, equity refers to fair treatment or equal access to transportation services and options. In the context of safety, transportation equity relates to improving the travel choices, the safety of travel and not unfairly impacting one group or mode of transportation. More specifically it means improved safety for all transportation options and lessening the risks or hazards associated with different choices of transportation.

**Stakeholders** – Individuals and organizations with an interest in or who are affected by a transportation plan, program or project, including federal, state, regional and local officials and jurisdictions, institutions, community groups, transit operators, freight companies, shippers, non-governmental organizations, advocacy groups, residents of the geographic area and people who have traditionally been underrepresented.

**State Highways** – In Oregon, is a network of roads that are owned and maintained by the Highway Division of the Oregon Department of Transportation (ODOT), including Oregon's portion of the Interstate Highway System.

**State Transportation Improvement Program (STIP)** – The four-year funding and scheduling document for major street, highway and transit projects in Oregon. The STIP is produced by ODOT, consistent with the Oregon Transportation Plan (the statewide transportation plan) and other statewide plans as well as metropolitan transportation plans and MTIPs. The STIP covers the entire state and is overseen by the Oregon Transportation Commission (OTC). It must include all the metropolitan region's TIPs without change as well as a list of specific projects proposed by ODOT in the non-metropolitan areas. Updated every three years, the STIP determines when and if transportation projects will be funded by the state with state or federal funds.

**State Transportation Plan** – The official statewide intermodal transportation plan that is developed through the statewide transportation planning process. See also Oregon Transportation Plan.

**Station communities (2040 Design Type)** – Areas generally within a 1/4- to 1/2-mile radius of a light rail station or other high capacity transit stops that are planned as multi-modal, mixed-use communities with substantial pedestrian and transit-supportive design characteristics and improvements.

**Strategic plan** – Defines the desired direction and outcomes to guide decisions for allocating resources to pursue the strategy.

**Strategic project list** – Additional policy-driven transportation needs and priority projects that could be achieved with additional resources.

**Strategy** – Involves setting goals, determining actions to achieve the goals, and mobilizing resources to execute the actions. A strategy describes how the ends (goals) will be achieved by the means (resources).

**Street** – A generally gravel or concrete- or asphalt-surfaced facility. The term collectively refers to arterial, collector and local streets that are located in 2040 mixed-use corridors, industrial areas, employment areas and neighborhoods. While the focus for streets has been on motor vehicle traffic, they are designed as multi-modal facilities that accommodate bicycles, pedestrians and transit, with an emphasis on vehicle mobility and special pedestrian infrastructure on transit streets.

**Surface Transportation Block Grant (STBG)** – A federal source of funding for projects and activities that is the most flexible in its use. Projects and activities which states and localities can use STBG include: projects that preserve and improve the conditions and performance on any federal-aid highway, bridge and tunnel projects on any public road, pedestrian and bicycle infrastructure and transit capital projects, including intercity bus terminals.

**Sustainability** – Using, developing and protecting resources in a manner that enables people to meet current needs and provides that future generations can meet future needs, from the joint perspective of environmental, economic and community objectives. This definition of sustainability is from the 2006 Oregon Transportation Plan and ORS 184.421(4). The 2001 Oregon Sustainability Act and 2007 Oregon Business Plan maintain that these principles of sustainability can stimulate innovation, advance global competitiveness and improve quality of life in communities throughout the state.

**Sustainable** – A method of using a resource such that the resource is not depleted or permanently damaged.

**System efficiency** – Strategies that optimize the use of the existing transportation system, including traffic management, employer-based commute programs, individualized marketing and carsharing.

**System management** – A set of strategies for increasing travel flow on existing facilities through improvements such as ramp metering, traffic signal synchronization and access management.

**Target** – A specific level of performance that is desired to be achieved within a specified time period.

**Throughways** – Controlled access (on-ramps and off-ramps) freeways and major highways.

**Traffic** – Movement of motorized vehicles, non-motorized vehicles and pedestrians on transportation facilities. Often traffic levels are expressed as the number of units moving over or through a particular location during a specific time period.

**Traffic calming** – A transportation system management technique that aims to prevent inappropriate through-traffic and reduce motor vehicle travel speeds on a particular roadway. Traditionally, traffic calming strategies provide speed bumps, curb extensions, planted median strips or rounds and narrowed travel lanes.

**Traffic incident management** – Planned and coordinated processes followed by state and local agencies to detect, respond to, and remove traffic incidents quickly and safely in order to keep highways flowing efficiently.

**Traffic management** – Strategies that improve transportation system operations and efficiency, including ramp metering, active traffic management, traffic signal coordination and real-time traveler information regarding traffic conditions, incidents, delays, travel times, alternate routes, weather conditions, construction, or special events.

**Traffic signal progression** – A process by which a number of traffic signals are synchronized to create the efficient progression of vehicles.

**Transit Asset Management Plan (TAMP)** – A plan that includes an inventory of capital assets, a condition assessment of inventoried assets, a decision support tool, and a prioritization of investments.

**Transit Asset Management System** – A strategic and systematic process of operating, maintaining, and improving public transportation capital assets effectively, throughout the life cycles of those assets.

**Transit oriented development (TOD)/Metro Transit Oriented Development Program** – A mixed-use community or neighborhood designed to encourage transit use, bicycle and pedestrian activity, containing a rich mix of residential, retail, and workplaces in settings designed for bicycle and pedestrian convenience and transit accessibility. Metro began a regional Transit Oriented Development program in 1998 as part of a strategy to leverage the region's significant investment in high capacity transit. As part of Metro's TOD Program, the agency strategically invests to stimulate private development of higher-density, affordable and mixed-use projects near transit to help more people live, work and shop in neighborhoods served by high-quality transit. In addition, the program invests in "urban living infrastructure" like grocery stores and other amenities, provides technical assistance to communities and developers, and acquires and owns properties in transit-served areas and solicits proposals from qualified developers to create transit-oriented communities in these places. To date, the TOD program investments totaling \$16

million have leveraged more than \$697 million in private development activity across 45 completed TOD projects.

**Transportation Alternatives Program** – The Transportation Alternatives Program (TAP) was authorized under Section 1122 of Moving Ahead for Progress in the 21st Century Act (MAP-21) and is codified at 23 U.S.C. sections 213(b), and 101(a)(29). Section 1122 provides for the reservation of funds apportioned to a State under section 104(b) of title 23 to carry out the TAP. The national total reserved for the TAP is equal to 2% of the total amount authorized from the Highway Account of the Highway Trust Fund for Federal-aid highways each fiscal year. The TAP provides funding for programs and projects defined as transportation alternatives, including on- and off-road pedestrian and bicycle facilities, infrastructure projects for improving non-driver access to public transportation and enhanced mobility, community improvement activities, and environmental mitigation; recreational trail program projects; safe routes to school projects; and projects for planning, designing, or constructing boulevards and other roadways largely in the right-of-way of former Interstate System routes or other divided highways.

**Transportation demand** – The quantity of transportation services desired by users of the transportation system.

**Transportation demand management (TDM)** – The application of a set of strategies and programs designed to reduce demand for roadway travel, particularly single occupant vehicle trips, through various means (e.g. education, outreach, marketing, incentives, technology). The strategies aim to affect when, where and how much people travel in order to make more efficient use of transportation infrastructure and services. Strategies include offering other modes of travel such as walking, bicycling, ride-sharing and vanpool programs, car sharing, alternative work hours, education such as individualized marketing, policies, regulations and other combinations of incentives and disincentives that are intended to reduce drive alone vehicle trips on the transportation network. Metro's TDM program is called the Regional Travel Options (RTO) program. *See also Regional Travel Options Program.*

**Transportation disadvantaged/persons potentially underserved by the transportation system** – Individuals who have difficulty in obtaining important transportation services because of their age, income, physical or mental disability.

**Transportation equity** – The removal of barriers to eliminate transportation-related disparities faced by and improve equitable outcomes for historically marginalized communities, especially communities of color.

**Transportation improvement program (TIP)** – A prioritized listing/program of multimodal transportation projects covering a period of 4 years that is developed and formally adopted by an MPO as part of the metropolitan transportation planning process. The TIP must be consistent with the metropolitan transportation plan, and is required for projects to be eligible for funding under title 23 U.S.C. and title 49 U.S.C. chapter 53. In the Portland metropolitan region, the TIP is referred to as the Metropolitan Transportation Improvement Program (MTIP). In practice, the MTIP is a short-term, four year program of transportation projects that will be funded with

federal funds expected to flow to the region and locally and state-funded regionally significant projects.

**Transportation management associations (TMA)** – Non-profit coalitions of local businesses and/or public agencies, and residences such as condo Home Owner Associations all dedicated to reducing traffic congestion and pollution while improving commuting options for employees, residents and visitors.

**Transportation management area (TMA)** – An urbanized area with a population over 200,000, as defined by the U.S. Census Bureau and designated by the Secretary of Transportation, or any additional area where TMA designation is requested by the Governor and the MPO and designated by the Secretary of Transportation. These areas must comply with special transportation planning requirements regarding congestion management process, project selection, processes for development of tan RTP and MTIP and certification identified in 23 CFR 450.300-340.

**Transportation needs** – Estimates of the movement of people and goods based on current population and employment and future growth consistent with acknowledged comprehensive plans. Needs are typically defined based on an assessment of existing transportation system gaps and deficiencies and projections of future travel demand, from a continuation of current trends as modified by policy objectives expressed in Statewide Planning Goal 12, the Transportation Planning Rule, federal planning factors and the RTP (Chapter 2 and Chapter 3).

Deficiencies are defined as the difference between the current transportation system and adopted standards based on performance measures and targets identified in Chapter 2. Deficiencies are capacity or design constraints that limit but do not prohibit the ability to travel by a given mode. Gaps are defined as missing links in the transportation system for any mode. Gaps either prohibit travel by a particular mode or make it functionally unsafe. Together, gaps and deficiencies are defined as needs.

- **Local transportation needs** means needs for movement of people and goods within communities and portions of counties and the need to provide access to local destinations.
- **Regional transportation needs** means needs for movement of people and goods between and through communities and accessibility to regional destinations within a metropolitan area, county or associated group of counties.
- **State transportation needs** means needs for movement of people and goods between and through regions of the state and between the state and other states.

*See also gap and deficiency.*

**Transportation performance management (TPM)** – Strategic approach that uses system information to make investment and policy decisions to achieve national performance goals.



**Transportation planning** – A continuing, comprehensive, and cooperative (3-C) process to encourage and promote the development of a multimodal transportation system to ensure safe and efficient movement of people and goods while balancing environmental and community needs.

**Transportation planning rule (TPR)** – Oregon’s statewide planning goals established state policies in 19 different areas. The TPR implements the Land Conservation and Development Commission’s Planning Goal 12 (Transportation) which requires ODOT, MPOs, Counties and Cities, per OAR 660-012-0015 (2) and (3), to prepare a Transportation System Plan (TSP) to identify transportation facilities and services to meet state, regional and local needs, as well as the needs of the transportation disadvantaged and the needs for movement of goods and services to support planned industrial and commercial development, per OAR 660-012-0030(1).

**Transportation system** – Various transportation modes or facilities (aviation, bicycle and pedestrian, throughway, street, pipeline, transit, rail, water transport) serving as a single unit or system.

**Transportation system management (TSM)** – A set of strategies for increasing travel flow on existing facilities through improvements such as ramp metering, traffic signal synchronization, incident response and access management.

**Transportation system plan (TSP)** – The transportation element of the comprehensive plan for one or more transportation facilities that is planned, developed, operated and maintained in a coordinated manner to supply continuity of movement between modes, and between geographic and jurisdictional areas. A TSP describes a transportation system and outlines projects, programs, and policies to meet transportation needs now and in the future based on community (and regional) aspirations. A TSP typically serves as the transportation component of the local comprehensive plan. The TSP supports the development patterns and land uses contained in adopted community and regional plans. The TSP includes a comprehensive analysis and identification of transportation needs associated with adopted land use plans. The TSP complies with Oregon’s Transportation Planning Rule, as described in statewide Planning Goal 12. The RTP is a regional TSP.

Local TSPs must be consistent with the applicable Regional Transportation Plan. Jurisdictions within a metropolitan area must adopt TSPs that reflect regional goals, objectives, and investment strategies specific to the area and demonstrate how local transportation system planning helps meet regional performance targets. A jurisdiction within a Metropolitan Planning Organization area must make findings that the proposed Regional Transportation Plan amendment or update is consistent with the local TSP and comprehensive plan or adopt amendments that make the Regional Transportation Plan and the TSP consistent with one another. (OAR 660-012-0016) TSP updates must occur within one year of the adoption of a new or updated Regional Transportation Plan. (OAR 660-012-0055).

**Travel options/choices** – The ability range of travel mode choices available, including motor vehicle, walking, bicycling, riding transit and carpooling. Telecommuting is sometimes considered a travel option because it replaces a commute trip with a trip not taken.

**Travel time** – The measure of time that it takes to reach another place in the region from a given point for a given mode of transportation. Stable travel times are a sign of an efficient transportation system that reliably moves people and goods through the region.

**Travel time reliability** – This term refers to consistency or dependability in travel times, as measured from day to day and/or across different times of day. Variability in travel times means travelers must plan extra time for a trip.

**Trip** – A one-way movement of a person or vehicle between two points. A person who leaves home on one vehicle, transfers to a second vehicle to arrive at a destination, leaves the destination on a third vehicle and has to transfer to yet another vehicle to complete the journey home has made four unlinked passenger trips.

**TripCheck** – An Oregon Department of Transportation website that displays real-time data regarding road conditions, weather conditions, camera images, delays due to congestion and construction, and other advisories. Additionally, TripCheck provides travelers with information about travel services such as food, lodging, attractions, public transportation options, scenic byways, weather forecasts, etc. This information is also available through the 511 travel information phone line.

**Underserved communities** – Populations that have historically experienced a lack of consideration in the planning and decision making process. It describes historically marginalized communities in addition to those that are defined in the federal definition of Environmental Justice. These populations are seniors, persons with disabilities, youth, communities of color, low-income communities, and any other population of people whose needs may not have been full met in the planning process.

**Unified Planning Work Program (UPWP)** – This refers to annual statement of work identifying the planning priorities and activities to be carried out within a metropolitan planning area. At a minimum, a UPWP includes a description of the planning work and resulting products, who will perform the work, time frames for completing the work, the cost of the work, and the source(s) of funds.

**United States Department of Transportation (USDOT)** – The federal cabinet-level agency with responsibility for highways, mass transit, aviation and ports; it is headed by the Secretary of Transportation. The DOT includes the Federal Highway Administration and the Federal Transit Administration, among others.

**Universal access** – Universal access is the goal of enabling all citizens to reach every destination served by their public street and pathway system. Universal access is not limited to access by persons using automobiles. Travel by bicycle, walking, or wheelchair to every destination is accommodated in order to achieve transportation equity, maximize independence, and improve

community livability. Wherever possible, facilities are designed to allow safe travel by youth, seniors, and people with disabilities who may have diminished perceptual or ambulatory abilities. By using design to maximize the percentage of the population who can travel independently, it becomes much more affordable for society to provide paratransit services to the remainder with special needs.

**Update** – For federal purposes, this means making current a long-range statewide transportation plan, metropolitan transportation plan, TIP, or STIP through a comprehensive review. Updates require public review and comment, a 20-year horizon for metropolitan transportation plans and long-range statewide transportation plans, a 4-year program period for TIPs and STIPs, demonstration of fiscal constraint (except for long-range statewide transportation plans), and a conformity determination (for metropolitan transportation plans and TIPs in nonattainment and maintenance areas). For state purposes, this means TSP amendments that change the planning horizon and apply broadly to a city or county and typically entails changes that need to be considered in the context of the entire TSP, or a substantial geographic area.

**Urban growth boundary** – The politically defined boundary around an urban area beyond which no urban improvements may occur. In Oregon, UGBs are defined so as to accommodate projected population and employment growth within a 20-year planning horizon. A formal process has been established for periodically reviewing and updating the UGB so that it meets forecasted population and employment growth.

**Urbanized area (UZA)** – A geographic area with a population of 50,000 or more, as designated by the Bureau of the Census.

**Urban reserve** – An area outside of the urban growth boundary designated for future growth by the Metro Council pursuant to OAR 660 Division 27.

**Value pricing** – A demand management strategy that involves the application of market pricing (through variable tolls, variable priced lanes, area-wide charges or cordon charges) to the use of roadways at different times of day. Also called congestion pricing or peak period pricing.

**Vehicle** – Any device in, upon or by which any person or property is or may be transported or drawn upon a public highway and includes vehicles that are propelled or powered by any means.

**Vehicle miles traveled (VMT)** – A common measure of roadway use by multiplying miles traveled per vehicle by the total number of vehicles for a specified time period. For purposes of this definition, "vehicles" include automobiles, light trucks and other passenger vehicles used for the movement of people. The definition does not include buses, heavy trucks and other vehicles that involve commercial movement of goods.

**Vision** – In this document, an aspirational statement of what the region (and plan) is trying to achieve over the long-term through policy and investment decisions.

**Vision Zero** – A system and approach to public policy developed by the Swedish government which stresses safe interaction between road, vehicle and users. Highlighted elements include a

moral imperative to preserve life, and that the system conditions and vehicle be adapted to match the capabilities of the people that use them. Vision Zero employs the Safe System approach.

**Visualization techniques** – Methods used by States and MPOs in the development of transportation plans and programs with the public, elected and appointed officials, and other stakeholders in a clear and easily accessible format such as GIS- or web-based surveys, inventories, maps, pictures, and/or displays identifying features such as roadway rights of way, transit, intermodal, and non-motorized transportation facilities, historic and cultural resources, natural resources, and environmentally sensitive areas, to promote improved understanding of existing or proposed transportation plans and programs.

**Volume-to-capacity (v/c) ratio** – A traditional measure of congestion, calculated by dividing the number of motor vehicles passing through a section of roadway during a specific increment of time by the motor vehicle capacity of the section. For example, a V/C ratio of 1.00 indicates the roadway facility is operating at its capacity.

Also referred to as level-of-service, this ratio has been used in transportation system planning, project development and design as well as in operational analyses and traffic analysis conducted during the development review process. As a system plan, the RTP uses the volume-to-capacity ratio targets to diagnose the extent of motor vehicle congestion on throughways and arterials during different times of the day and to determine adequacy in meeting the region's needs. The v/c ratio targets are also used to determine consistency of the RTP with the Oregon Highway Plan for state-owned facilities. *See also level-of-service and regional mobility policy.*

**Vulnerable users** – In this document, refers to groups of people that are more vulnerable to being killed or severely injured in traffic crashes. Vulnerable users are people that are more vulnerable to being killed or seriously injured in crashes. Vulnerable users are pedestrians, bicyclists, motorcycle operators, children, older adults, road construction workers, people with disabilities, people of color and people with low income.

**Walkable neighborhood** – A place where people live within walking distance to most places they want to visit, whether it is school, work, a grocery store, a park, church, etc.

**Walk score** – An online tool that produces a number between 0 and 100 that measures the walkability of any address. Similar tools for transit and bicycling - Transit Score and Bike Score.

**Walkway** – A hard-surfaced transportation facility designed and suitable for use by pedestrians, including persons using wheelchairs. Walkways include sidewalks, hard-surfaced portions of accessways, regional trails, paths and paved shoulders.

**Wayfinding** – Signs, maps, street markings, and other graphic or audible methods used to convey location and directions to travelers. Wayfinding helps people traveling to orient themselves and reach destinations easily.

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## LIST OF ACRONYMS

<b>AARP</b>	American Association of Retired Persons
<b>ADA</b>	Americans with Disabilities Act
<b>AV</b>	Autonomous Vehicle
<b>BAT</b>	Business Access and Transit Lane
<b>BEA</b>	Bureau of Economic Analysis
<b>BLS</b>	Bureau of Labor Statistics (federal)
<b>BRT</b>	Bus Rapid Transit
<b>BUILD</b>	Better Utilizing Transportation Investment to Leverage Development
<b>CAAA</b>	Clean Air Act Amendments
<b>CAV</b>	Connected and Autonomous Vehicles
<b>CBD</b>	Central Business District
<b>CFR</b>	Code of Federal Regulations
<b>CIG</b>	Capital Investment Grant
<b>CMAQ</b>	Congestion Mitigation and Air Quality
<b>CMP</b>	Congestion Management Process
<b>CO</b>	Carbon Monoxide
<b>CO2</b>	Carbon Dioxide
<b>CO2e</b>	Carbon Dioxide Equivalent
<b>CORE</b>	Committee on Racial Equity
<b>C-TRAN</b>	Clark County Public Transportation Benefit Area Authority
<b>CV</b>	Connected Vehicle
<b>DEIS</b>	Draft Environmental Impact Statement
<b>DEQ</b>	Oregon State Department of Environmental Quality
<b>DLCD</b>	Oregon Department of Land Conservation and Development
<b>DOA</b>	Design Option Alternatives (Project Phase)
<b>DOT</b>	Department of Transportation
<b>E&amp;D</b>	Elderly and Individuals with Disabilities
<b>EA</b>	Environmental Assessment
<b>EFA</b>	Equity Focus Area
<b>EIS</b>	Environmental Impact Statement
<b>EJ</b>	Environmental Justice
<b>EPA</b>	Environmental Protection Agency
<b>ETC</b>	Enhanced Transit Corridor or Enhanced Transit Concept
<b>ETR</b>	Emergency Transportation Route
<b>EV</b>	Electric Vehicle



<b>FAST Act</b>	Fixing America’s Surface Transportation Act (2015)
<b>FEIS</b>	Final Environmental Impact Statement
<b>FHWA</b>	Federal Highway Administration
<b>FTA</b>	Federal Transit Administration
<b>GHG</b>	Greenhouse Gases
<b>GIS</b>	Geographic Information System
<b>HB</b>	House Bill
<b>HCT</b>	High Capacity Transit
<b>HIC</b>	High Injury Corridor
<b>HOV</b>	High Occupancy Vehicle
<b>IGA</b>	Intergovernmental Agreement
<b>ISTEA</b>	Intermodal Surface Transportation Efficiency Act (1991)
<b>ITS</b>	Intelligent Transportation System
<b>JPACT</b>	Joint Policy Advisory Committee on Transportation
<b>JTA</b>	Jobs and Transportation Act (State Program and fund type)
<b>LCDC</b>	Oregon Land Conservation and Development Commission
<b>LEP</b>	Limited English Proficiency
<b>LOS</b>	Level of Service
<b>LPA</b>	Locally Preferred Alternative
<b>LRT</b>	Light Rail Transit
<b>MAP-21</b>	Moving Ahead for Progress in the 21st Century (2012)
<b>MMA</b>	Multimodal Mixed-Use Area
<b>MOU</b>	Memorandum of Understanding
<b>MPA</b>	Metropolitan Planning Area
<b>MPAC</b>	Metro Policy Advisory Committee
<b>MPO</b>	Metropolitan Planning Organization
<b>MTAC</b>	Metro Technical Advisory Committee
<b>MTIP</b>	Metropolitan Transportation Improvement Program
<b>NEPA</b>	National Environmental Protection Act
<b>NHS</b>	National Highway System
<b>OAR</b>	Oregon Administrative Rules
<b>ODOT</b>	Oregon Department of Transportation
<b>OHP</b>	Oregon Highway Plan
<b>ORS</b>	Oregon Revised Statutes
<b>OTC</b>	Oregon Transportation Commission

<b>OTP</b>	Oregon Transportation Plan
<b>P&amp;R</b>	Park and Ride
<b>PBPP</b>	Performance Based Planning and Programming
<b>PD</b>	Project Development (Project Phase)
<b>PE</b>	Preliminary Engineering
<b>PHEV</b>	Plug-in Hybrid Electric Vehicle
<b>RATP</b>	Regional Active Transportation Plan
<b>RCTO</b>	Regional Concept for Transportation Operations
<b>RDPO</b>	Regional Disaster Preparedness Organization
<b>RETR</b>	Regional Emergency Transportation Route
<b>RFI</b>	Request for Interest
<b>RFP</b>	Regional Framework Plan
<b>ROD</b>	Record of Decision
<b>ROW</b>	Right of Way
<b>RTAC</b>	Regional Transportation Advisory Committee (SW Washington)
<b>RTC</b>	Southwest Washington Regional Transportation Council
<b>RTFP</b>	Regional Transportation Functional Plan
<b>RTO</b>	Regional Travel Options
<b>RTP</b>	Regional Transportation Plan
<b>RTS</b>	Regional Transit Strategy
<b>RTSS</b>	Regional Transportation Safety Strategy
<b>RUGGO</b>	Regional Urban Growth Goals and Objectives
<b>SAFETEA-LU</b>	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
<b>SIP</b>	Oregon State (Air Quality) Implementation Plan
<b>SMART</b>	South Metro Area Regional Transit
<b>SOV</b>	Single Occupant Vehicle
<b>SRTS</b>	Safe Routes to School
<b>STIP</b>	State Transportation Improvement Program
<b>TAM</b>	Transit Asset Management
<b>TAMP</b>	Transit Asset Management Plan
<b>TCM</b>	Transportation Control Measure
<b>TDM</b>	Transportation Demand Management
<b>TEA-21</b>	Transportation Equity Act for the 21st Century (1998)
<b>TIFIA</b>	Transportation Infrastructure Finance and Innovation Act (finance program for projects of regional and national significance)

<b>TIGER</b>	Transportation Investment Generating Economic Recovery (discretionary grant program)
<b>TIP</b>	Transportation Improvement Program
<b>TMA</b>	Transportation Management Area
<b>TNC</b>	Transportation Network Company
<b>TOD</b>	Transit Oriented Development
<b>TPAC</b>	Transportation Policy Alternatives Committee
<b>TPR</b>	Transportation Planning Rule
<b>TriMet</b>	Tri-county Metropolitan Transportation District
<b>TSM</b>	Transportation System Management
<b>TSMO</b>	Transportation System Management and Operations
<b>TSP</b>	Transit Signal Priority
<b>TSP</b>	Transportation System Plan
<b>UGB</b>	Urban Growth Boundary
<b>UGMFP</b>	Urban Growth Management Functional Plan
<b>UPWP</b>	Unified Planning Work Program
<b>USDOT</b>	United States Department of Transportation
<b>V/C</b>	Volume to Capacity
<b>VMT</b>	Vehicle Miles Traveled
<b>WSDOT</b>	Washington State Department of Transportation

# **2018 Regional Transit Strategy Appendices**

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December 6, 2018

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## APPENDIX A: NEWS SERIES ON GETTING THERE BY TRANSIT

*In the fall of 2017, Metro News launched a limited ongoing series called, “Getting there by transit,” which explored what other transit providers work in greater Portland in addition to TriMet, who rides and how are they served. Large and small, transit takes many forms. Three stories below:*

### Smaller transit agencies are a lifeline for many older adults and people with disabilities

**By Russ Doubleday**

Nov. 16, 2017

*Driving, walking or riding a bicycle can become more difficult as people age. Transit agencies in greater Portland are working together to help older adults and the disabled get to where they need to go.*



Darian Fleming rolls her walker onto the wheelchair lift of the [TriMet LIFT](#) bus. The driver cinches a strap behind her to protect her from falling off the ramp. With the push of a button, the lift slowly rises, carrying Fleming and her walker.

Fleming, 61, is a self-employed therapist who lives in Gresham. She cannot drive nor take the bus or MAX on her own because she has cerebral palsy and an impaired vision.

She’s one of more than 8,500 people in greater Portland eligible for TriMet’s LIFT rides.

The [Americans with Disabilities Act of 1990](#) requires public transit agencies to provide service for people with disabilities who live within three-quarters of a mile of a bus stop or train station. LIFT is TriMet’s paratransit program.

Regional leaders also aspire to provide universal access to safe and reliable transportation, as outlined in Metro’s [2014 Regional Transportation Plan](#).

Fleming relishes traveling on her own, with help from TriMet. She estimates that she takes about 10 one-way LIFT rides a week.

“I can come and go when I want, not when one of my friends or family feels like driving me or has time,” Fleming said while on her way home from a job training in downtown. “It means that I don’t stay home and isolate. I’m happy when I can be social and work.”

The regional transportation plan is updated every four years to keep up with changing demographics and new developments in state and federal regulations. An update is underway for 2018. [Learn more.](#)



## A growing need

Fleming is fortunate enough to have a network of family and friends, but that's not the case for some people.

"There are a lot of people... who have literally no one they can call at all to give them a ride," said Mary Graham, a development specialist at Ride Connection, a nonprofit that provides transportation services. "You don't realize it's happening, but it is in this city that is so big and has so many transit options."

[Ride Connection](#), which has partnered with TriMet for nearly three decades, complements TriMet's LIFT program. Paratransit is strictly offered to people with disabilities. Age is not a factor.

The region will face a growing need to provide Baby Boomers with transit service outside of the existing bus and rail network as this generation reaches retirement age.

Paratransit cannot meet this demand, so organizations like Ride Connection are picking up the slack.

Oregonians are aging faster than the national average. Recent Census data shows that [the state's 65 and over population grew 18 percent](#) between 2010 and 2014, compared to just 14.2 percent for the rest of the country.

Ride Connection offers free door-to-door rides to anyone over the age of 60 or with a disability, as well as people with low incomes. It also runs free buses in smaller communities around the region to serve people with limited transportation options in the Portland tri-county area.

In Forest Grove, for example, its GroveLink bus makes a loop through town each hour, linking residents to a TriMet bus line in downtown Forest Grove.

"Some people have lost their license or made the decision to stop driving," said Sarah Morrill, Ride Connection's lead counselor for travel options. "Some folks maybe relied on a family member and they're moving away. They're limited in their resources."

Ride Connection has seen a 28 percent increase in rides from 2014 to 2016. Several factors may have driven that increase. Ride Connection has looser eligibility requirements than LIFT does, and all of their services are free for users.



"I think people would just quit riding, some of them, if it was going to cost them \$9 a day instead of \$5 a day to use transit," said Cora Potter, the grants and outreach manager at Ride Connection.

"They're already probably paying for a TriMet trip once they get into town, so adding another cost on top of that, it didn't really make any sense," she said.

Ride Connection, in coordination with TriMet, also informs people about transportation options beyond its own services through their RideWise program.

“Not everybody needs to take the door-to-door transportation,” Graham said. “Some people just need to be taught how to use the bus and it’s that simple, and once they have a couple training sessions, they’re good to go.”

TriMet has a thorough evaluation process to determine eligibility for its LIFT service, due to strict ADA requirements and limited funding.

Applicants have to navigate a mock-up setup of ramps, gravel, stoplights, and more at its Transit Mobility Center.

In some cases, these assessments reveal that all people need is to learn how to take the bus and the MAX.

“There’s a good share of people here have never used transit,” said Kathy Miller, who manages LIFT’s eligibility and community relations. “They’ve driven all their life. Now they can’t drive. For people that have never been on the transit system before, it’s a big deal.”

As real estate becomes more expensive around Portland’s central core, more people who use TriMet’s LIFT service are moving farther away from downtown.

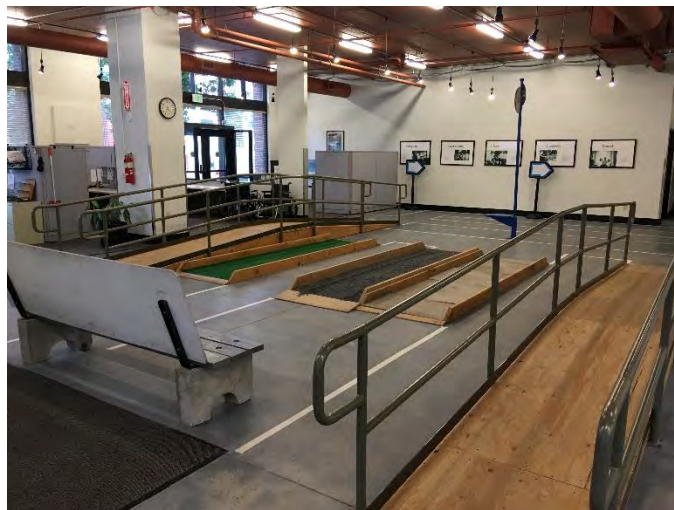
“Our customer base is shifting,” said Margo Moore, director of TriMet’s Accessible Transportation Programs. “They’re moving farther out into the Southwest Corridor, Estacada, Oregon City. Our garages are not located in these [new] areas where we have these high demands.”

And it is costly to run paratransit service. Recent figures show that an [individual TriMet LIFT ride costs the agency \\$35](#).

“People sometimes talk about unfunded mandates, and I would say paratransit is one of those,” said Eric Hesse, TriMet’s strategic planning coordinator.

He underscores how challenging it is to meet a federal requirement with no federal funding.

“That’s a big issue for the industry as a whole, and folks are trying to grapple with that,” he said.



#### Who’s eligible for paratransit service?

According to the ADA, people need to meet the following three conditions to be eligible for paratransit service:

–Inability to ride transit independently due to a disability or disabling health condition.

–Inability to travel on transit without an accessible vehicle.

–Inability to reach the closest transit stop.

All transit agencies, big or small, use these conditions to determine eligibility.

## Planning into the future

For TriMet, Ride Connection and other transit agencies, the future will continue to be about getting more people to use buses and trains.

That not only helps the region work toward reducing its carbon footprint, but it also helps these existing door-to-door services work better.

Fleming said TriMet's LIFT service isn't perfect, but she's grateful for it. "It's just an excellent service if you want to keep having a life," she said.

TriMet officials plan to look into keeping more LIFT vehicles available in the suburban communities where many of their users live. Doing so will save the agency money and improve service.

The agency hopes to launch a pilot program with a ridesharing company to carry LIFT passengers in the coming years to better respond to same-day or real-time requests.

It's also studying emerging technologies that could improve same-day requests for rides.

These initiatives may still be a ways away, but it's all part of ensuring safe and reliable transportation choices for everyone who lives in greater Portland.

## In rural and suburban greater Portland, public transit offers important connections

**By Russ Doubleday**

Dec. 28, 2017

*People in greater Portland's outlying communities need transportation options, too. Here's how transit agencies are helping.*

Sandra Wiley lives in a low-income retirement community in Sandy, about 20 miles east of Gresham. She lost the family car five years ago when her husband died, so she needed to find a way to get around town.

Wiley had long heard about [Sandy Area Metro](#), the city's transit system.

"I didn't know how to do it," Wiley said about taking the bus. So she called SAM to learn more about it, "and they said, 'We will pick you up.'"



SAM offers its paratransit service to anyone who lives in its service area. [That's not the case with most other transit agencies.](#)

Wiley's needs only grew when she broke her hip in April. She now needs a walker and help from her daughter Jill Watson to move around.

"SAM has really helped me," Wiley said. "Before Jill came down, before I hurt myself, it kept me as independent as possible... It's a joy to see that bus pull up."

Like many others living in rural areas with limited transportation choices, Wiley would not be able to get to where she needs to go without the SAM.



"We look very different than an urban system," said Andi Howell, SAM's transit director.

According to a survey of its transit users, 45 percent of SAM riders earn less than \$10,000 a year. An additional 26 percent said they earned between \$10,000 and \$20,000 a year. And 78 percent said that they did not have a vehicle that they could use for the trip they were taking.

"We are a very important link to the rural communities between eastern Clackamas County and the mountain communities with Portland – and vice versa," Howell said.

The state and Metro are giving a boost to small transit agencies, such as SAM, so that people like Wiley can continue to have options for how to move around.

Payroll taxes in the Portland metropolitan region have historically funded transit. The \$5.3 billion state transportation package created a new statewide employee payroll tax to improve public transportation in both rural and urban areas.

As greater Portland grows, local and regional leaders want to improve and grow transit networks into a fast, reliable and better-connected system for everyone.

The regional transportation plan is updated every four years to keep up with changing demographics and new developments in state and federal regulations. An update is underway for 2018. [Learn more.](#)

Metro is updating its Regional Transit Strategy for the [2018 Regional Transportation Plan](#) to guide that work.



## Building transit networks

[TriMet](#) provides transit service for most of the greater Portland area with an annual ridership of 99 million. But several communities in the Willamette Valley chose to separate from TriMet to form their own transit districts and provide more dedicated transit service in their area.

Since separating, these local transit agencies have built networks that link up with TriMet's system.

SAM, for example, runs buses every half hour between Sandy and Gresham on weekdays, with limited service on weekends. It also added routes between Sandy and Estacada, and even offers a free shopping shuttle around Sandy.

### Timeline

In 1987, the state Legislature allowed cities to withdraw from TriMet and run their own transit services. Here's a timeline of when cities withdrew:

1987: [Mollala](#)  
1988: [Wilsonville](#)  
1999: Sandy  
2002: Canby

"Living here in Sandy now with the transit options that we have, it's fabulous," said Heather Michet, 61, who has lived in the Sandy area for 30 years.

In Wilsonville, the city's transit agency [South Metro Area Regional Transit](#) provides more bus services throughout Wilsonville than TriMet could provide in the past.

SMART runs seven bus lines around Wilsonville and beyond, reaching Barbur Transit Center, Tualatin Park and Ride, Canby and Salem. Bus riders pay nothing on trips that stay within Wilsonville's city limits.

"The mayor and city council are totally supportive of SMART," said Dwight Brashear, SMART's transit director. "They are making sure that SMART provides quality service that the city of Wilsonville deserves."

"Our customers are basically everyone," said Eric Loomis, SMART's operations manager. "They are people commuting to and from work... going shopping."

Some smaller communities have struggled to keep transit thriving.



The Great Recession hit [Canby Area Transit](#) hard. The transit agency cut service in 2011 and added a bus fare for the first time in 2012. Fewer people have been riding ever since.

The agency's one remaining bus line runs through parts of Canby and far enough to reach Woodburn and Oregon City, where people can connect to [Cherriots](#) and TriMet buses.

Wehling said bus route changes in Oregon City and CAT's small operating budget contributed to the transit agency's 15 percent ridership decline last year.

"We've been working with a flat budget," she said. "We want to improve the regional connections and, then as revenue allows, bring back a local connector."

The city's draft [Transit Master Plan](#) outlines plans to add a local circulator and Saturday service, and more frequent service on the bus line to Woodburn and Oregon City.

"There's always a competition between providing local circulation and regional routes," Wehling said. "Balancing those needs is a big challenge."

### A brighter future

The state's [\\$5.3 billion transportation package](#), signed into law in August, includes more than \$1 billion for bus transit improvements across the state.

In Canby, [more funding likely means the city could add back transit services more quickly](#).

The package will also have a significant impact in Sandy, where SAM is struggling with budget cuts.

In Wilsonville, more funding would help SMART establish new service in developing areas of the city. The agency also has its eye on improving intercity service.

SMART would like to add more service to Salem, Portland and Canby as well as new service to Oregon City, Sherwood, Woodburn and other surrounding communities.

Brashear said small transit providers in Clackamas County have already met to discuss how to achieve that goal together.

Money from the state transportation package would also help TriMet improve service and create a low-income fare program for riders throughout its transit district.

TriMet also plans to help relieve traffic by increasing service in the region's busiest corridors, and add service by extending bus routes, improving connections and increasing frequency to underserved communities.

#### Ridership

The number of people riding transit in these suburban and rural communities varies from place to place. Data below from July 2016 through June 2017:

**Canby Area Transit:** 76,294  
**Sandy Area Metro:** 121,227  
**South Metro Area Regional Transit:** 278,707

"As regional transit partners, we all work together to provide the best transit service for communities within our service areas as well as connections to those outside of our district boundaries," said TriMet general manager Neil McFarlane.



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## Over the river and through the gridlock: I-5 by bus

**By Russ Doubleday**

Feb. 27, 2018

*A look at the reality many people face taking the bus between big cities during rush hour and how the region is working to alleviate these traffic problems.*

Vancouver resident Perry Casper describes his commute to work in Portland as long and unreliable.

“You don’t know when to take an earlier bus or when to take your normal bus because you have no idea what the traffic’s going to do,” said Casper, a federal employee who works in downtown Portland.

Sometimes his 50-minute bus ride from the Salmon Creek park-and-ride north of Vancouver can take an hour and a half.

“I’m going to have to start taking an earlier bus because I have to take leave for being late,” said his colleague Laura Walters, who also commutes from Vancouver to Portland. “Don’t have a big drink of water before you get on the bus.”

Many people around the region between Portland, Vancouver and Salem. Transit agencies run buses between these cities, but these buses are often stuck in traffic, a problem transit agencies find difficult to solve.

Several programs are working to make these trips on the bus faster and more reliable. Metro’s Regional Transit Strategy – within the [2018 Regional Transportation Plan](#) – will guide decisionmakers about where to make investments as they develop projects to expand the transit system.

The regional transportation plan is updated every four years to keep up with changing demographics and new developments in state and federal regulations. An update is underway for 2018. [Learn more.](#)

They’re working to make transit more frequent, convenient, accessible and affordable for everyone across greater Portland.

In addition, the \$5.3 billion state transportation package passed by the Legislature last year will help agencies increase intercity transit service in Oregon.

### **More people, more traffic**

Clark County, across the Columbia River in Washington, has grown as rapidly as the rest of the region. The county added 122,000 residents between 2000 and 2016, according to the U.S. Census Bureau, and its population is approaching 500,000. And more residents in the region means more cars on the road.

“The traffic is just insane between Portland and Clark County,” said Chris Selk, public affairs manager at [C-TRAN](#), Clark County’s public transit agency.

C-TRAN runs seven bus routes between Clark County and Portland. “They are among our highest ridership routes,” reported Selk.

People are increasingly taking the bus to work in Portland for several reasons, she said. The costs for gas and parking quickly add up. People are taking advantage of subsidized bus passes offered through their employers. And many find Portland a stressful place to drive.

The two bridges over the Columbia River are major traffic chokepoints.

“The slowest part is getting across the bridge,” Casper said.



In the short term, the existing infrastructure between Portland and Vancouver will not change in any significant way to ease traffic. Plans to replace the 100-year-old I-5 bridge have been shelved. MAX light rail likely won’t reach Vancouver anytime soon. ODOT has a bridge replacement penciled in for the 2028-2040 time frame – but isn’t eager to re-start the politically fraught project.

C-TRAN officials recognize that there are no quick solutions to traffic. In the meantime, the agency is looking at creative ways to keep their buses moving. In partnership with Washington State Department of Transportation, it’s piloting a project to [run buses along the shoulder of Highway 14](#) to the east of Interstate 205 to help speed up bus service.

“If that’s successful, I’d like to see us expand that beyond just Highway 14,” Selk said.

Commuting from Portland into Vancouver presents its own challenges – there are fewer options and buses don’t run as often. Sonja Steinbach lives in inner Southeast Portland. She used to work at the Washington State School for the Blind in Vancouver, but “changed jobs because I got tired of the commute,” she said. “Often times, I was late.”

#### Ridership

**C-TRAN (2016): 5.9 million**  
**Cherriots (July 2016 - June 2017): 3.2 million**  
**South Metro Area Regional Transit (July 2016 - June 2017): 278,707**

The quickest way for Steinbach to get to work was to take one TriMet bus and two C-TRAN buses. That’s a commute against traffic, but it still took a long time during rush hour.

## Salem: A different story

Commuting by bus between Salem and Portland is much faster and predictable. The traffic that plagues Portland doesn't often extend to Wilsonville, nor impact bus service to and from Salem.

Wilsonville resident Bernard Maurer has a reliable one-hour commute to work at Salem Hospital.

"I've considered working in Portland, but that would not be any easier for me as transportation goes," he said.

Maurer takes one bus and uses his bike to complete his trip on either end. He enjoys relaxing on the bus and doing whatever he wants with his commute time.

In 2003, transit service between Salem and Portland also improved as a result of agency partnerships that focus on serving commuters traveling both ways.

[Cherriots](#), the transit agency serving the Salem-Keizer region, and [South Metro Area Regional Transit](#), which serves the Wilsonville area, share buses for one busy route, the 1X, between Salem and Wilsonville.

The partnership was a natural fit.

"SMART realized that a lot of people are coming from the region to work for the state," said Steve Dickey, Cherriots' transportation development director. "But we also realized that a lot of people were commuting north."



The bus runs 30 miles, from downtown Salem to the Wilsonville station of TriMet's WES commuter rail line.

Before they partnered, the agencies would often have empty buses traveling back in one direction. But the partnership allowed them to build ridership in both directions.

Ridership is so strong that overcrowding is a challenge.

"On the busiest trips, people show up 15-30 minutes early to make sure that they have a seat," Dickey said. "Before we added trips, we had between 10-15 people standing with every single trip."

The [state transportation package](#) signed into law last summer will help boost bus transit statewide. Dickey hopes that some of this money will go toward adding more buses to the popular route that Cherriots and SMART share.

### Learn more

The regional transportation plan is updated every four years to keep up with changing demographics and new developments in state and federal regulations. An update is underway for 2018. [Learn more.](#)

## APPENDIX B: REGIONAL TRANSIT STRATEGY PREPARERS

The Regional Transit Strategy was prepared by Metro to support the 2018 Regional Transportation Plan (RTP) update. Contributors and preparers include:

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To support the 2018 Regional Transportation Plan update, Metro staff convened technical work groups to provide input to staff on implementing policy direction from the Metro Council and regional policy advisory committees. In this role, the work group members reviewed draft materials and analysis, kept their respective elected officials and agency/organization's leadership informed, and integrated input from partners and the public. The work groups also helped identify areas for further discussion by the Metro Council and regional technical and policy advisory committees.

Work group members included topical experts and representatives from the Metro Technical Advisory Committee (MTAC) and the Transportation Policy Alternatives Committee (TPAC) or the designees of members. Meetings of the technical work groups were posted on Metro's calendar at [www.oregonmetro.gov/calendar](http://www.oregonmetro.gov/calendar).

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If you picnic at Blue Lake or take your kids to the Oregon Zoo, enjoy symphonies at the Schnitz or auto shows at the convention center, put out your trash or drive your car – we’ve already crossed paths.

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In a metropolitan area as big as Portland, we can do a lot of things better together. Join us to help the region prepare for a happy, healthy future.

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