Chapter 1

Toward a Connected Region

2023 Regional Transportation Plan

June 5, 2023 WORKING DRAFT

This draft is subject to design and copy edits, technical corrections and minor updates as it is finalized for public review.

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PURPOSE

Transportation planning means more than deciding where to build roads, sidewalks, bikeways and transit and freight routes. It's about taking care of what we have and building great communities. It's about ensuring that no matter where you are or where you're going, you can have safe, reliable, healthy and affordable options to get there. It's about nurturing a strong economy, advancing equity and protecting the quality of life we all value.

Metro is the metropolitan planning organization (MPO) designated by Congress and the State of Oregon, for the Oregon portion of the Portland-Vancouver urbanized area, serving 1.7 million people living in the region's 24 cities and three counties. As the MPO, Metro formally updates the Regional Transportation Plan every five years in cooperation and coordination with the region's cities, counties, the Port of Portland, the Oregon Department of Transportation, transit providers and other partners.

The Regional Transportation Plan is a blueprint to guide investments for all forms of travel – motor vehicle, transit, bicycle and walking – and the movement of goods and freight throughout the greater Portland region. The plan identifies the region's most urgent transportation needs and priorities for investment in all parts of the system with the funds the region expects to have available over the next 22 years to make those investments a reality. It also establishes goals and policies to help meet those needs and guide priority investments. More resources will be needed to achieve our vision and address the challenges of a growing, thriving region.

How we respond to these challenges today will set the course for generations to come. Since Fall 2021, Metro has been working with local, regional and state partners and the public to update our region's shared transportation vision and investment strategy for the next two decades. The updated RTP defines a safe, reliable, healthy and affordable transportation system that is environmentally responsible, efficiently moves products to market, and ensures all people can connect to the education and work opportunities they need to experience and contribute our region's economic prosperity and quality of life. The plan laid out in these pages, will take sustained, focused work from every partner in the region.

Chapter organization

This chapter is organized into the following sections:

1.1 Introduction: This section broadly describes the Regional Transportation Plan and trends and challenges facing the region that were the focus of this update.

1.2 Geographic setting: This section describes the geographic context of the Portland-Vancouver metropolitan region.

1.3 Metropolitan transportation planning process: This section describes Metro's role in transportation planning and planning areas of responsibility to address state and federal requirements.

1.4 Process and engagement overview: This section describes the timeline and process for developing the 2023 Regional Transportation Plan.

1.5 What's next moving forward: This section provides a brief introduction to the rest of the plan.

1.1 INTRODUCTION

The 2023 Regional Transportation Plan will help make the case for more investment and funding to build, operate and maintain the regional transportation system we need for all travelers and to meet the region's equity, safety, climate, mobility and economic goals.

The 2023 Regional Transportation Plan defines a shared vision and investment strategy that guides investments for all forms of travel to keep people connected and commerce moving throughout the greater Portland region. The plan is updated every five years to stay ahead of future growth and address trends and challenges facing the region.

We are at a pivotal moment. The greater Portland region continues to grow and change, straining our aging transportation system. A half-million new residents are expected to live in the Portland region by 2045 – about half from growing families. Our communities are becoming more culturally diverse, bringing rich cultural activity to neighborhoods. A new generation will grow to adulthood as others move toward retirement.

The greater Portland region is facing urgent global and regional challenges, and the future is uncertain. Climate change is happening and our system is not prepared for the expected Cascadia Subduction Zone earthquake. We are experiencing technological changes in transportation that could radically alter our daily lives..

The impacts of climate change, generations of systemic racism, economic inequities and the pandemic have made clear the need for action. Systemic inequities mean that communities have not equally benefited from public policy and investments, and our changing climate and the pandemic has exacerbated many disparities that Black, Indigenous and people of color (BIPOC) communities, people with low income, women and other marginalized populations already experience. Safety, housing affordability, homelessness, and public health and economic disparities have been intensified by the global pandemic and continue to be of concern, making this update all the more timely.

As greater Portland continues to emerge from the disruptions of the pandemic and respond to other urgent trends and challenges, this update provides an opportunity for all levels of government to work together to deliver a better transportation future.

During the past eighteen months, Metro worked with policy makers, federal, state and local government partners and transportation agencies, federally recognized Tribal governments as well as community members, community-based organizations, businesses, business groups and members of the public to develop the 2023 Regional Transportation Plan. The result of that work is an updated vision, goals and policies that

guide our transportation planning and investment decisions overall, an understanding of the region's transportation trends[1], needs[2 and 3], and priorities for investment, strategies to help meet those goals and policies, a shared understanding about available financial resources, and a recommended set of projects that make progress addressing the region's significant and growing transportation needs and challenges.

The plan takes into account the changing circumstances and challenges facing our growing region and addresses them directly, adopting new approaches for addressing mobility and prioritizing investments to advance transportation equity, climate, safety, mobility and economic goals. The goals, policies, projects and strategies in this plan also address federal, state and regional planning requirements based on our shared values and the outcomes we are trying to achieve as a region, including implementation of the 2040 Growth Concept.

[1] The emerging transportation trends research summary is available at: https://www.oregonmetro.gov/sites/default/files/2022/10/12/Metro-Emerging-Trends-summary-final_1.pdf

[2] Factsheets summarizing the regional transportation needs assessment are available at: https://www.oregonmetro.gov/sites/default/files/2022/11/29/2023-RTP-Needs-Assessment-fact-sheets.pdf

[3] Research about trends and needs of the region's urban arterials is available at: https://www.oregonmetro.gov/sites/default/files/2022/10/24/Safe%20and%20healthy%20urban%20arterials%20policy%20brief.pdf

1.1 INTRODUCTION

The Portland-Vancouver metropolitan region is part of the broader Pacific Northwest region, also called Cascadia. Shown in Figure 1.1, the Pacific Northwest encompasses most of British Columbia, Washington, Oregon and adjoining parts of Alaska, Montana and California.

Figure 1.1 Portland-Vancouver metropolitan region geographic context

Linked together by a rich and complex natural environment, abundant recreational opportunities and major metropolitan areas, the Pacific Northwest also serves as a global gateway for commerce and tourism, connecting to other Pacific Rim countries and the rest of the United States.

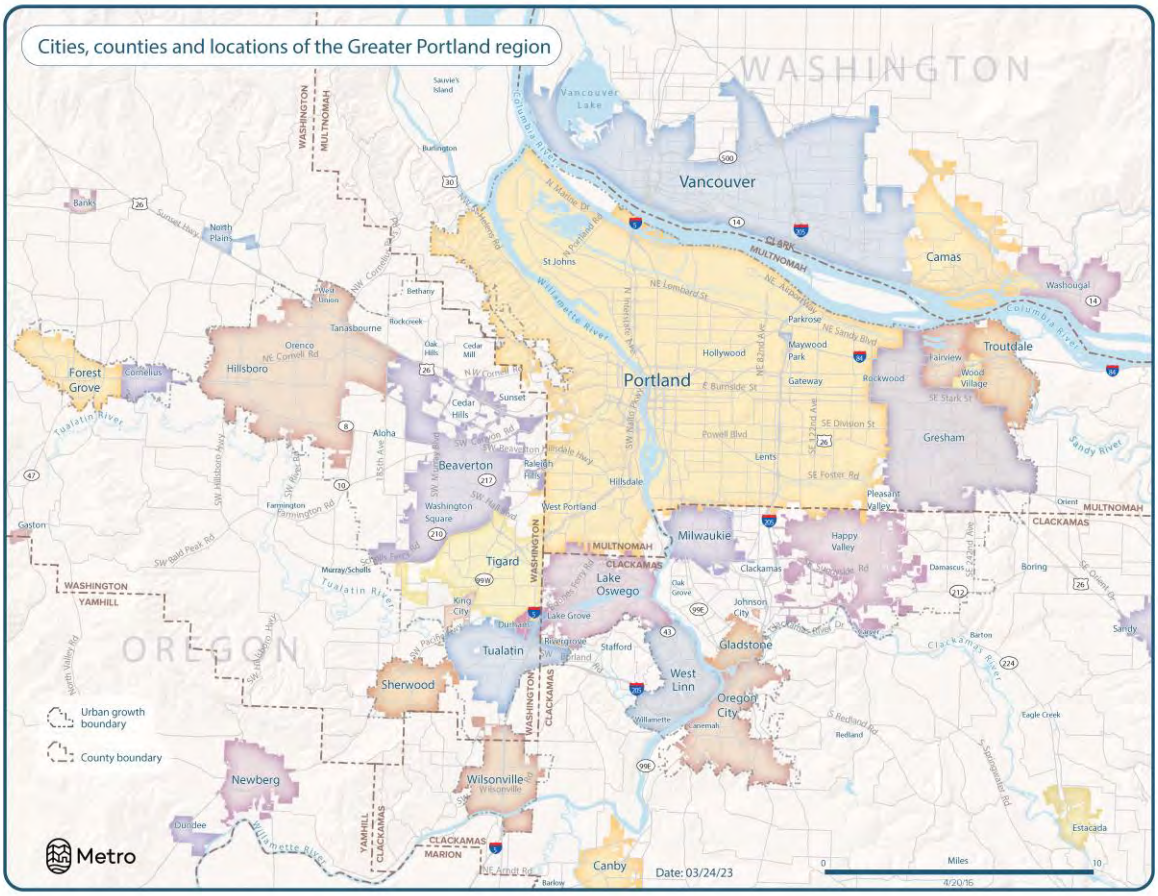
The Portland region is situated at the northern end of the Willamette Valley, a fertile river valley surrounded by dramatic natural features - the Coast Range to the west, the Cascade Range to the east, and the Columbia River to the north (including the Columbia River Gorge National Scenic area). Several 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.

Although not the largest gateway on the U.S. West Coast, the Portland-Vancouver metropolitan region is one of four international gateways on the West Coast, including the Puget Sound, the San Francisco Bay area and Southern California. In this role, the region serves as a gateway to domestic and international markets for businesses located throughout the state of Oregon, Southwest Washington, the Mountain states and the Midwest. Clackamas, Multnomah and Washington counties also play a significant role in the state's agricultural production, representing nearly 17 percent of the state's total value of production and 60 percent of the Port of Portland's export tonnage.[4] The economy of our region and state depend on our ability to support the transportation needs of these industries and provide reliable access to gateway facilities.

The Oregon portion of the Portland-Vancouver metropolitan region encompasses 24 cities and 3 counties as shown in **Figure 1.2**. Metro's urban growth boundary and jurisdictional boundaries are shown in **Figure 1.5**.

[4] *Identification and Assessment of the Long-Term Commercial Viability of Metro Region Agricultural Lands*, Oregon Department of Agriculture, January 2007, Pg. 4.

Figure 1.2 Cities and counties of the Portland-Vancouver metropolitan region



1.3 METROPOLITAN TRANSPORTATION PLANNING PROCESS

Since 1979, Metro has been the metropolitan planning organization (MPO) designated by Congress and the State of Oregon, for the Oregon portion of the Portland-Vancouver urbanized area, covering 24 cities and three counties with a population of 1.7 million. It is Metro's responsibility to meet the requirements of federal laws and regulations, the Oregon Transportation Planning Rule (which implements Statewide Planning Goal 12), the Oregon Metropolitan Greenhouse Gas Reduction Targets Rule, and the Metro Charter for this MPO area. In combination, these requirements call for development of a multimodal transportation system plan that is integrated with the region's land use plans, and meets federal and state planning requirements.

Metro uses a federally-mandated decision-making framework, called the metropolitan transportation planning process, to guide its regional transportation planning and programming activities. This planning process requires all urbanized areas with populations over 50,000 to have a MPO to coordinate transportation and air quality planning and programming of federal transportation dollars within their boundaries These activities must address the seven national goal areas and consider projects and strategies that address the ten federal planning factors shown in Figure 1.3.

The national goal areas and planning factors are addressed throughout the RTP and appendices, including the plan's goals and objectives (Chapter 2), policies to guide development and implementation of the plan (Chapter 3), existing system performance (Chapter 4), financing the region's investment priorities (Chapter 5), the region's investment priorities (Chapter 6), expected performance (Chapter 7) and planned implementation and monitoring activities (Chapter 8).

Figure 1.3 National goal areas and federal planning factors

MPOs also have responsibility for

maintaining the region's congestion management process and implementing federal performance-based planning requirements that tied to the national goal areas. MPOs are required to establish targets related to safety, bridge and pavement condition, air quality, freight movement, and performance of the National Highway System, and to use performance measures to track their progress toward meeting those targets. **Appendix L** documents the region's approach to addressing the federal transportation performance-based planning and congestion management requirements.

As the designated MPO for the Oregon portion of the Portland-Vancouver region, Metro is responsible for coordinating development of the RTP in cooperation with the region's transportation providers —the 24 cities and three counties in the metropolitan planning area boundary, the Oregon Department of Transportation, Oregon Department of Environmental Quality, Port of Portland, Port of Vancouver, TriMet, South Metro Area Regional Transit (SMART), Southwest Washington Regional Transportation Council (RTC), Washington Department of Transportation and other Clark County governments. The process also includes opportunities for open, timely and meaningful involvement of the public, and requires comprehensive consideration of the link between transportation and other regional goals for land use, the economy and the environment, including public health, safety, mobility, accessibility and equity. Public engagement and consultation efforts that shaped development of the 2023 Regional Transportation Plan are summarized in this chapter with more details provided in **Appendix D**.

The Metro Council adopted the first RTP in 1983. As a cornerstone of the metropolitan transportation planning process, the RTP provides a long-range blueprint for transportation in the Portland metropolitan region with a 20-year minimum time horizon. The RTP is updated every five years to reflect changing conditions in the region and respond to new federal and state regulatory developments.

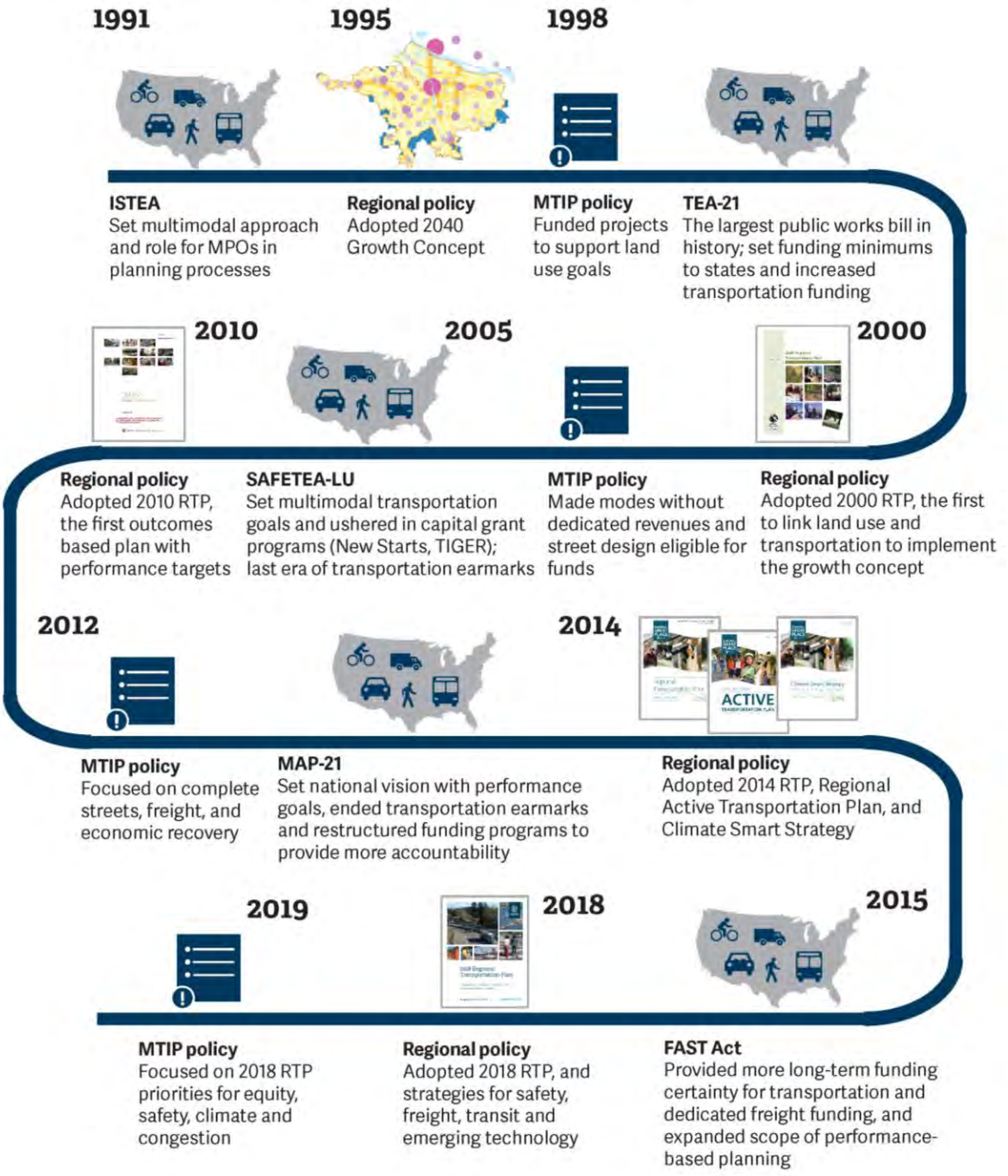
Under state law, the RTP serves as the region's regional transportation system plan (TSP), consistent with Statewide Planning Goals and the Oregon Transportation Planning Rule (TPR). State law establishes requirements for consistency of plans at the state, regional and local levels. The RTP must be consistent with the Oregon Transportation Plan, state modal and facility plans that implement the Oregon Transportation Plan, the Oregon Transportation Planning Rule and the Metropolitan Greenhouse Gas Reduction Targets Rule. Local plans must be consistent with the RTP. Projects and programs must be in the RTP's Financially Constrained System in order to be eligible for federal and state funding.

Figure 1.4 illustrates how federal and regional transportation policies have evolved since the 1990s.

Figure 1.4 How federal and regional transportation policies have evolved since the 1990s

Transportation policy

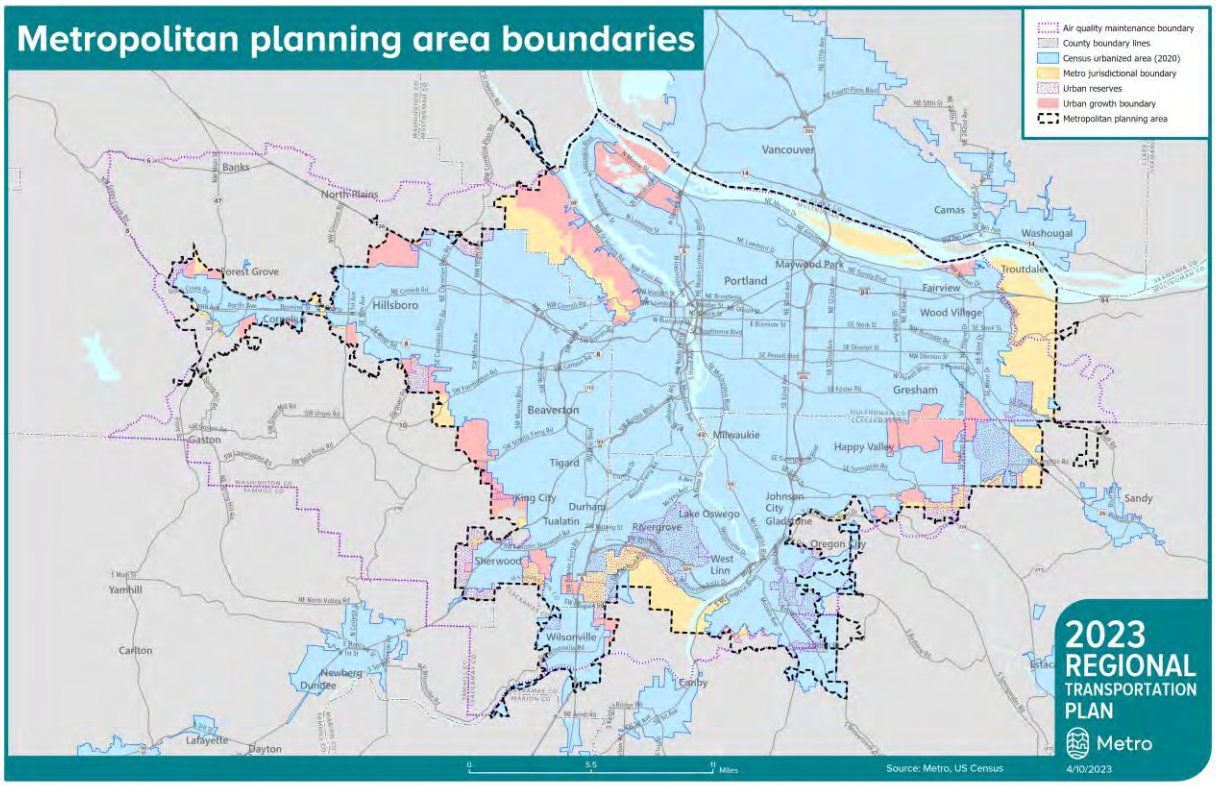
Over time in greater Portland



1.3.1 The region has several planning boundaries with different purposes

Federal and state law requires several metropolitan transportation planning boundaries be defined and planned for in the region for different purposes. These boundaries are shown in **Figure 1.5**.

Figure 1.5 Metropolitan planning area boundaries



First, Metro's jurisdictional boundary encompasses the urban portions of Multnomah, Washington and Clackamas counties. Second, under Oregon law, each city or metropolitan area in the state has an urban growth boundary that separates urban land from rural land. Metro is responsible for managing the greater Portland region's urban growth boundary.

Third, the Urbanized Area (UZA) boundary is defined to delineate areas that are urban in nature distinct from those that are largely rural in nature. The Portland-Vancouver metropolitan region is somewhat unique in that it is a single urbanized area that is located in two states and served by two MPOs. The federal UZA boundary for the Oregon-portion of the Portland-Vancouver metropolitan region is distinct from the Metro urban growth boundary (UGB). The UZA boundary is described in the legend of Figure 1.5 as "Census Urbanized Area (2020)."

Fourth, MPO's are required to establish a Metropolitan Planning Area (MPA) Boundary, which marks the geographic area to be covered by MPO transportation planning activities. At a minimum, the MPA boundary must include the urbanized area, areas expected to be urbanized within the next twenty years and areas within the Air Quality Maintenance Area Boundary (AQMA) – a fifth boundary.

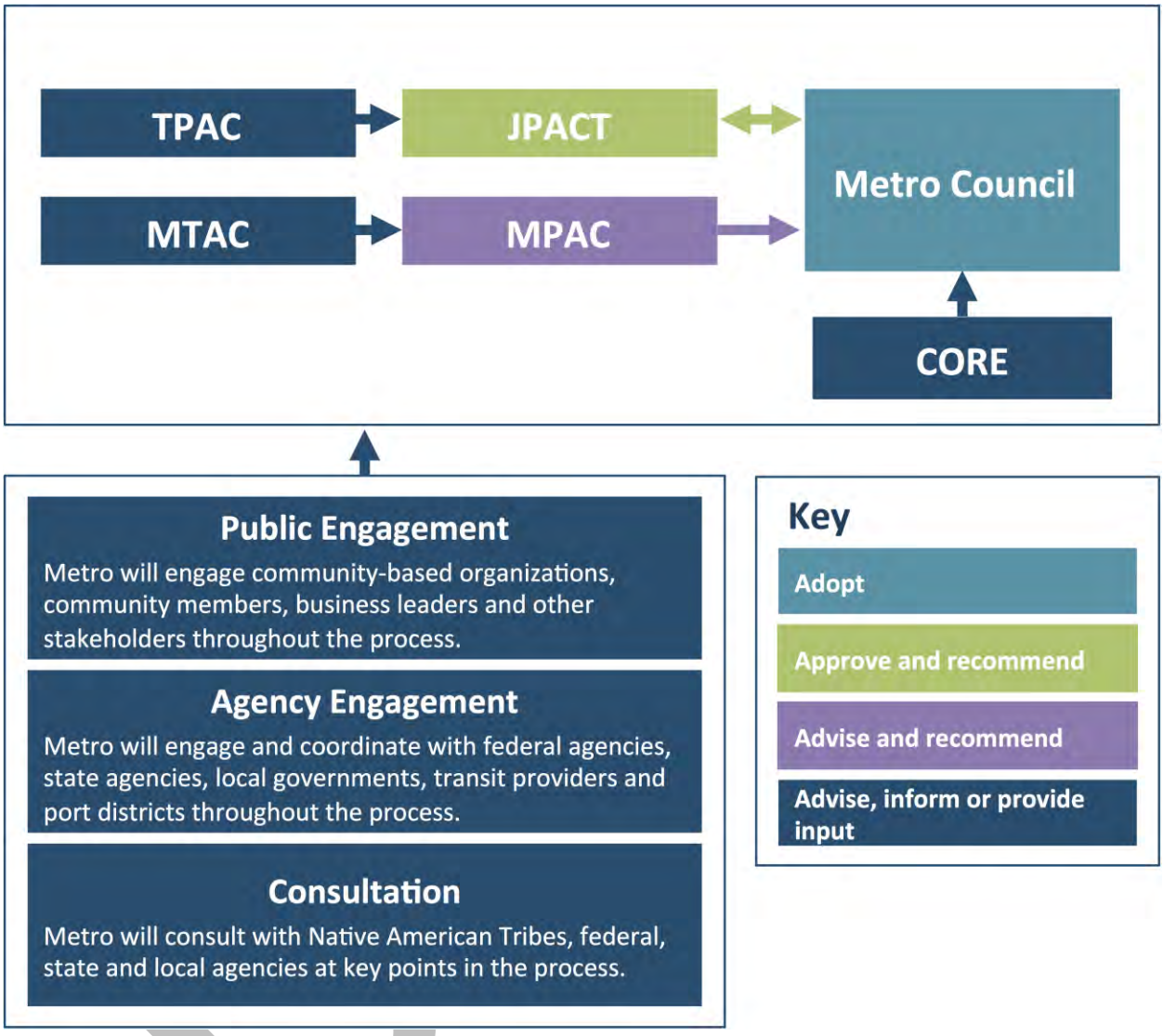
The federally-designated AQMA boundary is the area subject to State Implementation Plan (SIP) regulations. The Portland region's AQMA boundary was developed as part of the ozone and carbon monoxide SIPs, which are pollutants the region had previously violated national air quality standards. In October 2017, the region achieved attainment status under the Clean Air Act Amendments. Reaching this milestone means that transportation conformity no longer is required to be performed in this region. The region continues to comply with other obligations and requirements outlined in the SIPs.

1.3.2 Metro facilitates the metropolitan transportation planning process through Metro's advisory committees

Metro facilitates the metropolitan transportation planning process, which include the Metro Council and five advisory committees –the Joint Policy Advisory Committee on Transportation (JPACT), the Metro Policy Advisory Committee (MPAC), Metro's Committee on Racial Equity (CORE), the Transportation Policy Alternatives Committee (TPAC),the Metro Technical Advisory Committee (MTAC). These committees have varying levels of responsibility to review, provide input and make recommendations on the development of the RTP. In addition to regular meetings of the Metro Council and advisory committees, Metro convened periodic joint workshops of TPAC and MTAC, and joint workshops of JPACT and the Metro Council to shape development of the 2023 Regional Transportation Plan.

Figure 1.6 displays the regional transportation planning decision-making process.

Figure 1.6 Regional transportation decision-making process



Source: Metro

JPACT is a 17-member committee that provides a forum for elected officials and representatives of agencies involved in transportation to evaluate transportation needs in the region and to make recommendations to the Metro Council. The established decision-making process strives for a well-balanced regional transportation system and involves local elected officials directly in decisions that help the Metro Council develop regional transportation policies, including updating the RTP. **TPAC** provides input to JPACT at the technical level.

All transportation-related actions (including federal MPO actions) are recommended by JPACT to the Metro Council. The Metro Council can approve the recommendations or refer

them back to JPACT with a specific concern for reconsideration. Final approval of each item, therefore, requires the concurrence of both bodies.

MPAC advises and makes recommendations to the Metro Council on growth management, land use and other topics of regional interest, including the RTP, at the policy level. Under the statewide land use planning program, the RTP serves as a regional transportation system plan (TSP). As a result, the **MPAC** also has a role in approving the regional transportation plan as a land use action, consistent with statewide planning goals and the Metro Charter. **MTAC** provides input to MPAC at the technical level.

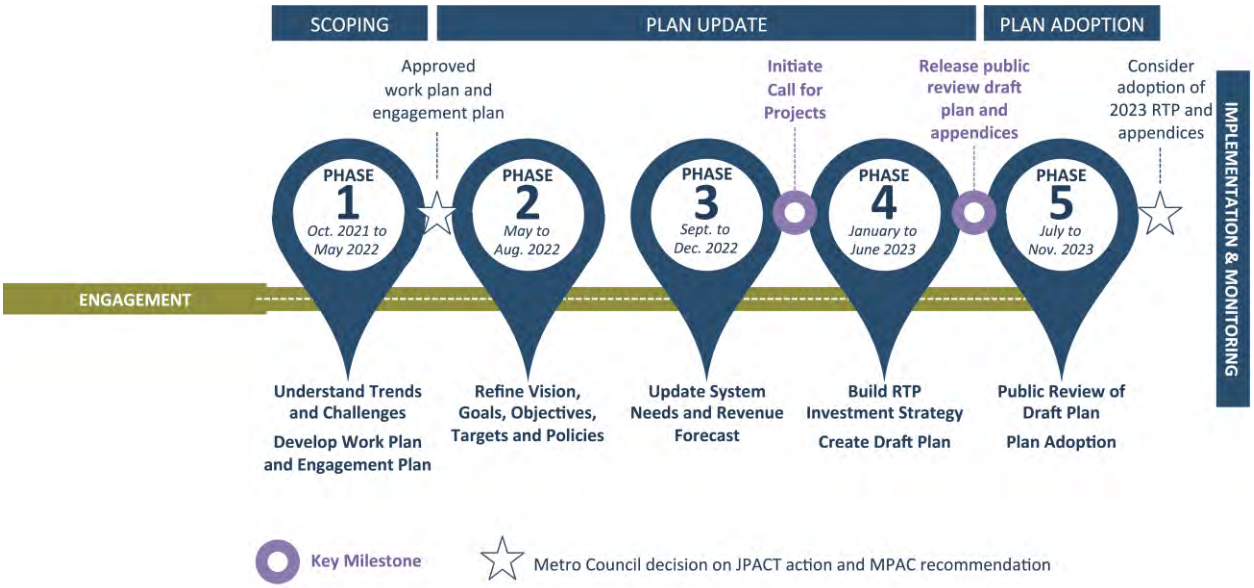
The **Metro Committee on Racial Equity (CORE)** provides community oversight and advises the Metro Council on implementation of the Metro's Strategic Plan for Advancing Racial Equity, Diversity and Inclusion. Adopted by the Metro Council in June 2016 with the support of MPAC, the strategic plan leads 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.

In addition, the Metro Public Engagement Review Committee (PERC) advises the Metro Council on engagement priorities and ways to engage community members in regional planning activities consistent with adopted public engagement policies, guidelines and best practices.

1.4 PROCESS AND ENGAGEMENT OVERVIEW

This section is under development.

Figure 1.7 Timeline and process for development of the 2023 Regional Transportation Plan



1.5 WHAT'S NEXT MOVING FORWARD?

The greater Portland region pioneered approaches to land use and transportation planning in the past, and is uniquely positioned to address the trends and challenges facing the region – mainly because the region has solid, well-integrated transportation and land-use systems in place and a history of working together to address complex challenges at a regional scale.

Today it is time to revisit how we are implementing our vision, make some corrections and find new strategies and resources to create the future we want for our region. The rest of this plan represents a new step forward to respond to the changes and challenges we face and set a new course for future transportation decisions and implementation of the 2040 Growth Concept and Climate Smart Strategy.

The pages ahead provide an updated blueprint and investment strategy for a more sustainable transportation system that links land use and transportation, protects the environment and supports the region's economy. Translating our vision into a reality will not be a simple task – and it will take time. More work is needed, as this plan does not achieve all the goals we've defined. It represents a new step forward for our region.

Chapter 2

Our Shared Vision and Goals for Transportation

2023 Regional Transportation Plan

May 26, 2023 WORKING DRAFT

This draft is subject to design and copy edits, technical corrections and minor updates as it is finalized for public review.

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2.0 INTRODUCTION

The 2023 Regional Transportation Plan defines a shared vision for the greater Portland region's transportation system that reflects the values and desired outcomes expressed by the public, policymakers and community and business leaders engaged in development of the plan.

Transportation shapes our communities and our daily lives, allowing us to reach our jobs and recreational opportunities, access goods and services and meet daily needs. This chapter presents a shared, long-term vision and supporting goals, objectives and performance targets that will guide planning and building the transportation system serving the Portland metropolitan region through 2045. The vision reflects the continued evolution of transportation planning from a project-driven endeavor to one that is framed by a broader set of outcomes that affect people's everyday lives.

Learn more about the 2023 Regional Transportation Plan at **oregonmetro.gov/rtp**

Rapid growth and change across our region have exposed and exacerbated longstanding economic and racial inequities, threatening to undermine the broader benefits of economic growth as well as our region's quality of life. The vision and supporting goals, objectives and performance targets in this chapter aim to better integrate transportation and land use efforts to protect the region's economic prosperity, environmental quality, and quality of life and improve the lives of the people who call this region home.

To achieve our vision for the future, we must work together to address inequities as we build vibrant, walkable, bikeable, climate-friendly communities with affordable homes, provide safe, reliable, healthy and affordable transportation choices that reduce climate and other air pollution and address growing congestion, and protect critical natural areas and the irreplaceable farm and forest lands that surround the region.

Achievement of the plan's vision and goals will occur through partnerships, ongoing engagement and implementation of a variety of policies, strategies and actions at the local, regional, state and federal levels. The vision laid out in these pages, will take sustained, focused work from every partner in the region. The various jurisdictions in the region are expected to pursue policies, strategies and projects that contribute to achieving the regional vision and goals of the Regional Transportation Plan (RTP) to ensure an equitable, prosperous and sustainable future.

Chapter organization

This chapter is organized into the following sections:

2.1 Outcomes-based framework to guide transportation planning and decision-making: The section describes the outcomes-oriented performance-based planning approach the plan uses to link transportation to a broader set of desired outcomes for vibrant communities, a healthy economy, equity and the environment. This approach also responds to more recent federal and state performance-based planning requirements.

2.2 Shared vision for the regional transportation system: This section describes how the RTP will serve a key role in implementing the 2040 Growth Concept and supporting local aspirations for growth.

2.3 Goals and objectives: This section lays out five goals and supporting objectives for the region's transportation system. The goals and objectives establish policy and investment priorities that will guide future planning, investment decisions and monitoring.

2.4 Regional transportation performance targets: This section lays performance targets for the region's transportation system organized by the RTP goal areas. The performance targets are numerical benchmarks to assess the region's progress in achieving RTP vision and goals. These targets draw from federal and state requirements and regional policies, and will guide future planning, investment decisions and monitoring.

2.1 OUTCOMES-BASED FRAMEWORK TO GUIDE TRANSPORTATION PLANNING AND DECISION-MAKING

We know the transportation funding landscape is changing, and maintaining and growing our world-class transportation system to meet the region's needs requires steady, long-term investment and ongoing maintenance.

Planning creates opportunities for individuals and communities to define and articulate their collective desires and aspirations for enhancing the quality of life in our region and their communities. It allows the people and their elected leaders to take stock of the successes that have been achieved in their communities through years of hard work. It also requires us to think carefully about and be accountable for our future choices, ensuring we get the greatest possible return on public investments and that everyone benefits from those returns. Planning also allows us to identify where investments are most needed in order to deliver the vision a plan articulates.

As a major tool for ensuring stewardship of our public investments, the plan identifies needed next steps to achieve each of the six desired outcomes for the greater Portland region, and helps us understand whether we are on the right track.

WHAT OUTCOMES ARE WE TRYING TO ACCOMPLISH?

VIBRANT COMMUNITIES – People live, work and play in vibrant communities where their everyday needs are easily accessible.

ECONOMIC PROSPERITY – Current and future residents benefit from the region's sustained economic competitiveness and prosperity.

SAFE AND RELIABLE TRANSPORTATION – People have safe and reliable transportation choices that enhance their quality of life.

LEADERSHIP ON CLIMATE CHANGE – The region is a leader in minimizing contributions to global warming.

CLEAN AIR AND WATER – Current and future generations enjoy clean air, clean water and healthy ecosystems.

EQUITY – The benefits and burdens of growth and change are distributed equitably.

As adopted by the Metro Council and MPAC in 2008 by Resolution No. 08-3940.

This RTP continues to broaden the way that outcomes are used to measure success and define transportation system needs. The plan calls for making transportation investment decisions based on achieving the multiple outcomes to preserve and enhance the quality of life, our economy and the environment now and for future generations.

This plan updates the outcomes-based policy framework first adopted in 2010, to focus on five interconnected goals – equity, climate, safety, mobility and the economy. The region's six desired outcomes are prominently interwoven into the RTP goals and objectives, and the policies in Chapter 3 that support those goals.

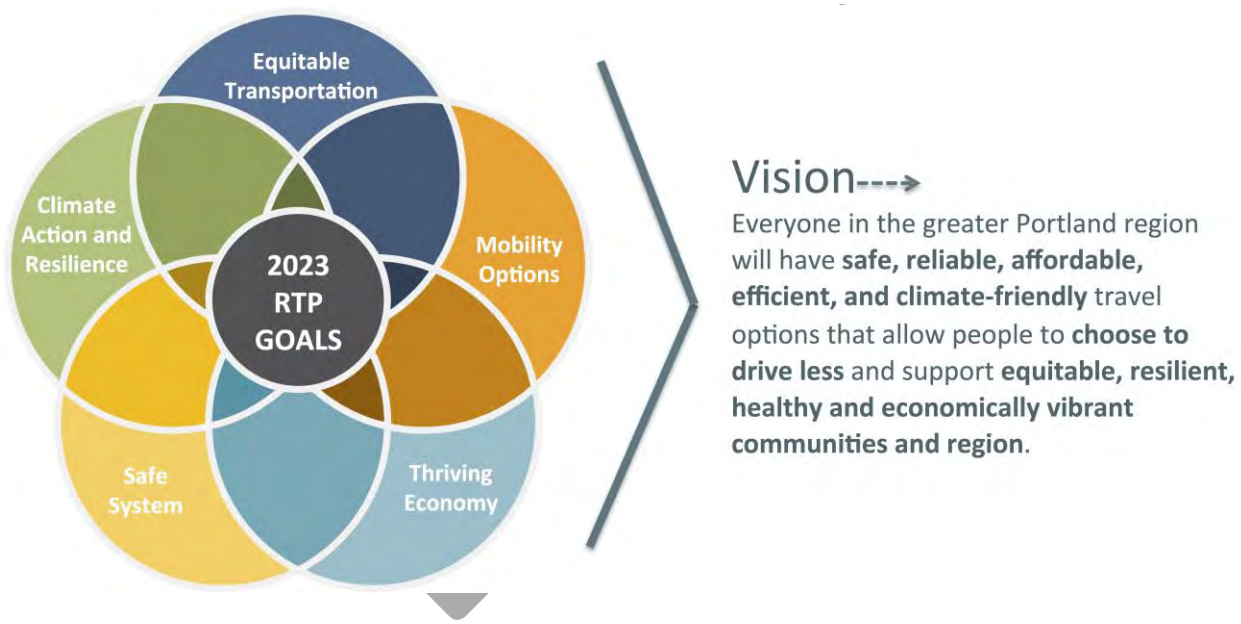
These goals were used to identify needs and prioritize and evaluate performance of the investments recommended in this plan. These updated goals and their supporting objectives (and related performance measures) will also be used to monitor how the transportation system is performing between scheduled plan updates.

2.2 SHARED VISION FOR THE REGIONAL TRANSPORTATION SYSTEM

Transportation planning and investment decisions and the region's desired land use, social, economic and environmental outcomes are so interconnected that success of the 2040 Growth Concept hinges significantly on achieving the plan's goals and objectives.

The Regional Transportation Plan vision statement below presents an aspirational view of the future of the region's transportation system that reflects the values and desired outcomes expressed by the public, policymakers and community and business leaders engaged in development of the plan.

Figure 2.1 Vision for the regional transportation system



This shared vision for the future provides a benchmark for building a transportation system that serves all people and businesses in the greater Portland region. This vision and supporting goals and objectives will serve as a foundation for identifying investment priorities and policies and measuring progress toward building a transportation system that delivers the outcomes we want.

Outcomes-based goals to realize our vision

To realize our vision for a transportation system that serves all people and businesses, we need goals to keep us focused and moving forward. The RTP goals were first adopted in 2010 after significant engagement with communities, residents, businesses and stakeholders throughout the region. In 2014, the Metro Council and the Joint Policy Advisory Committee (JPACT) approved the addition of a goal to demonstrate climate

leadership and reduce greenhouse gas emissions. In 2018, the goals, objectives and related performance measures and targets were refined to address new policies and near-term investment priorities for transportation equity, safety, Climate Smart Strategy implementation and managing congestion. In 2023, the goals, objectives and related performance measures and targets were further updated to focus on five interconnected goals – equity, climate, safety, mobility and the economy.

The outcomes-based RTP goals guide the region's transportation planning and decision-making and include specific objectives and performance targets to help measure the progress we are making toward our vision for the transportation system. The goals, objectives, performance measures and performance targets are presented in the next section.

2.3 GOALS AND OBJECTIVES

While the vision and goals are vital components of the plan, equally important are measurable objectives and quantifiable performance targets to track the region's progress. Investments that achieve objectives and performance targets are critical for the region to be successful in realizing a fully integrated, multimodal transportation system that achieves the goals of the RTP.

Continuing the practice established with the RTP adopted in 2010, this plan includes transportation performance targets that support the outcomes-based framework reflected in the plan's goals and objectives. The goals, objectives and performance targets provided policy direction for developing the investment strategy recommended in Chapter 6. Chapter 7 reports findings on how well the RTP performs across a broad array of measures and relative to the plan's performance targets.

The performance targets are numerical benchmarks to assess the region's progress in carrying out the RTP vision. These targets draw from federal and state legislation and regional policies. Some targets are more aspirational than others, but they all can provide useful information on whether the region is making progress toward the RTP goals and support the region's performance-based planning and decision-making framework shown in **Figure 2.2.**

Figure 2.2 RTP performance-based planning and decision-making framework

Each **goal area** that follows is arranged similarly:

- A statement of the **goal** that describes a desired outcome or end state toward which actions are focused to make progress toward the plan's vision.
- **Objectives** that identify a measureable desired outcome and means for achieving the goal to guide action within the plan period.
- Key **performance measures** that are used in three different ways to support the region's transportation planning and decision-making process:
    - System performance measures – These are performance measures that are used to predict the future as part of an evaluation process using forecasted data. 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.
    - Regional performance targets and thresholds – These are numerical goals or a stated direction of performance to be achieved within a specified time period, assigning a value to what the RTP is trying to achieve. Targets provided policy direction for developing the investment strategy recommended in Chapter 6, and address regional and state policies. Performance of the plan's investment relative to the targets is reported in Chapter 7 to track the region's progress toward the plan's vision and goals.
    - Monitoring and reporting measures and targets – These are measures used to monitor changes based on actual empirical or observed data between updates to the RTP. Decision-makers can use this information between updates to evaluate the need for refinements to policies, investments or other elements of the plan based on what is learned. Broad sets of multimodal monitoring measures have been identified in support of implementing the region's Climate Smart Strategy (Appendix J) and Congestion Management Process (see Appendix L). Some monitoring measures have targets for purposes of meeting federal performance-based planning requirements. See Section 7.2 in Chapter 7 for more information about the region's performance-based planning framework.

The individual RTP goals, objectives and key system performance measures for each goal area follows. Several measures relate to multiple goals.

Goal 1: Mobility Options

People and businesses can reach the jobs, goods, services and opportunities they need by well-connected, low-carbon travel options that are safe, affordable, convenient, reliable, efficient, accessible, and welcoming.

Objectives

- **Objective 1.1 Travel Options** – Plan communities and design and manage the transportation system to increase the proportion of trips made by walking, bicycling, shared rides and use of transit, and reduce per capita vehicle miles traveled.
- **Objective 1.2 System Completion** – Complete all gaps in planned regional networks.
- **Objective 1.3 Access to Transit** – Increase household and job access to current and planned frequent transit service.
- **Objective 1.4 Regional Mobility** – Maintain reliable person-trip and freight mobility for all modes in the region's mobility corridors, consistent with the designated modal functions of each facility and planned transit service within each corridor.

Key performance measures

Vehicle miles traveled

System completeness

Throughway reliability

Mode share

Multimodal travel times

Performance of the plan for these measures is reported in Chapter 7.

Goal 2: Safe System

Traffic deaths and serious crashes are eliminated and all people are safe and secure when traveling in the region.

Objectives

- **Objective 2.1 Vision Zero** – Eliminate fatal and severe injury crashes for all modes of travel by 2035.
- **Objective 2.2 Transportation Security** – Reduce the vulnerability of travelers and critical passenger and freight transportation infrastructure to crime and terrorism.

Key performance measure

Safety

Note: Metro has not developed the modeling tools to forecast crashes. Instead, the system evaluation identifies how much the region needs to reduce serious crashes in order to maintain progress toward it target of eliminating serious crashes by 2035, and compares the results to current data in order to assess whether the region is on track to meet its safety target.

Goal 3: Equitable Transportation

Transportation system disparities experienced by Black, Indigenous and people of color and people with low incomes, are eliminated. The disproportionate barriers people of color, people who speak limited English, people with low incomes, people with disabilities, older adults, youth and other marginalized communities face in meeting their travel needs are removed.

Objectives

- **Objective 3.1 Transportation Equity** – Eliminate disparities related to access, safety, affordability and health outcomes experienced by people of color and other marginalized communities.
- **Objective 3.2 Barrier Free Transportation** – Eliminate barriers that people of color, low income people, youth, older adults, people with disabilities and other marginalized communities face to meeting their travel needs.

Key performance measures*

Access to transit

Access to jobs

System completion

Affordability**

Performance of plan for these measures is reported in Chapter 7.

* Key performance measures compare RTP equity focus areas with areas outside RTP equity focus areas.

** A performance measure for affordability is not included in the RTP system evaluation but will be included in future updates to the plan as a method is developed. Observed data is reported in Chapter 7.

Goal 4: Thriving Economy

Centers, ports, industrial areas, employment areas, and other regional destinations are accessible through a variety of multimodal connections that help people, communities, and businesses thrive and prosper.

Objectives

- **Objective 4.1 Connected Region** – Focus growth and transportation investment in designated 2040 growth areas to build an integrated system of throughways, arterial streets, freight routes and intermodal facilities, transit services and bicycle and pedestrian facilities, with efficient connections between modes and communities that provide access to jobs, markets and community places within and beyond the region.
- **Objective 4.2 Access to Industry and Freight Intermodal Facilities** – Maintain access to industry and freight intermodal facilities by a reliable and seamless freight transportation system that includes air cargo, pipeline, trucking, rail, and marine services to facilitate efficient and competitive shipping choices for goods movement in, to and from the region.
- **Objective 4.3 Access to Jobs and Talent** – Attract new businesses and family-wage jobs and retain those that are already located in the region while increasing the number and variety of jobs that households can reach within a reasonable travel time.
- **Objective 4.4 Transportation and Housing Affordability** – Reduce the share of income that households in the region spend on transportation to lower overall household spending on transportation and housing.

Key performance measures

Access to jobs

Access to industry and freight facilities

Multimodal Travel

Affordability*

Performance of the plan for these measures is reported in Chapter 7.

Goal 5: Climate Action and Resilience

People, communities and ecosystems are protected, healthier and more resilient and carbon emissions and other pollution are substantially reduced as more people travel by transit, walking and bicycling and people travel shorter distances to get where they need to go.

Objectives

- **Objective 5.1 Climate Change Mitigation** – Meet adopted targets for reducing transportation-related greenhouse gas emissions and vehicle miles traveled per capita in order to slow climate change.
- **Objective 5.2 Climate-Friendly Communities** – Increase the share of jobs and households in walkable, mixed-use areas served by current and planned frequent transit service.
- **Objective 5.3 Resource Conservation** – Preserve and protect the region's biological, water, historic, and culturally important plants, habitats and landscapes.
- **Objective 5.4 Green Infrastructure** – Integrate green infrastructure strategies to maintain habitat connectivity, reduce stormwater run-off, and reduce light pollution.
- **Objective 5.5 Adaptation and Resilience** – Increase the resilience of communities and regional transportation infrastructure to the effects of climate change and natural hazards, helping to minimize risks for communities.

Key performance measures

Greenhouse gas emissions

Vehicle miles traveled

Potential resources impact

Performance of plan for these measures is reported in Chapter 7.

2.4 REGIONAL TRANSPORTATION PERFORMANCE TARGETS

Table 2.1 summarizes the performance measures and targets that are included in the RTP, organized by the five RTP goal areas. These targets come from a variety of sources, but all are founded in the policies described in Chapter 3. Some of the targets listed below come from state and federal agencies that oversee the RTP process, some have been formally adopted through the RTP process, and others are implicit in RTP policies that call for improving certain conditions or prioritizing specific investments. Some of the targets listed below are easier to achieve than others. But even the more aspirational targets help to clarify the region's goals and provide benchmarks against which to gauge the region's progress.

Table 2.1: RTP performance measures, targets and thresholds at a glance

Measure name	Description
Mobility	
Mode share	The RTP aims to triple transit, bike, and pedestrian mode shares relative to the base year.
Access to jobs	The RTP prioritizes improving access to jobs via driving and transit relative to the base year.
Multimodal access	The RTP aims to provide the same level of access to jobs via transit (or greater) as via driving so that transit offers the same efficiency and convenience as driving.
System completion	The RTP aims to complete the motor vehicle, transit, bicycle, trail and pedestrian networks by 2035.
System completion near transit	The RTP prioritizes completing the bicycle and pedestrian system near transit (relative to the regional average) in order to provide safe and convenient access to stations and stops.
Access to options	The RTP aims to increase the share of households that are located near transit and bicycle or pedestrian facilities relative to the base year.
Throughway reliability	The RTP aims to have no more than four hours in a day when average travel speeds fall below 35 miles per hour on the region's limited-access throughways and 20 miles per hour on other designated throughways so that the region's throughways are reliable.
Safety	
Serious crashes	The RTP aims to eliminate transportation related fatalities and serious injuries for all users of the region's transportation system by 2035, with a sixteen percent reduction by 2020 (compared to 2015), and a fifty percent reduction by 2025.
Equity	
Serious crashes and equity	The RTP aims to eliminate transportation related fatalities and serious injuries for all users of the region's transportation system in equity focus areas, with a sixteen percent reduction by 2020 (compared to 2015), and a fifty percent reduction by 2025.

Measure name	Description
Safe system completion and equity	The RTP prioritizes completing the bicycle and pedestrian system in equity focus areas (relative to other communities) to provide safe streets for the most vulnerable travelers.
Access to jobs and equity	The RTP prioritizes improving access to jobs within equity focus areas (relative to other communities).
Economy	
Travel times	The RTP aims to maintain driving and transit travel times along regional mobility corridors relative to the base year.
System completion – job centers	The RTP prioritizes completing the bicycle and pedestrian system in job and activity centers (relative to the regional average) in order to provide safe and convenient options for short trips and connections to transit.
Climate and environment	
Climate	The RTP aims to reduce per capita greenhouse gas emissions from light-duty vehicles and per capita vehicle miles traveled in order to meet climate targets set by the State which are to reduce vehicle miles traveled per person by 35% by 2050, with a 30 percent reduction by 2045 and a 25% reduction by 2040, compared to 2005.
Climate	The RTP aims to help meet revised statewide goals identified in the Governor's Executive Order 20-04 that require accelerated reductions in greenhouse gas emissions to levels at least 45 percent below 1990 emissions levels by 2035 and at least 80 percent below 1990 levels by the year 2050.
Air quality	The RTP aims to keep air pollution from mobile sources levels below thresholds set by the federal government.

All regional performance targets are for the year 2045, unless otherwise specified. The performance targets are the highest order evaluation measures in the performance-based policy framework – providing key criteria by which progress towards the plan goals can be assessed. The aspirational performance targets set quantifiable goals for the achieving the plan's desired policy outcomes within a certain timeframe, though not all goals have targets and several targets address multiple goals.

In comparison, system performance measures are used to evaluate changes between current conditions (in 2020) and future conditions (in 2045) with implementation of the transportation investments identified in the plan. Performance of the plan is reported in Chapter 7.

Complementary performance measures identified in **Appendix J** and **Appendix L** have monitoring targets that will help monitor progress towards meeting the RTP goals and objectives in the shorter-term, between and during scheduled updates to the RTP.

In accordance with federal regulations 23 CFR 450.320 and 23 CFR 450.324, **Appendix F** includes an environmental assessment that identifies natural, historic and culturally important resources that intersect with and may be affected by projects in the plan and mitigation activities to address the potential environmental impacts of future transportation projects.

Chapter 3

System Policies to Achieve Our Vision

2023 Regional Transportation Plan

May 26, 2023 WORKING DRAFT

This draft is subject to copy edits, technical corrections and minor updates as it finalized for public review.

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INTRODUCTION

Purpose

Transportation shapes our communities and our daily lives, giving access to opportunities and to meet daily needs. Chapter 3 includes overarching, network, and system management policies for the regional transportation system.

These polices support implementation of the vision, goals and objectives for the regional transportation system defined in Chapter 2.

Policies guide the development and implementation of the regional transportation system, informing transportation planning and investment decisions made by the Joint Policy Advisory Committee on Transportation (JPACT) and the Metro Council as well as state and local partners.

Chapter organization

This chapter is organized into three sections.

Regional partners have developed policies in this chapter over many decades. As a result, policy sections do not always follow the same format or include all the same elements. Some policies include actions for regional, state, and local agencies and other stakeholders. These policies, such as transportation equity, pricing, and mobility, were developed through the Regional Transportation Plan (RTP) update and do not exist in a separate plan. Implementing actions for policies that are derived from a separate plan, such as the safety and freight policies, are not included in this chapter. Instead, the separate plan is referenced in the text.

3.1 Regional transportation system components: This section defines the transportation facilities and areas that comprise the regional transportation system.

3.2 Overarching system policies: This section provides overarching policies for the regional transportation system. Overarching system policies correlate to regional goals and include policies for implementing the 2040 Growth Concept, advancing transportation equity, improving safety, climate leadership and resilience, using pricing, and supporting multimodal mobility.

3.3 Regional network visions, concepts and policies: This section provides the vision, network concepts, and policies and policy maps for regional street design and placemaking, the regional – motor vehicle, transit, freight, pedestrian and bicycling networks, and for transportation system management and operations, transportation demand management, and emerging technology.

3.1 REGIONAL TRANSPORTATION SYSTEM COMPONENTS

The policies in this chapter apply to the regional transportation system of the greater Portland region. A facility or service is part of the regional transportation system if it provides access to any activities crucial to the social or economic health of the greater Portland region, including connecting the region to other parts of the state and Pacific Northwest, or provides access to and within 2040 Growth Concept centers, main streets, corridors, and industrial and employment areas, as described in Section 3.2.1.

Regional transportation system components

The following facilities and areas are the components that make up the regional transportation system.

1. Planned and existing throughways, highways and arterials shown on the regional motor vehicle network map shown in Figure 3-23, including: all state-owned transportation facilities: interstate, statewide, regional and district highways and their bridges, overcrossings, and ramps, and all city- or county-owned arterial roadways and their bridges.
2. All streets and transportation facilities, including bicycle and pedestrian facilities, within 2040 centers, corridors, industrial areas, employment areas, main streets and station communities shown on the 2040 Growth Concept map in Figure 3-1.
3. All high capacity transit and regional transit network facilities and their bridges shown on the regional transit network map in Figure 3-24.
4. All regional bicycle and pedestrian facilities and their bridges, including regional trails shown on the regional pedestrian and bicycle network maps in Figure 3-36 and Figure 3-38.
5. All bridges that cross the Willamette, Columbia, Clackamas, Tualatin, or Sandy rivers.
6. All freight and passenger intermodal facilities, airports, rail facilities and marine transportation facilities and their bridges shown on the regional freight network map in Figure 3-33.
7. Any other transportation facility, service or strategy that is determined by JPACT and the Metro Council to be of regional interest because it has a regional need or impact (e.g., transit-oriented development, transportation system management and demand management strategies, local street connectivity and culverts that serve as barriers to fish passage).

The Regional Transportation Plan (RTP) designates these facilities on the network maps in this chapter. Together, these facilities and services constitute an integrated and interconnected system that supports planned land uses and provides travel options to achieve the goals, objectives, and policies of the RTP. Typically, projects must be identified on or as part of the regional transportation system to be eligible for federal transportation funding.

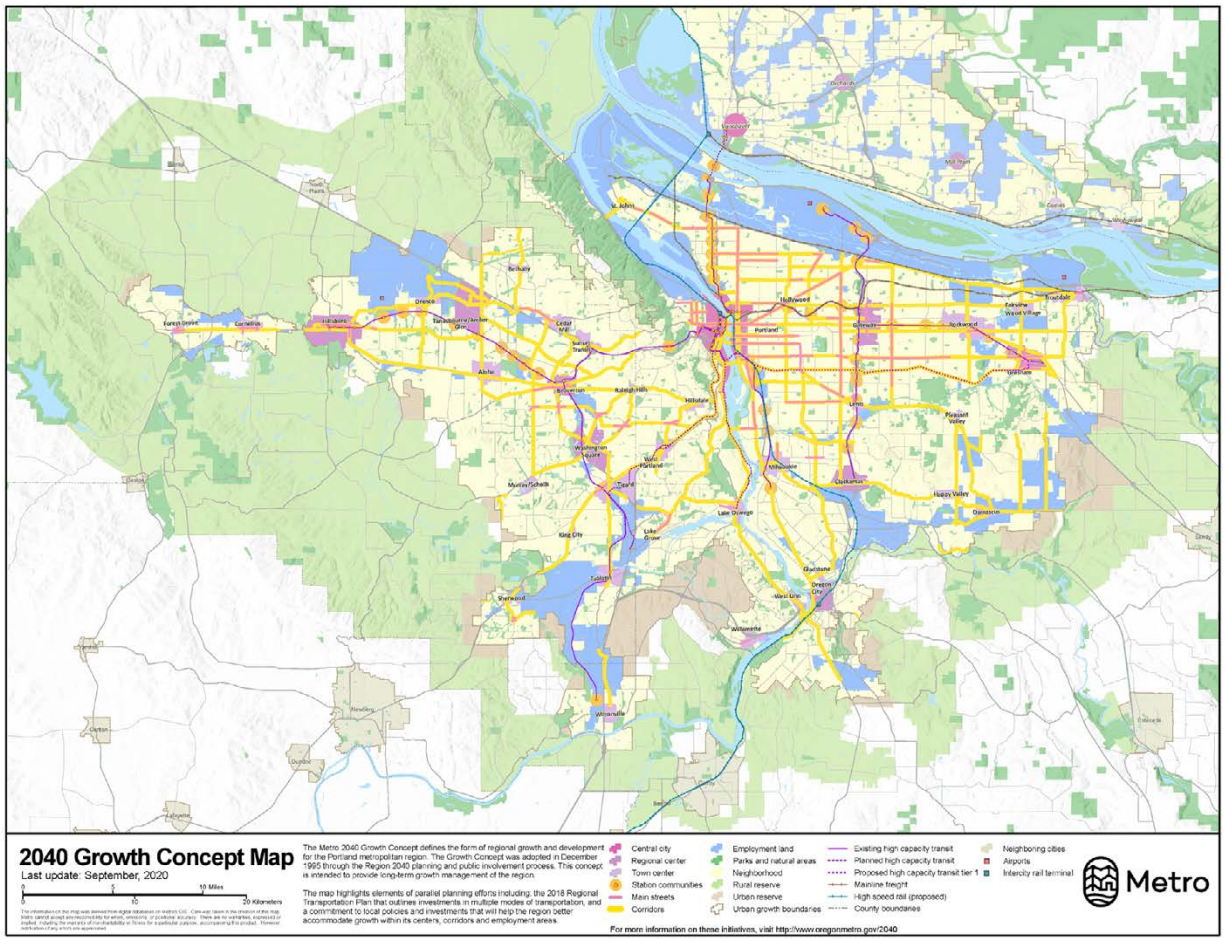
3.2 OVERARCHING SYSTEM POLICIES

This section defines regional transportation system policies related to land use, transportation equity, safety, climate action, resiliency, mobility, and pricing. These policies apply to the regional transportation system and the regional networks in Section 3.3.

3.2.1 2040 Growth Concept – an integrated land use and transportation vision and strategy

In 1995, the greater Portland region adopted the 2040 Growth Concept, the long-range strategy for managing growth that integrates land use and transportation system planning to preserve the region's economic health and livability in an equitable, environmentally sound, and fiscally responsible manner.

Figure 3-1 Growth Concept – an integrated land use and transportation vision



Shown in Table 3-1, the 2040 Growth Concept includes land use and transportation building blocks that express the region's aspiration to incorporate population growth within existing urban areas as much as possible and expand the urban growth boundary only if necessary. It concentrates mixed-use and higher density development in urban centers, station communities, corridors and main streets that are well served by transit, walking and bicycling. It envisions a well-connected street network that supports biking and walking for short trips. Employment lands serve as hubs for regional commerce and include industrial land and freight facilities for truck, marine, air, and rail cargo sites that enable goods to be generated and moved in and out of the greater Portland region. Freight access to industrial and employment lands is centered on rail, the freeway system and other road connections.

Implicit in the 2040 Growth Concept is the understanding that compact development is more affordable, sustainable, livable, and fiscally responsible than urban sprawl, and will help reduce the region's carbon footprint. Increased pedestrian and bicycle access and new transit and road capacity are needed to achieve the 2040 Growth Concept vision and support the region's economic vitality.

Transportation and the economy are closely linked and investments that serve certain land uses, or transportation facilities may have a greater economic return than others. This means ensuring reliable and efficient connections between intermodal facilities and destinations within and outside the region to promote the region's function as a gateway for trade and tourism.

3.2.1.1 2040 Growth Concept Land-use Design Types

The 2040 Growth Concept land uses, called 2040 Design Types, are arranged in a hierarchy. Regional Transportation Plan (RTP) investments are typically focused in the primary and secondary land uses, referred to as 2040 Target Areas. These are the areas expected to absorb a large share of the region's future growth. The hierarchy also serves as a framework for prioritizing RTP investments. Table 3-1 lists the 2040 design types based on this hierarchy.

Table 3-1 Growth concept and land use design

2040 Target Areas		
Primary land uses	**Secondary land uses**	**Other urban land uses**
• Portland central city • Regional centers • Industrial areas • Freight and passenger intermodal facilities	• Employment areas • Town centers • Station communities • Corridors • Main streets	• Neighborhoods **Other land uses outside UGB** • Urban reserves • Rural reserves • Neighbor cities

Different parts of the region are at different stages of implementing the 2040 Growth Concept. As a result, different areas may have different transportation investment needs and priorities that will require substantial public and private investment over the long-term. Table 3-2 provides an

example of the type of investments that might be applicable depending on how far along an area is in implementing the 2040 Growth Concept.

Table 3-2 Priority infrastructure investment strategies

Stage of Development	**Developed Areas** Built-out areas, with most new housing and jobs accommodated through infill, redevelopment, and brownfields development.	**Developing Areas** Redeveloping and developing areas, with most new housing and jobs being accommodated through infill, redevelopment, and greenfield development.	**Undeveloped Areas** More recent additions to the urban growth boundary, with most new housing and jobs accommodated through greenfield development.
Infrastructure Investment Strategies	Operations, maintenance, and preservation of existing transportation assets.	Operations, maintenance, and preservation of existing transportation assets.	Operations, maintenance, and preservation of existing transportation assets.
	Managing the existing transportation system to optimize performance for all modes of travel.	Preserving right-of-way for future transportation system.	Preserving right-of-way for future transportation system.
	Leveraging infill, redevelopment and use of brownfields.	Managing the existing transportation system to optimize performance for all modes of travel.	Providing a multimodal urban transportation system.
	Addressing bottlenecks and improving system connectivity to address barriers and safety deficiencies.	Leveraging infill, redevelopment and use of brownfields	Managing new transportation system investments to optimize performance for all modes of travel.
	Providing a multimodal urban transportation system.	Providing a multimodal urban transportation system.	Focusing on bottlenecks and improving system connectivity to address barriers and safety deficiencies.
	Completing local street connections needed to complement the arterial street network.	Focusing on bottlenecks and improving system connectivity to address barriers and safety deficiencies.	Completing local street connections needed to complement the arterial street network.
		Completing local street connections needed to complement the arterial network.	

3.2.2 Transportation Equity Policies

The Regional Transportation Plan (RTP) 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 marginalized communities, regardless of race, language proficiency, income, age, or ability.

The greater Portland region's economic prosperity and quality of life depend on an equitable transportation system that provides every person and business in the region with access to safe, efficient, reliable, affordable, and healthy travel options and have the fair opportunity to thrive, regardless of their race or ethnicity. Investment in the region's transportation system is one important tool in reducing disparities and barriers experienced by communities of color. But the tool must be intentional and deployed with focus to be successful in reducing racial disparities rather than worsening disparities.

The policies in this section provide direction to Metro, working in partnership with marginalized communities, jurisdictions, and other partners, to prioritize racial and transportation equity in regional transportation planning and decision-making.

Why is a focus on racial equity important?

A goal of racial equity is to reach a time when race is no longer a predictor of life outcomes, and outcomes for all groups are improved. In the transportation context, this means addressing and removing disparities for marginalized communities, especially for people of color, English language learners, and people with low incomes, in areas identified by these communities as priorities for the regional transportation system, including, but not limited to, accessibility, mobility, safety, affordability and environmental health.

Transportation mobility and accessibility plays a significant intersectional role in reducing disparities, but historically, its development and operation has contributed to unequal benefits. Using transportation infrastructure projects as an urban renewal mechanism led to the destruction of thriving communities, particularly Black communities in Portland.

Lessons learned from the generational impacts of displacement on marginalized communities teaches us that to achieve equitable transportation, government must embed equity considerations in each step of the transportation planning and implementation. Marginalized communities bear an unequal burden of environmental harms, such as urban heat islands, air pollution and traffic crashes. For the greater Portland region to be environmentally sustainable and economically prosperous, government and communities must proactively address racial disparities and tackle the most pervasive challenges.

Focusing on racial disparities and barriers helps develop and maintain sustainable economic growth by fostering greater racial inclusion and reducing racial income gaps.[1] This, in turn allows communities facing the greatest barriers opportunities to flourish and build generational wealth. Policies, projects, and strategies that address these disparities can help other marginalized groups, including low-income households, elders, youth, and people with disabilities.

3.2.2.1 Metro's Strategic Plan to Advance Racial Equity, Diversity, and Inclusion (2016)

In 2010, the Metro Council adopted equity as one of the region's six desired outcomes. Adopted by the Metro Council in June 2016, Metro's Strategic Plan to Advance Racial Equity, Diversity, and Inclusion is a major milestone in the agency's efforts to define, implement and measure equity in the greater Portland region.[2] The Plan's purpose is to provide a strategic approach to incorporating equity into policy, decision-making, and programs. The Strategic Plan provides clarity and direction to Metro's different lines of business related to integrating and approaching 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 is organized around five long-term goals that inform the RTP.

The goals are:

A. Metro convenes and supports regional partners to advance racial equity;

B. Metro meaningfully engages communities of color;

C. Metro hires, trains, and promotes a racially diverse workforce;

D. Metro creates safe and welcoming services, programs and destinations; and

E. Metro's resource allocation advances racial equity.

3.2.2.2 Regional Transportation Plan equity focus areas

Metro and regional partners identified Equity Focus Areas using 2020 Census and 2016-20 American Community Survey data for the following groups:

- People of Color - People who do not identify as white
- English Language Learners - People who identify as unable "to speak English very well."

1 Treuhaft, S., Blackwell, A.G., & Pastor, M. (2012). America's Tomorrow: Equity is the Superior Growth Model. Retrieved January 2016: www.policylink.org/sites/default/files/SUMMIT_FRAMING_WEB_20120110.PDF

[2] Metro Strategic plan to advance racial equity, diversity and inclusion, Executive summary, June 2016, https://www.oregonmetro.gov/sites/default/files/2016/11/15/Strategic-plan-advance-racial-equity-diversity-inclusion-exec-summary-17063-20160613.pdf

- People with Lower Incomes – People with incomes equal to or less than 200% of the Federal Poverty Level

These three groups, as identified in Census data, are the emphasis and focus for the RTP, but not with exclusivity to the needs of other marginalized communities, including young people, older adults and people living with disabilities.

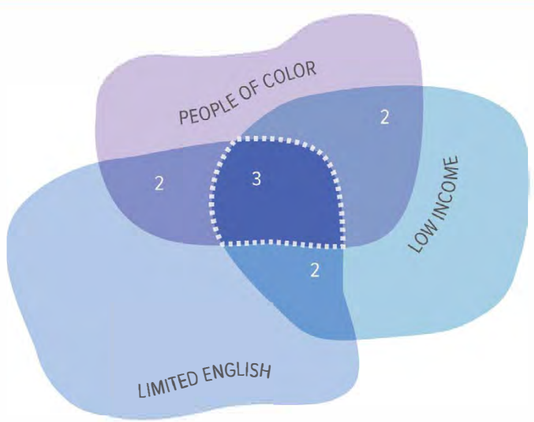
Figure 3-2 shows Equity Focus Areas, which are areas with double the regional average density of any one of the three groups listed above. The RTP directs certain investments toward these areas where they can benefit as many people as possible. More detail on how Metro created this map and on transportation equity in the region can be found in RTP Chapter 4.

Figure 3-2 Regional equity focus areas map

Equity Focus Areas

Equity Focus Areas are based on Census Tracts that have populations above the regional average and over twice the regional density.

- People of Color Equity Focus Areas
- Limited English Equity Focus Areas
- Low Income Equity Focus Areas



0 5 10 Miles

Sources: Census and Metro

2/13/2023

2023 REGIONAL TRANSPORTATION PLAN

Metro

3.2.2.3 Transportation equity policies

The Transportation Equity policies in this section aim to eliminate transportation-related disparities and barriers[3] identified by marginalized communities as priorities to address through the Regional Transportation Plan (RTP) and regional transportation planning and decision-making processes.

Policy 1	**Embed equity into the planning and implementation of transportation projects, programs, policies, and strategies to achieve equitable outcomes for marginalized communities, particularly communities of color and people with low incomes.**
Policy 2	**Ensure investments in the transportation system support community stability by anticipating and minimizing the effects of displacement and other affordability impacts on marginalized communities, with a focus on communities of color and people with low income.**
Policy 3	**Prioritize transportation investments that eliminate transportation-related disparities and barriers for marginalized communities, with a focus on communities of color and people with low income.**
Policy 4	**Meaningfully engage federally recognized tribes, communities of color and other marginalized communities to participate in the development and implementation of transportation plans, projects and programs.**
Policy 5	**Collect and assess qualitative and quantitative data to understand the transportation-related disparities, barriers, needs and priorities of communities of color and other marginalized communities.**
Policy 6	**Evaluate transportation plans, policies, programs, and investments to understand how they address transportation-related disparities and barriers experienced by communities of color, people with low income and other marginalized communities and the extent disparities are being eliminated.**
Policy 7	**Create living-wage career pathways for people of color and women into the construction industry and support the growth and participation of women and people of color owned firms on capital projects throughout the transportation system.**

The policies provide direction as to how Metro, working in partnership with marginalized communities, jurisdictions, and other partners, will prioritize transportation equity in regional transportation planning and decision-making. These policies are consistent with Chapter 660

[3] Transportation-related disparities and barriers identified by historically marginalized communities as priorities to address include safety, access, affordability and community health.

Division 12 of Oregon Administrative Rules (OAR).[4] These rules include additional guidance for equitable transportation planning and decision-making.

Because the Transportation Equity Policies do not have a separate topical plan, specific implementing actions are included for each transportation equity policy.

Transportation Equity Policy 1. Embed equity into the planning and implementation of transportation projects, programs, policies, and strategies to achieve equitable outcomes for marginalized communities, particularly communities of color and people with low incomes.

Equity considerations embedded in transportation projects, programs, policies, and strategies must reflect the transportation priorities identified by marginalized communities, including accessibility, safety, community health, and affordability. Embedding equity into planning and implementation requires a paradigm shift as to how transportation is currently planned, built and operated. This includes bringing in unheard voices from project or policy inception all the way through construction to understand the perspective of potential benefits or impacts.

Additionally, transportation agencies must consider how investments can advance equity. A transportation investment can provide greater access to opportunities for marginalized communities, such as access to education or jobs, but a transportation investment also offers contracting and hiring opportunities. By embedding equity into transportation comprehensively, a full view and consideration of the benefits and impacts of transportation can be understood and weighed.

Agencies can take a variety of actions to embed equity into transportation processes. Many transportation agencies have organizational level equity policies that can support the implementation and incorporation of these actions. For example, existing policies and structures can support participation mechanisms, such as creation of committees in ways that address power imbalances among groups and stipends for community participation in decision making processes.

To implement Transportation Equity Policy 1, regional partners should take the following actions:

1. Examine the structure of decision-making processes, identify who participates (or doesn't) in decision making and how their input is linked to the outcomes of the decisions.
    a. Change the design of decision-making processes to increase access and opportunity to those who have been previously excluded. This includes prioritizing representation from Black, Indigenous and People of Color communities and equity leaders.

[4] See OAR 660-012-0130 (Decision-Making with Underserved Populations), OAR 660-012-0125(Underserved Populations) and OAR 660-012-0135 (Equity Analysis).https://secure.sos.state.or.us/oard/displayDivisionRules.action?selectedDivision=3062

b. Provide opportunities for direct interaction with decision makers and shift power inequities.

2. Use specific methods, analysis and tools in transportation planning, and decision-making processes to eliminate exclusionary practices. This includes using tools, analysis, and methods to check implicit bias and assess power dynamics, providing distinct participation mechanisms for those most impacted, considering who benefits and who is most impacted by decisions, and ultimately shifting the way decisions are made.

   a. **Data collection and analysis**: Assessment of current community conditions that may be impacted by the proposed decision with attention to demographics, historical, real estate market, workforce, and environmental conditions.

   b. **Social and economic power analysis**: A social power analysis is a tool that can be used to determine who has the decision-making power or influence, historically and today, to inform this decision, as well as who has the power to change this decision. This analysis is supported by data collection that considers who is positively and negatively affected by the proposed decision.

   c. **Appointed representation**: Appointed representation is a participation mechanism for appointing individuals from specific social groups who have the least influence and are most impacted by the proposed decision.

   d. **Decision mapping**: This tool supports the design of a process to include individuals and groups that lack access and opportunity to participate in decision making. Conceptual mapping of a process is used to determine how and when individuals or a group may be included in decisions and how their input is linked to outcomes. A key aspect of this is identifying decision points to inform how to situate participants to influence decisions rather than serve as a review body.

   e. **Reflective questions**: Incorporating specific questions into decision making processes help address implicit bias and shift the way we make decisions. These may include questions such as: Who benefits and who is burdened by this decision? In addition, more extensive and in-depth questions may be tailored to the specific policies and programs.

Transportation Equity Policy 2. Ensure investments in the transportation system support community stability by anticipating and minimizing the effects of displacement and other affordability impacts on marginalized communities, with a focus on communities of color and people with low income.

A trend observed across many western U.S. cities is that with a severe deficit of housing supply, particularly affordable units, the addition of certain transportation projects, such as a new rail line or a high-quality bicycle/pedestrian trail, can increase surrounding property values, contribute to displacement, and disrupt community stability. This has occurred in Portland, in particular this has been the Black communities experience in North and Northeast Portland. Over time, ethnic and new immigrant neighborhoods with good access to transportation have gentrified, displacing established communities. Dense centers are appealing and desirable and do not have enough

affordable housing and are becoming more expensive as transportation investments are made. This creates a vicious cycle of increased transportation access to those who have the financial means to afford travel options and the benefits not born to the existing community.

The success, sustainability and prosperity of the region relies on how well government agencies and partners addresses displacement before infrastructure investments are made. Displacement is a pervasive challenge that requires ongoing collaboration between land use, housing and transportation agencies.

To implement Transportation Equity Policy 2, regional partners should take the following actions:

1. Plan capital transportation investments to include a variety of strategies to avoid and minimize involuntary displacement, such as increasing rent burden.
2. Demonstrate how intersectional issues of housing affordability and displacement are being addressed proactively in plans and programs prior to capital investment in transportation infrastructure.
    a. Look at land use solutions and survey what is necessary in land use policy to avoid and mitigate involuntary displacement.
    b. Collect data and build analysis tools that can assess and monitor transportation and housing affordability issues and share the information to partners to help inform capital investment decisions.
3. Increase the number of units of regulated affordable housing in proximity to frequent transit service and in 2040 growth centers as well as communities with rich access to travel options, jobs, and community places.

Transportation Equity Policy 3. Prioritize transportation investments that eliminate transportation-related disparities and barriers for marginalized communities, with a focus on communities of color and people with low income.

Eliminating transportation disparities is vital to achieving transportation equity. Marginalized communities have identified affordability, safety, access, and environmental health as transportation priorities. Focusing on eliminating disparities requires a shift in the current practices of transportation agencies, and developing transportation plans, programs, policies, and investments to achieve of fairness rather than equality.

While Federal law requires that benefits and burdens of transportation are distributed equally, transportation agencies should focus on eliminating disparities caused by systemic racism By eliminating transportation disparities, not only will marginalized communities benefit, but all communities will benefit.

To focus on the disparities, it is imperative for transportation agencies to ask marginalized communities to provide direction and prioritization of which disparities to tackle first and the best methods to do so.

This should also be done with continued engagement through implementation and future prioritization processes to reflect new priorities or other unforeseen issues. *Also see Transportation Equity Policies 4 through 6*.

To implement Transportation Equity Policy 3 regional partners should take the following actions:

1. Seek opportunities to restore Black, Indigenous and people of color (BIPOC), federally recognized tribes, and other marginalized communities harmed by past transportation decisions through collaborative re-investment and removal of harmful infrastructure.
2. Commit to and focus on systematically addressing disparities for marginalized communities, and measure and track progress.
3. Actively question and engage federally recognized tribes and impacted communities to understand how the plan, program, policies, strategies, or action being undertaken contributes to reducing and eliminating disparities.
4. Actively recognize and put aside implicit partialities and biases.
5. More specifically for the outcomes of safety, access, affordability, and public health, prioritize the following:
    a. Among the multiple priorities for the region's transportation system, prioritize and advance the equity elements of the priority. For example, in looking at a transportation investment focused on safety, advance the element that would benefit communities of color over a general safety benefit.
    b. Prioritize building out the active transportation infrastructure network in areas where there are gaps and deficiencies. Focus on completing gaps in communities of color as a means of prioritizing equity. This includes advancing the completion of access to transit in marginalized communities.
    c. Implement the Regional Travel Options Strategy, including the new Safe Routes to School program, with emphasis to support new partnerships with organizations that serve marginalized communities.
    d. Prioritize the safety of the transportation system, especially in marginalized communities, but focus on addressing the systemic safety issues on high injury corridors which marginalized communities' traverse. Focus on increasing safety in high-risk locations and on high injury corridors that coincide with higher residential concentrations of marginalized communities.
    e. Prioritize and focus on increasing active transportation and transit access to jobs and community places (e.g., libraries, pharmacies, grocery stores, schools, etc.) and services for marginalized communities. Place an emphasis on connecting marginalized communities to middle-wage employment opportunities.
6. Focus on transit solutions that serve marginalized communities.

   a. This may include creative solutions such as community and job connector shuttle services.
   b. Focus increase in service on transit routes that serve a significant portion of marginalized communities.
   c. While not the most productive and efficient from a strict transit management view, consider coverage transit service routes to support marginalized communities as they navigate the shifting housing affordability dynamics.
   d. Support special needs transportation providers.
7. Complement affordable housing and transit-oriented development to support the integration of land use and transportation where marginalized communities will benefit.
   a. Ensure the long-term sustainability of programs that make transportation affordable, including the adult low-income fare and student pass programs on transit.
   b. Complement and cross-implement the strategies in the *Coordinated Transportation Plan for Seniors and People with Disabilities* in Appendix G.
8. Document and address existing disparities in exposure to transportation related air pollutants, including PM2.5, Diesel PM, NO2 and air toxics, and evaluate whether projects reduce or exacerbate disparities.

Transportation Equity Policy 4. Meaningfully engage federally recognized tribes, communities of color and other marginalized communities to participate in the development and implementation of transportation plans, projects and programs.

Meaningful engagement is critical to understand the perspectives and experiences of marginalized communities and to build plans, projects, and programs to address these perspectives and experiences.

Meaningful and inclusive engagement takes a significant effort and relies on building relationships and trust with members of marginalized communities and is a significant change from the conventional practices of public involvement in the transportation sector. Engagement and inclusion help embedding equity in the transportation planning process by allowing for marginalized communities to be seen, heard, and considered, and allow for their needs and priorities to influence the planning and decision-making process.

To implement Transportation Equity Policy 4 regional partners should take the following actions:

1. Reduce the barriers to participation in public processes for these communities.
   a. Transportation professionals should look to reduce the barriers for marginalized communities to participate (e.g., go out into the community, offer language translation and childcare services, provide food and incentives) and reach out to marginalized communities in meaningful ways (e.g., engaging through a

community liaison, allowing communities to lead the discussion) and at opportunities to shape and influence transportation plans, policies and program (e.g., not at a perfunctory time).

2. Identify funding and contracting opportunities for community outreach liaisons and community based organizations who are trusted members of marginalized communities to facilitate relationship-building, conversations, and meaningful engagement.
3. Dedicate resources to meaningfully engage marginalized communities in planning and decision-making processes.
4. Bring in voices from marginalized communities to add perspective and help guide how equity can be embedded in the planning and decision-making process. .
5. Use the Climate Friendly Equitable Communities (CFEC) Program for guidance/rules on inclusive decision making.

Transportation Equity Policy 5. Collect and assess qualitative and quantitative data to understand the transportation-related disparities, barriers, needs and priorities of communities of color and other marginalized communities.

Conventional data sources and analysis practices do not always capture disparities experienced by marginalized communities. While national datasets or statewide statistics provide a picture of disparities, gaps in local data and information makes it difficult to assess the performance of transportation plans, programs, and policies on the outcomes and priorities identified marginalized communities.

Collecting disaggregated data at a local scale gives the ability to look in-depth at local conditions on key transportation outcomes identified as priorities by marginalized communities – affordability, safety, access, and environmental health – and is necessary to understand the current level of disparities and establish appropriate baselines. Until such data can be collected, it is imperative to supplement data collection and assessment with engagement to gather the qualitative information directly from marginalized communities.

Additionally, in supplementing quantitative data with engagement and qualitative data, needs, gaps, and deficiencies which may have already been identified can be confirmed. By supporting data collection and assessment focused on the needs and priorities of marginalized communities, especially communities of color, transportation professionals will have better information to plan, program, and implement strategies or actions which can better address the priorities and needs.

To implement Transportation Equity Policy 5, regional partners should take the following actions:

1. Collect data in a manner that facilitates looking at outcomes with an equity lens.
    a. Collect localized disaggregated data.
    b. Emphasize collecting as much qualitative data as quantitative data.
    c. Collect data that is meaningful to marginalized communities.

2. Appropriately resource data collection and assessment to focus on outcomes with an equity lens.
    a. Acknowledge and recognize data collection and assessment methods will be unfamiliar and new for many project managers and likely to be a necessary but challenging to break convention.
3. Appropriately resource the development of a disparities baseline looking at measures of affordability, safety, access, and environmental health to understand disparities of marginalized communities, in particular people of color.
4. Conduct meaningful engagement with marginalized communities to supplement and ground truth data and technical analysis findings.

Transportation Equity Policy 6. Evaluate transportation plans, policies, programs, and investments to understand how they address transportation-related disparities and barriers experienced by communities of color, people with low income and other marginalized communities and the extent disparities are being eliminated.

To know and to be accountable to whether transportation plans, programs, policies and strategies are making progress towards eliminating disparities, particularly in access, safety, affordability, community health and any other transportation-related priority identified by marginalized communities, evaluation under the lens of what disparities the plans, policies, programs and strategies address is just as crucial as engagement, prioritization and mitigation. The assessment process helps to understand effectiveness, progression, monitoring and accountability in achieving the equitable transportation and other associations RTP goals and objectives. Evaluation also provides transparency towards what to expect as a result.

To implement Transportation Equity Policy 6, regional partners should take the following actions:

1. Resource evaluation methodology development appropriately.
    a. Disaggregate and evaluate data system-wide, as well as by individual project, program or community.
    b. Let the evaluation be led, guided and verified by marginalized communities and their lived experiences.
    c. Ground truth evaluation results through engagement.
    d. Utilize both qualitative and quantitative data in evaluation.
2. Be willing to use non-standard forms of evaluation. Clearly state assumptions and recognize what the method may be testing and the limitations of the evaluation.
3. Set up a long-term feedback loop of evaluation and monitoring; evaluate at each stage and monitor whether projected outcomes are coming to fruition and/or whether plans, policies, programs and strategies may need additional mitigations or a course correction.

Transportation Equity Policy 7. Create living-wage career pathways for people of color and women into the construction industry and support the growth and participation of women and people of color owned firms on capital projects throughout the transportation system.

The construction industry has seen tremendous growth in the last ten years and is one of the fastest-growing industries in recent years, outpacing the rest of the economy. The median wage for construction occupations is higher than the median wage across all sectors in the greater Portland region. It is one of the remaining sectors where workers can make a living-wage income without a higher education degree. At the same time the construction industry is grappling with costly workforce shortages driven by an aging workforce and reality that women and people of color face significant barriers in entering the industry and building their careers.

Construction has been a racially homogenous industry, yet labor market data indicates a shortage in skilled talent. Diversifying the construction workforce will not only help create a stronger supply of needed workers for the industry, but it will also directly address issues of poverty and economic mobility within communities of color and working families in the region.

Transportation infrastructure projects can have a big impact on promoting equitable growth in the region's economy by providing job opportunities for people of color in the construction trades. While federal and state laws have provisions which facilitate greater access for minority, women-owned and disadvantaged businesses (MWDBE) to be part of these contracting and construction opportunities, the construction industry has a workforce which is not reflective of demographics. Yet it remains a sector that provides access to living-wage careers for marginalized communities, particularly communities of color.

The RTP is a long-range transportation blueprint for the capital investments needed to accommodate existing needs and future population and employment growth. An emphasis on the construction workforce is relevant to building out the transportation system equitably and making progress towards reducing the disparities seen among marginalized communities in terms of living-wage career opportunities and longer-term income stability and affordability. By focusing public investments to advance contracting and workforce equity in the construction trades, transportation infrastructure projects can help mitigate wealth disparity gaps experienced by marginalized communities.

Metro's Construction Career Pathways is a coordinated strategy for growing and diversifying the region's construction workforce.[5] This effort centers on a shared policy framework that provides a roadmap for public agencies to work with labor unions, workforce development organizations and contractors to create opportunities for women and people of color in the construction workforce. As more public agencies in the region join the effort, each agency's individual

[5] Link to Metro webpage on Construction Career Pathways https://www.oregonmetro.gov/regional-leadership/diversity-equity-and-inclusion/construction-career-pathways

workforce development efforts are better positioned to succeed in cultivating a labor pool that strengthens their community and reflects the populations they serve.

To implement Transportation Equity Policy 7 regional partners should take the following actions:

1. Use t inclusive hiring practices and contracting opportunities and formalize reporting of minority, women-owned and disadvantaged businesses construction contracts on all Metro-funded transportation projects.
2. For transportation investments programmed within the MTIP, particularly as part of the construction phases, request from partners information about minority, women-owned and disadvantaged business contracting and workforce diversity utilization.
3. Through partnership with Metro's Diversity, Equity and Inclusion program, provide information and resources to partners on ways to support and advance equity in contracting and workforce.
4. Develop mechanisms to incentivize partners to pursue recruitment and retention strategies on transportation projects that help grow and diversify the construction workforce.
5. Encourage workforce diversity utilization through apprenticeships with marginalized communities as part of contracts.
6. Partner with workforce development organizations to improve outreach, share information and leverage resources that support and grow a diverse construction workforce and contracting community.

3.2.3 Safety and Security Policies

Eliminating traffic related deaths and life changing injuries (often defined as fatalities, and severe or serious crashes) and increasing the safety and security of the transportation system is a top priority of the Regional Transportation Plan (RTP), as is prioritizing safety for people of color, people with low incomes, people with disabilities, people walking, bicycling, and using motorcycles, youth and older adults.

Transportation safety is protection from death or bodily injury form a motor-vehicle crash while engaged in travel. Individual and public transportation security is protection from intentional criminal or antisocial acts while engaged in trip making.

3.2.3.1 Regional Transportation Safety Strategy (2018)

The Regional Transportation Safety Strategy ("Safety Strategy") identifies data-driven strategies and actions to address the most common types of crashes and contributing factors.[6] Key findings

[6] The Regional Transportation Safety Strategy, adopted in December 2018, is a topical plan of the Regional Transportation Plan. Link to the Safety Strategy https://www.oregonmetro.gov/regional-transportation-safety-plan

from the analysis of crash data from 2016-2020 can are in RTP Chapter 4. Additional analysis can be found in the 2018 Metro State of Safety Report and the Safety Strategy.[7]

The Safety Strategy recommends **six strategies** to support achieving the region's adopted Vision Zero target for 2035, shown in Figure 3-3. Each strategy includes specific actions, which can be found in the Safety Strategy. The strategies and actions are evidence-based and were identified by a regional safety work group in response to analysis of crash data in the 2018 Metro State of Safety Report and other sources. Refer to the Regional Transportation Safety Strategy for detailed information on each of the strategies and specific actions.

Figure 3-3 Regional transportation safety strategies

3.2.3.2 Using the Safe System approach

The Safety Strategy employs a Safe System approach with the goal of zero fatal and severe injury traffic deaths. The Safe System approach originated in Sweden and now other countries and many U.S. cities are using the framework. Similar frameworks are Vision Zero (Sweden), Toward Zero Deaths (U.S.), Road to Zero Coalition (National Safety Council), Safe System (New Zealand), and Sustainable Safety (Denmark).

The Safe System approach involves a holistic view of the transportation system and the interactions among travel speeds, vehicles, road users and the road itself. It is an inclusive approach that prioritizes safety for all user groups of the transportation system - drivers, motorcyclists, passengers, pedestrians, bicyclists, and commercial and heavy vehicle drivers.

[7]The 2018 Metro State of Safety Report is an appendix of the Safety Strategy. Link to the State of Safety Report https://www.oregonmetro.gov/sites/default/files/2018/05/25/2018-Metro-State-of-Safety-Report-05252018.pdf

Consistent with the region's long-term safety vision, it acknowledges that people will make mistakes and may have road crashes—but the system should be designed so that those crashes should not result in death or serious injury. Design emphasizes separation – between people walking and bicycling and motor-vehicles, access management and median separation of traffic – and survivable speeds.

Figure 3-4 Components of the Safe System approach

Source: Metro. Graphic showing The Safe System Approach elements of safe roads, safe vehicles, safe speed, safe road users, and post-crash care.

Governments using the Safe System approach focus on preventing all fatal and severe injury crashes and recognize that the responsibility for crash prevention resides not only with roadway users but with transportation professionals and decision makers. Agencies using the Safe System approach have been more effective in reducing traffic deaths and severe injuries than more traditional approaches that focus on all crashes.[8] The Safe System approach focuses on the following key guiding principles that shape how stakeholders address transportation safety (Figure 3-5). Refer to the Regional Transportation Safety Strategy for detailed information on the Safe System approach.

[8] Sustainable and Safe: A Vision and Guidance for Zero Road Deaths, World Resources Institute, Global Road Safety Facility (2017)

Figure 3-5 Guiding principles of the Safe System approach

Source: Metro. Graphic showing the guiding principles of the safe system approach

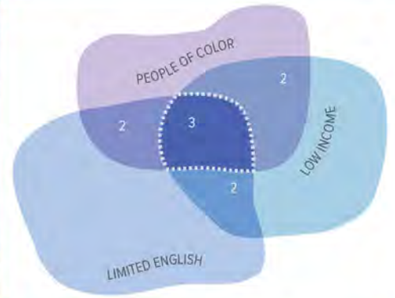
3.2.3.3 Regional high injury corridors and intersections

Figure 3-6 shows the map of regional high injury corridors overlapping with Equity Focus Areas. Metro and regional partners identify regional high injury corridors and intersections to help prioritize safety near term investments. Metro updates this map every five years. In the interim, transportation agencies and stakeholders may identify other safety investments that warrant priority based on other data and analysis. The needs assessment in Chapter 4 provides more detail on how this map was created, along with other safety data.

Figure 3-6 Regional high injury corridors and intersections

Regional High Injury Corridors and Intersections

Top 1% High Injury Intersections
Top 5% High Injury Intersections
High Injury Corridors
County boundary
Urban growth boundary
Metropolitan Planning Area
People of Color Equity Focus Areas
Limited English Equity Focus Areas
Low Income Equity Focus Areas



See inset map

Inset map

0 Mile 0.85

0 5 10 Miles

Sources: ODOT and Metro

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3.2.3.4 Safety and security policies

Regional Transportation Safety and Security Policies reflect the policy framework of the Regional Transportation Safety Strategy. Implementation of the policies supports achieving the regional Vision Zero target for 2035 and making travel in the region safer and more secure for all people.

Policy 1	**Focus safety efforts on eliminating traffic deaths and severe injury crashes to achieve Vision Zero.**
Policy 2	**Prioritize safety investments, education and equitable enforcement on high injury and high-risk corridors and intersections, with a focus on reducing speeds and speeding.**
Policy 3	**Prioritize investments that benefit people with higher risk of being involved in a serious crash, including people of color, people with low incomes, people with disabilities, people walking, bicycling, and using motorcycles, people working in the right-of-way, youth and older adults.**
Policy 4	**Increase safety for all modes of travel and for all people through the planning, design, construction, operation, and maintenance of the transportation system, with a focus on reducing vehicle speeds.**
Policy 5	**Make safety a key consideration in all transportation projects and avoid replicating or exacerbating a known safety problem with any project or program.**
Policy 6	**Employ a Safe System approach and use data and analysis tools and performance monitoring to support data-driven decision-making.**
Policy 7	**Utilize safety and engineering best practices to identify low-cost and effective treatments that can be implemented systematically in shorter timeframes than large capital projects.**
Policy 8	**Prioritize investments, education and enforcement that increase individual and public security while traveling by reducing intentional crime, such as harassment, targeting, and terrorist acts, and prioritize efforts that benefit people of color, people with low incomes, people with disabilities, women and people walking, bicycling, and taking transit.**
Policy 9	**Make safety a key consideration when defining system adequacy (or deficiency) for the purposes of planning or traffic impact analysis.**

Safety Policy 1. Focus safety efforts on eliminating traffic deaths and severe injury crashes to achieve Vision Zero.

To reach the goal of eliminating deaths and severe injuries from traffic crashes, this policy directs safety related efforts to focus on fatal and severe injury crashes, as opposed to all crashes. Focusing on serious crashes is a key tenant of the Safe System approach. It entails identifying where serious crashes occur and focusing on those locations, identifying the risk factors involved in serious crashes and addressing and eliminating those risks, focusing enforcement and education on high-risk behaviors that lead to serious crashes and less or no enforcement or education on low-risk behaviors. When communities use enforcement, precautions must be implemented to ensure equitable actions and outcomes.

Safety Policy 2. Prioritize safety investments, education and equitable enforcement on high injury and high-risk corridors and intersections, with a focus on reducing speeds and speeding.

This policy directs safety investments, education and equitable enforcement to be prioritized on the corridors where the most serious crashes have occurred or have a risk of occurring (due to identified risk factors such as lack of roadway separation or excessive speeding). This policy approach, prioritizing corridors where deadly crashes are or could occur, more effectively uses limited resources where the most serious issues are. Additionally, this policy emphasizes the systemic approach to safety to address known safety risk factors corridor wide to prevent serious crashes from occurring in the future.

Safety Policy 3. Prioritize investments that benefit people with higher risk of being involved in a serious crash, including people of color, people with low incomes, people with disabilities, people walking, bicycling, and using motorcycles, people working in the right-of-way, youth, and older adults.

This policy is based on the Safe System approach of prioritizing safety efforts on people with the highest risk of dying in a traffic crash as a key strategy to eliminating serious crashes overall. This policy also helps implement Metro's Strategic Plan for Advancing Equity, Diversity and Inclusion.

Safety Policy 4. Increase safety for all modes of travel and for all people through the planning, design, construction, operation, and maintenance of the transportation system, with a focus on reducing vehicle speeds.

This policy requires that stakeholders integrate transportation safety into every aspect of the transportation system. It is a key element of the Safe System approach which takes a systemic and holistic approach. Safe travel speeds are a core element of achieving Vision Zero. Speed limits in Safe System approach are based on aiding crash avoidance and a human body's limit for physical trauma. An unprotected pedestrian hit at over 20mph has a significant risk of death or life-changing injury. A car in a side-on collision can protect its occupants up to around 30mph; a car in a head-on collision up to around 40mph. Establishing survivable speeds on streets where people using different modes at variable speeds and with different levels of physical protection are essential. Additionally, a diversity of users must be taken into account as the system is developed.

For example, people of color, older adults and children may have different needs that must be addressed at every phase.

Safety Policy 5. Make safety a key consideration in all transportation projects and avoid replicating or exacerbating a known safety problem with any project or program.

While most policies are proactively focused on improving safety, this policy requires that transportation projects and programs clearly evaluate the impacts on all users of the transportation system and do not negatively impact any of those users by either replicating something which has been shown to increase safety problems for roadway users or making a current safety issue worse.

Safety Policy 6. Employ a Safe System approach and use data and analysis tools and performance monitoring to support data-driven decision-making.

Transportation agencies have proven that the Safe System approach reduces serious crashes. The approach is based on data driven strategies and actions. Collecting, maintaining, and analyzing data on a regular basis is critical to focusing investments where they will be most effective. Additionally, monitoring progress and assessing the outcome of investments in safety is crucial to learning from the past and improving in the future.

Safety Policy 7. Utilize safety and engineering best practices to identify low-cost and effective treatments that can be implemented systematically in shorter timeframes than large capital projects.

Many solutions to improve safety are inexpensive. This policy prioritizes addressing safety problems on a corridor level sooner rather than later to prevent serious crashes from occurring in the future. Rather than postponing safety interventions until a larger and more expensive project can be funded this policy directs that low-cost and effective treatments be implemented first.

Safety Policy 8. Prioritize investments, education and equitable enforcement that increase individual and public security while traveling by reducing intentional crime, such as harassment, targeting, and terrorist acts, and prioritize efforts that benefit people of color, people with low incomes, people with disabilities, women and people walking, bicycling, and taking transit.

Individual and personal security while traveling has an important relationship to transportation safety, especially for people of color. Fear of harassment or being targeted can deter people of color from walking, bicycling or using transit and may increase the use of motor-vehicle transportation. Though individual and public security can be challenging to address, a variety of approaches are needed to create a safe and welcoming transportation system, including: collecting data, utilizing crime prevention through environmental design, taking into account a diversity of users when developing and operating the transportation system, educating people to look out for and care for one another, designing security into projects (such as street lighting, visibility, call boxes), equity training for public safety and transportation professionals, and including a wide range of groups in design and decision making.

Safety Policy 9. Make safety a key consideration when defining system adequacy (or deficiency) for the purposes of planning or traffic impact analysis.

This policy specifies that safety data (including disparities in crash-related injuries and level of physical activity impacted by lack of safe places to walk and bicycle), analytical tools and metrics must be part of the evaluation when defining the adequacy of capacity on the transportation system.

3.2.4 Climate Action Policies and Resilience Policies

Climate change may be the defining challenge of this century. Global climate change poses a growing threat to our communities, our environment, and our economy, creating uncertainties for the agricultural, forestry and fishing industries as well as winter recreation. The planet is warming, and we have less and less time to act. Greater Portland's future climate is expected to include warmer winters with more intense rain events and hotter, drier summers with an increased frequency of high heat days. Other documented effects include rising sea levels, shrinking glaciers, and changes to growing seasons and the distribution of plants and animals. While addressing the primary cause of climate change – carbon emissions, remains a crucial component of the region's climate work, preparing for the impacts of a changing climate is also necessary.

Warmer temperatures will affect the service life of transportation infrastructure, and the more severe storms that are predicted will increase the frequency of landslides and flooding. Consequent damage to roads and rail infrastructure will compromise system safety, disrupt mobility, and hurt the region's economic competitiveness and quality of life. Our ability to respond will have unprecedented impacts on our lives and our survival.

Transportation sources account for 35 percent of greenhouse gas emissions in Oregon, largely made up of carbon dioxide (CO_2). Since 2006, the state of Oregon has initiated a number of actions to respond including directing the greater Portland region to develop and implement a strategy for reducing greenhouse gas emissions from cars and small trucks.

3.2.4.1 Climate Smart Strategy (2014)

The Regional Transportation Plan is a key tool for the greater Portland region to implement the adopted Climate Smart Strategy and achieve greenhouse gas emissions reduction targets adopted by the Land Conservation and Development Commission in 2012, 2017, and 2022.

As directed by the Oregon Legislature in 2009, the Metro Council and the Joint Policy Advisory Committee on Transportation (JPACT) developed and adopted a regional strategy to reduce per capita greenhouse gas emissions from cars and small trucks by 2035 to meet state targets. Adopted in December 2014 with broad support from community, business and elected leaders, the Climate Smart Strategy relies on policies and investments that have already been identified as local priorities in communities across the greater Portland region. Adoption of the strategy affirmed the region's shared 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 analysis of the adopted strategy demonstrated that with an increase in transportation funding for all modes, particularly transit operations, the region can provide more safe and reliable transportation choices, keep our air clean, build healthy and equitable communities and grow our economy while reducing greenhouse gas emissions from light-duty vehicles as directed by the Legislature. It also showed that a lack of investment in needed transportation infrastructure will result in falling short of our greenhouse gas emissions reduction goal and other desired outcomes. The Land Conservation and Development Commission approved the region's strategy in May 2015.

3.2.4.2 Climate mitigation policies

The Climate Smart Strategy is built around nine policies to demonstrate climate leadership by reducing greenhouse gas emissions from cars and small trucks while making our transportation system safe, reliable, healthy, and affordable. The policies listed below complement other Regional Transportation (RTP) policies related to equity, safety, transit, biking and walking, use of technology and system and demand management strategies. These policies aim to slow the effects of climate change by reducing greenhouse gas emissions (also known as climate mitigation") while also preparing for the impacts the region will likely experience.

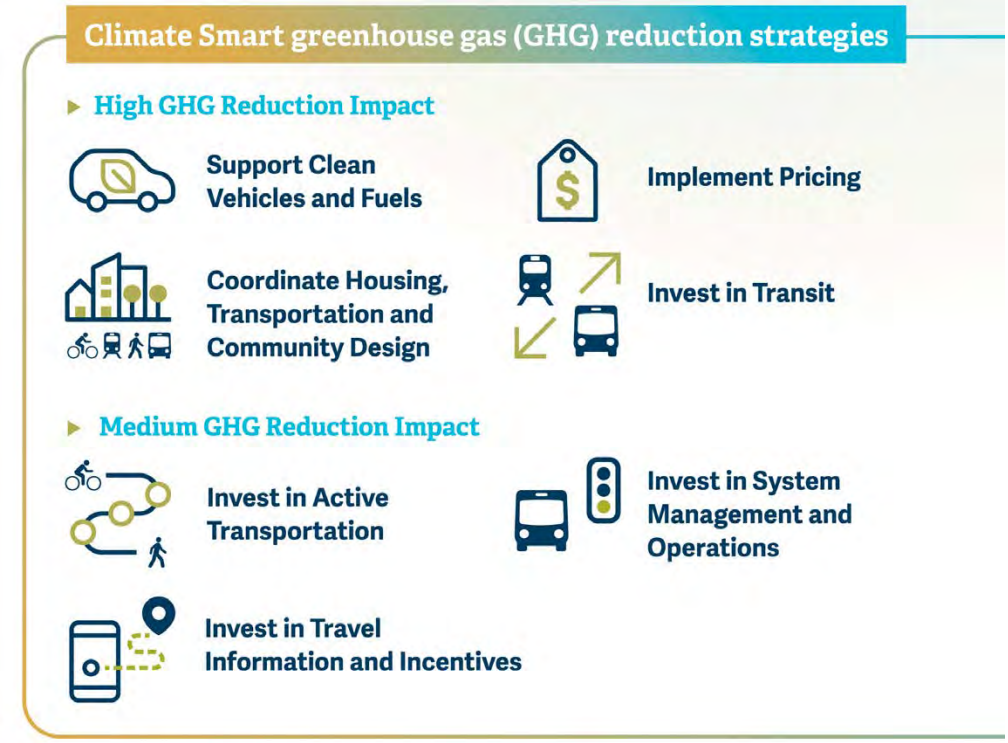
Policy 1	**Implement adopted local and regional land use plans and strategies to reduce vehicle miles traveled per capita and related greenhouse gas emissions to meet regional targets.**
Policy 2	**Prioritize transportation investments that make transit convenient, frequent, accessible and affordable to significantly increase transit ridership.**
Policy 3	**Prioritize transportation investments that make biking and walking safe, accessible and convenient to achieve walking and bicycling system completion and mode share targets.**
Policy 4	**Make streets and highways safe, efficient, reliable and connected.**
Policy 5	**Prioritize use of technology to actively manage the transportation system and ensure that new and emerging technology affecting the region's transportation system supports shared trips and other Climate Smart Strategy policies and strategies.**
Policy 6	**Provide information and financial incentives to expand the use of travel options and reduce vehicle miles traveled.**
Policy 7	**Manage parking in mixed-use centers and corridors to reduce the amount of land dedicated to parking, encourage parking turnover, increase shared trips, biking,**

	walking and transit use, reduce vehicle miles traveled, increase housing and job production and generate revenue.
Policy 8	**Support Oregon's transition to cleaner fuels, more fuel-efficient vehicles and electric vehicles in recognition of the external impacts of carbon and other vehicle emissions.**
Policy 9	**Secure adequate funding for transportation system investments necessary to implement the Climate Smart Strategy and increase the region's preparedness for and resilience to climate change and natural hazard impacts.**

3.2.4.3 Climate Smart Strategy actions

The Climate Smart Strategy includes a comprehensive toolbox of more than 200 specific actions that can be taken by the state of Oregon, Metro, cities, counties, transit providers and others to support implementation. These supporting actions are summarized in the *Toolbox of Possible Actions (2015-2020)* adopted as part of the Climate Smart Strategy.[9] The actions support implementation of adopted local and regional plans and, if taken, will reduce greenhouse gas emissions and minimize the region's contribution to climate change in ways that support community and economic development goals. The Climate Smart Strategy's *Toolbox of Possible Actions* was developed with the recognition that existing city and county plans for creating great communities are the foundation for reaching the state target and that some tools and actions may work better in some locations than others. As such, the toolbox does not mandate adoption of any policy or action. Instead, it emphasizes the need for many diverse partners to work together to begin implementation of the strategy while retaining the flexibility and discretion to pursue the actions most appropriate to local needs and conditions.

[9] Climate Smart Strategy Toolbox of Possible Actions, 2014
https://www.oregonmetro.gov/sites/default/files/2015/05/27/CSC_toolbox-actions2014_12_09.pdf



Source: Metro. Graphic depicting Climate Smart seven high and medium impact greenhouse gas reduction strategies.

Local, state, and regional partners are encouraged to review the toolbox and identify actions they have already taken and any new actions they are willing to consider or commit to in the future. Updates to local comprehensive plans and development regulations, transit agency plans, port district plans, and regional growth management and transportation plans present ongoing opportunities to consider implementing the actions recommended in locally tailored ways.

3.2.4.4 Climate Smart Strategy monitoring

The Climate Smart Strategy has performance measures and performance monitoring targets for tracking implementation and progress. The purpose of the performance measures and targets is to monitor and assess whether key elements or actions that make up the strategy are being implemented, and whether the strategy is achieving expected outcomes. If an assessment finds the region is deviating significantly from the Climate Smart Strategy performance monitoring targets, then Metro will work with local, regional, and state partners to consider the revision or replacement of policies and actions to ensure the region remains on track with meeting adopted targets for reducing greenhouse gas emissions.

Appendix J provides a progress report on implementation. Performance outcomes are included in Appendix J and Chapter 7. More investment, actions and resources are needed to achieve mandated greenhouse gas emissions reductions defined in OAR 660-044-0060.

3.2.4.5 Transportation preparedness and resilience policies

Preparedness and resilience have broad implications across all sectors of the economy and communities in the region. Natural disasters can happen anytime, affecting multiple jurisdictions simultaneously. The region needs to be prepared to respond quickly, collaboratively, and equitably, and the transportation system needs to be prepared to withstand these events and to provide needed transport for evacuation, fuel, essential supplies and medical transport. Planning for post-disaster recovery is also critical to ensure that communities and the region recover and rebuild important physical structures, infrastructure and services, including transportation – it can make communities and the region stronger, healthier, safer and more equitable.

Policy 1	**Designate and maintain regional emergency transportation routes that, in the case of a major regional emergency or natural disaster, would be prioritized for rapid damage assessment and debris-removal.**
Policy 2	**Consider climate and other natural hazard-related risks during transportation planning, project development, design, and management processes.**
Policy 3	**Optimize operations and maintenance practices that can help lessen impacts on transportation from extreme weather events and natural disasters.[10]**
Policy 4	**Integrate green infrastructure into the transportation network to avoid, minimize and mitigate negative environmental impacts of climate change, natural disasters, and extreme weather events.**
Policy 5	**Protect and avoid natural areas and high value natural resource sites, especially the urban tree canopy and other green infrastructure, to slow growth in carbon emissions from paved streets, parking lots and carbon sequestration and address the impacts of climate change and extreme weather events, such as urban heat island effects and increased flooding.**
Policy 6	**Avoid transportation-related development in hazard areas such as steep slopes and floodplains that provide landscape resiliency and which are also likely to increase in hazard potential as the impacts of climate change increase.**

Climate change, natural disasters, such as earthquakes, urban wildfires and hazardous incidents, and extreme weather events present significant and growing risks to the safety, reliability, effectiveness and sustainability of the region's transportation infrastructure and services. Flooding, extreme heat, wildfires and severe storm events endanger the long-term investments that federal, state, and local governments have made in transportation infrastructure. Changes in climate have intensified the magnitude, duration, and frequency of these events for many regions

[10] Examples include more frequent cleaning of storm drains, improved plans for weather emergencies, closures and rerouting, traveler information systems, debris removal, early warning systems, damage repairs and performance monitoring.

in the United States, a trend that is projected to continue. There is much work going on locally, regionally, statewide and across the country to address these risks.

Regional collaboration and disaster preparedness

The Regional Disaster Preparedness Organization (RDPO) is a partnership of government agencies, non-governmental organizations, and private-sector stakeholders in the Portland metropolitan area collaborating to increase the region's resilience to disasters. RDPO's efforts span across Clackamas, Columbia, Multnomah, and Washington counties in Oregon and Clark County in Washington.

According to the 2013 Oregon Resilience Plan, Oregon's buildings, and lifelines (transportation, energy, telecommunications, and water/ wastewater systems) would be damaged so severely that it would take three months to a year to restore full service in areas such as the Portland region. More recently, a 2018 report from the Oregon Department of Geology and Mineral Industries (DOGAMI) on the Portland region describes significant casualties, economic losses, and disruption in the event of a large magnitude Cascadia subduction zone (CSZ) earthquake.

While transportation infrastructure is designed to handle a broad range of impacts based on historic climate patterns, more planning and preparation for climate change, earthquakes and other natural disasters and extreme weather events is critical to protecting the integrity of the transportation system and improving resilience for future hazards.

In 2021 the Oregon Transportation Systems project assessed the resilience of Oregon's roadway, airport, and maritime port transportation system to a Cascadia Subduction Zone (CSZ) earthquake, and the ability of those system to support post-disaster response and recovery. A key finding is that very few airports and marine ports have conducted seismic vulnerability analyses of their facilities. More analysis is needed to better understand and enhance the resilience of these facilities to more efficiently and effectively support incident response.

Between 2019 and 2021, Metro and RDPO partnered to update the Regional Emergency Transportation Routes (RETR) for the five-county Portland-Vancouver metropolitan region (last updated in 2006). Over 300 miles of new routes were added. Regional Emergency Transportation Routes are travel routes that, in the case of a major regional emergency or natural disaster, would be prioritized for rapid damage assessment and debris-removal. These routes would be used to move people, resources, and materials, such as first responders (e.g., police, fire and emergency medical services), patients, debris, fuel and essential supplies. These routes are also expected to have a key role in post-disaster recovery efforts.

The project developed a regionally accepted network that provides adequate connectivity to critical infrastructure and essential facilities, as well as the region's population centers and vulnerable communities. Over 75% of state and regional critical infrastructure and essential facilities are connected. Partners have established a comprehensive regional GIS database and online RETR viewer for current and future planning and operations. The data and on-line viewer provide valuable resources to support transportation resilience, recovery, and related initiatives

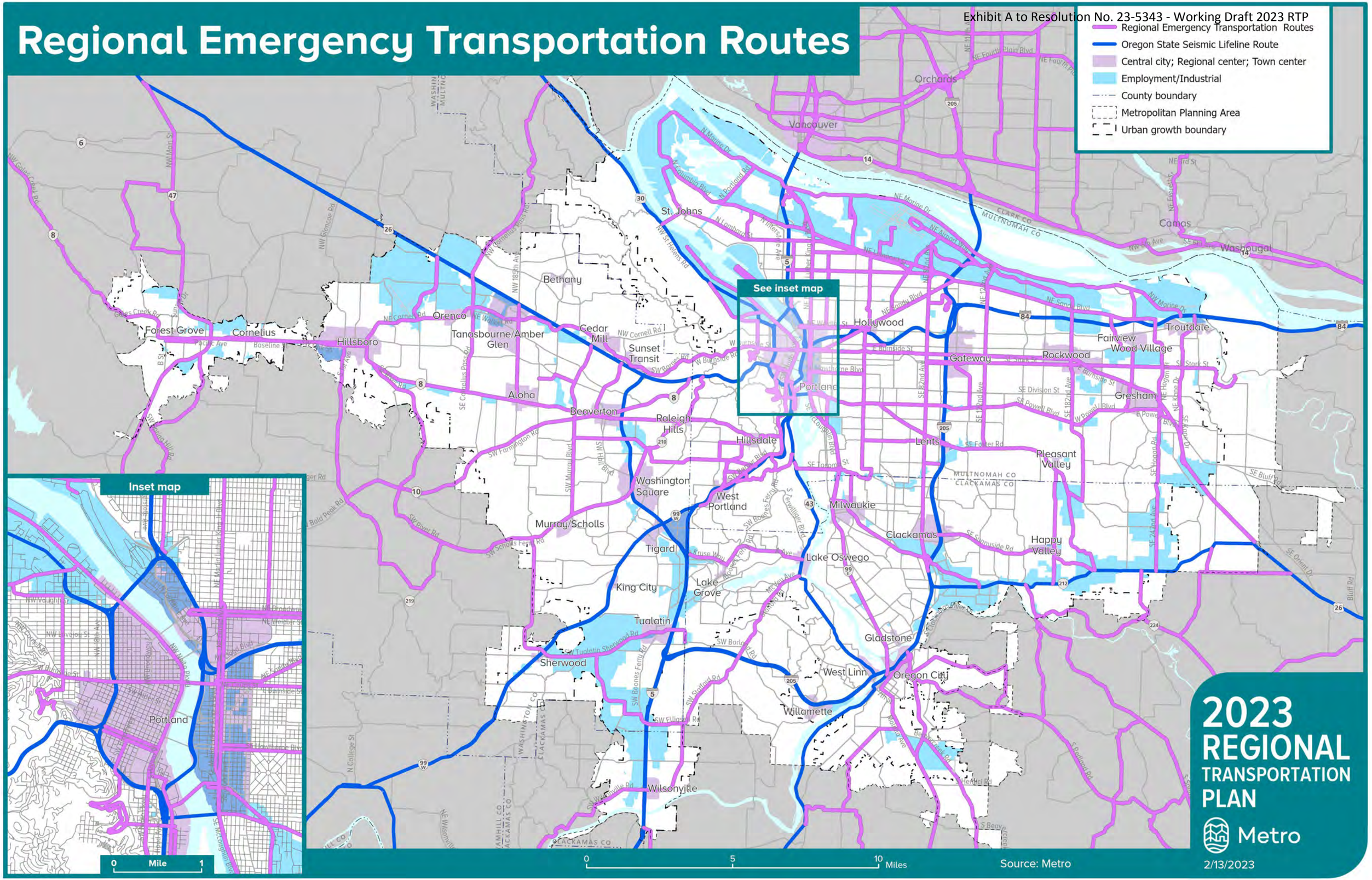
in the region. Figure 3-7 shows a map of the RETRs and State Seismic Lifeline (SSL) routes. Regional partners identify these routes to help prioritize them for near term investment.

In addition to implementing the resilience policies, potential opportunities for future regional collaboration in support of transportation preparedness and resilience include:

- Partnering with the RDPO on a second phase of the Regional ETR update to prioritize routes and develop operational guidelines for owners and operators. See Chapter 8 for more information.
- Conducting a vulnerability assessment for the region, documenting climate and other natural hazard-related risks to the region's transportation system and vulnerable populations, and potential investments, strategies, and actions that the region can implement to reduce the vulnerability of the existing transportation system and proactively increase the transportation system's resiliency.

Figure 3-7 Regional emergency transportation routes (ETR) map

Regional Emergency Transportation Routes



3.2.5 Pricing Policies

Transportation pricing is a tool that can help our region reach its goals of better, faster transit, cleaner air, fewer hours sitting in traffic, and more equitable access to jobs and opportunities. To realize these outcomes, pricing programs will need to be carefully designed to ensure the process to develop them is equitable, revenue is reinvested equitably and to support regional goals, diversion on local streets is mitigated, and pricing strategies are interoperable throughout the region.

What is transportation pricing?

Transportation pricing is the use of a pricing mechanism, such as tolls or parking fees, to reduce traffic congestion and greenhouse gas emissions, encourage a shift to travel via different modes, a different route, or a different time of day, and raise revenue for transportation investments and mitigation for impacts resulting from pricing. The policies in this section apply to vehicle miles traveled fees, cordon pricing, and roadway pricing; parking pricing is addressed in the Climate mitigation policies in Section 3.2.4.2.

While parking pricing has proven to be an effective strategy in the region for many years, cordons, roadway pricing, and other pricing strategies are only beginning to be discussed and implemented

as a strategy in the greater Portland region. However, these strategies have been effective in cities around the world. For many leaders and government agencies in the Portland metro region recognized pricing as a needed, high-impact, tool in the 2018 Regional Transportation Plan (RTP) and other plans.[11]

Table 3-3 outlines which local, regional, and state agencies could potentially implement various types of pricing strategies based on Oregon state law. Other federal, state, or local laws may provide additional guidance or restrictions on the use of pricing and the use of pricing revenues.

Table 3-3 Pricing and implementing agency

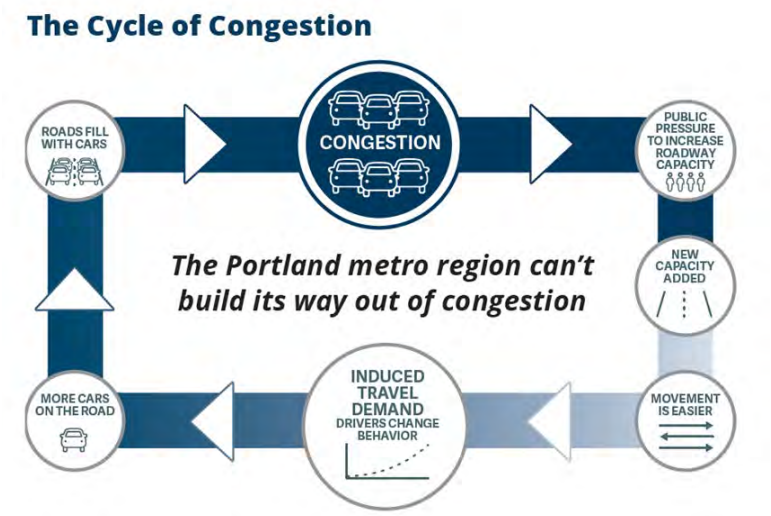
Type of Pricing	Definition	Implementing Agency
Road Usage Charge / Vehicle Miles Traveled Fee	Drivers pay a fee for every mile they travel	State DOT, potentially local roadway authorities
Cordon Pricing	Drivers pay a fee to enter an area, like downtown Portland (and sometimes pay to drive within that area)	City, County
Roadway Pricing and Tolling	Drivers pay a fee or toll to drive on a particular road, bridge, or highway	Local Roads: City, County Highways and Freeways: State DOT

Why is pricing an important strategy for our region?

Congestion is a problem in the Portland metro region as outlined in the Chapter 4 or the RTP. Changing travel patterns and a growing population mean more traffic and less freedom to travel reliably around the region. Congestion can also have significant economic, social, and environmental impacts.

- Growing single occupancy vehicle miles traveled (VMT) leads to congestion.
- Greenhouse gas emissions are on the rise.
- Congestion impacts Metro's Equity Focus Areas most significantly.
- Travel patterns for people and goods are unreliable due to congestion.
- Our region is growing.

[11] 2018 Regional Transportation Plan, TSMO Strategic Plan (2010), Climate Smart Strategy (2014), The Federal Congestion Management Process, 2021 City of Portland Pricing Options for Equitable Mobility Final Report, 2018 Oregon Department of Transportation Value Pricing Feasibility Analysis.



How can pricing help our region?

Transportation investments in the greater Portland region have a long history of contributing to racial inequity and neighborhood displacement. Decades ago, public agencies planned and built new highways that cut through Black communities, splitting neighborhoods, and contributing to poor air quality, noise pollution and safety issues. Transit investments have also been made without complementary affordable housing strategies, leading to gentrification and further displacement.

Today, while the region's residents all feel the impacts of congestion, historic inequities in the transportation system amplify impacts on people of color and low-income people:

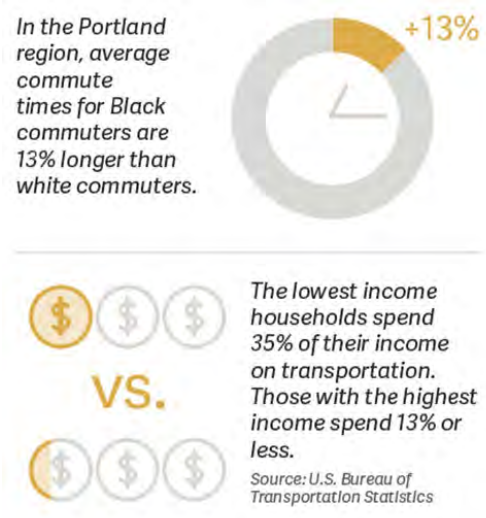
- Housing costs are increasing faster than incomes, pushing those with lower incomes to seek housing further away from the center of the region and making travel distances longer for people of color and low-income people.
- Communities of color and low-income communities have longer commutes that are made slower and more unreliable when roadways are congested.
- Major roads and freeways often run through communities of color and low-income communities, resulting in disproportionately high rates of air pollution, chronic illnesses, and traffic-related injuries and fatalities.

Pricing can be a key tool for jurisdictions as they seek to meet state, regional, and local goals around mobility, climate, safety, equity, and a thriving economy.

Pricing that is designed and implemented through an equity and climate change lens has the potential to transform transportation in our region in a variety of ways. While pricing programs introduce new costs to users, they also lead to more efficient use of streets and highways and can help address current and historic inequities borne by people of color and people with low incomes.

Pricing has been shown to encourage use of transit or other modes and reduce overall vehicle miles traveled (VMT). Lower VMT results in decreased congestion, reduced travel times for personal vehicles, freight and buses, lower greenhouse gas emissions, and localized air quality impacts. Pricing is more likely to be successful in areas where transit service elements are already well established and is improved in conjunction with pricing.

Pricing can also have positive impacts on safety. A combination of lower VMT, as a result of pricing and reinvestment of pricing revenue in projects that increase safety, can, in the long term, lead to decreases in crashes and injuries in and around priced facilities or areas.



Additionally, for many jurisdictions, pricing may be identified as a tool to raise revenue for specific projects and be a key element of a funding plan. This could include, for example, replacement of an aging bridge, or investments in multimodal infrastructure and transit supportive elements or amenities. However, in addition to raising revenue for specific projects, a program can successfully meet state, regional, and local goals by:

- **Reinvesting revenue where it matters most.** If designed thoughtfully, pricing programs that have built equity into the program can introduce progressive fee structures and reinvest revenue in the people and places that have historically been, and continue to be, the most negatively impacted.
- **Reinvesting revenue to support our region's goals.** Revenue collected from pricing programs can be reinvested to enhance transit service elements and access, safety improvements, and walking and bicycling networks. It can also be used to provide incentives and subsidies to increase the number of people biking, walking, and taking transit for more trips. With properly designed pricing programs, our region can have better, faster transit, cleaner air, fewer hours sitting in traffic, and more equitable access to jobs and opportunities.

Benefits to Freight and Businesses

- Pricing strategies can help freight and businesses succeed by reducing congestion on highways and local roads:
- Pricing can benefit freight, especially truck transportation, as it supports a more reliable system.
- Pricing can encourage people to use other forms of transportation to travel and leave highways open for people and businesses, like freight, who do not have other options.
- Pricing can support lowered cost of doing business – time is money.

3.2.5.1 Best practices for revenue reinvestment

Equitable revenue reinvestment is a critical consideration from the outset of a pricing program. Reinvestment strategies should be guided by the purpose of the program, the expected costs and benefits, and input from community members impacted by the program. Revenue reinvestment should be focused on neighborhoods that do not have or could lose access to the priced facility or area. Increasing access to the priced facility or area, especially for places with limited access today or places that would see reduced access without reinvested revenues, should be a focus. Part of the revenue from pricing may need to be spent on operations, maintenance, and facility investment.

Key considerations related to revenue reinvestment include:

- Reinvestment should be prioritized in areas designated as Metro's Equity Focus Areas most affected by pricing programs.
- Revenues collected through the pricing program should be reinvested in a manner that helps meet state, regional, and local goals related to reductions in greenhouse gas emissions and congestion while improving mobility and safety.
- Revenue should not be reinvested in infrastructure solely for single occupancy vehicles but should be invested to improve the entire multimodal transportation system.
- Revenue should be reinvested in the region.

After paying for the administration and/or operating costs of a pricing program, revenue could be reinvested in several ways (Table 3-4). Implementing agencies will need to consider any state constitutional restrictions to revenue reinvestment, or other limitations based on federal or state funding or program approvals, based on the type of pricing program established. Agencies may use pricing to raise money for other things, like road improvements, seismic operations, and operations and maintenance.

Table 3-4 Potential Options for Revenue Reinvestment

Category	Description	Target Area or Population
Transit		
Infrastructure & speed and reliability improvements	Improved facilities, stops, passenger amenities, transit priority treatments, express services, expanded routes, and similar improvements	Regional Local communities especially equity areas, for example, Metro's Equity Focus Areas
Operation and maintenance	Operation and maintenance of existing and future transit assets and services	Regional
Active Transportation		
Access to priced facility or area	Improved bike, pedestrian, or micromobility access to transit or priced facility or area directly	Regional From/to equity zones, for example, Metro's Equity Focus Areas
Neighborhood access	Improved bike, pedestrian, or micromobility access to transit or neighborhood activity centers such as shopping centers and employment hubs	From equity zones, for example Metro's Equity Focus Areas, to transit or neighborhood activity centers
First/last mile to key employment hubs	Improved bike, pedestrian, or micromobility access to employment hubs from transit	Regional
Diversion mitigation	Prioritize safety enhancements on the high crash network and transit service elements along areas impacted by diversion	Neighborhoods impacted by diversion
Mode Shift and Single Occupancy Vehicle Alternative Programs		
Commuter Credits	Benefit to users of the pricing system who swipe their transit card during peak hours rather than drive	Regional; higher subsidy for transit deprived communities and vulnerable populations
Transit subsidy	Free or discounted transit pass or cash on transit card, i.e., TriMet's Fare Relief Program	Regional; higher subsidy for transit deprived communities and vulnerable populations
Other programs	Electric vehicle (EV) carshare subsidy, bikeshare subsidy, micromobility subsidy, carpool	Regional; higher subsidy for transit deprived communities and vulnerable populations

Category	Description	Target Area or Population
	benefit, benefit to drivers of EV vehicles	
Priced Facility		
Operations and Maintenance	Operations and maintenance of priced road	Priced facility
Infrastructure investment	For tolled facilities, designed to be paid for by the pricing revenue	Priced facility

Potential Revenue Opportunities and Limitations

Depending on the pricing model, the use of revenue generated from a pricing program may be subject to legal limits, Federal law and other requirements must be followed. For example, Oregon Constitution Article IX Section 3a limits the use of revenue from taxes on motor vehicle use and fuel. The principle underlying this language is that special taxes paid only by highway users should be used only for highway purposes. Whether a particular pricing model is subject to this constitutional restriction is determined by Oregon courts on a case-by-case basis. Recently, the Oregon Supreme Court concluded that Article IX section 3a's limit on use of tax revenue does not apply to a privilege tax imposed on vehicle dealers for the privilege of engaging in the business of selling taxable motor vehicles at retail. The Court found that the privilege tax was not based on the status of motor vehicle ownership, but rather on the activity of selling motor vehicles. Jurisdictions considering pricing should review all potential legal limits and structure the pricing model with these limits in mind.

3.2.5.2 Pricing policies

Pricing policies apply to the planning, implementation, monitoring and evaluation of pricing programs and projects in the region, as defined in Section 3.1.

Policy 1	**Use pricing to improve reliability and efficiency of the transportation network, reduce VMT per capita, and increase transportation options.**
Policy 2	**Center equity and affordability into pricing programs and projects from the outset.**
Policy 3	**Address traffic safety and the safety of users of all travel modes, both on the priced system and in areas affected by diversion.**
Policy 4	**Minimize diversion impacts created by pricing programs and projects prior to implementation and throughout the life of the pricing program or project.**
Policy 5	**Reduce greenhouse gas emissions and vehicle miles travelled per capita while increasing access to low-carbon travel options.**
Policy 6	**Coordinate technologies and pricing programs and projects to make pricing a low-barrier, seamless experience for everyone who uses the transportation system and to reduce administrative burdens.**

Pricing Policy 1. Use pricing to improve reliability and efficiency of the transportation network, reduce VMT per capita, and increase transportation options.

The Metro Regional Congestion Pricing Study found that pricing has the potential to help the greater Portland region improve mobility and manage congestion. Pricing programs should be designed and implemented to maximize benefits related to improved access to jobs and community places, shift to sustainable modes of travel, and overall affordability.

Investments in transit and transit-supportive elements have been shown to improve regional mobility, especially in terms of access to jobs. Future transit investments, and investments into other modal alternatives, should take into consideration the geographic distribution of low-income populations (who may have less automobile access), existing access to jobs via transit, people who commute outside of peak periods, and people who trip-chain (i.e.: making multiple stops during one trip, such as dropping children off at school on the way to work). Policymakers and future project owners and operators should consider how mobility improvements will be received by populations and areas that have been historically marginalized. Mobility improvements can be measured by reduced peak period travel times, reduced daily vehicle miles traveled (VMT), reduced percentage of total daily trips undertaken by drivers without passengers, increased number of total daily transit trips, and total vehicle hours of delay during peak PM periods.

To implement Pricing Policy 1, agencies developing pricing programs or projects should take the following actions:

1. Set rates for pricing at a level that will manage congestion, reduce VMT per capita, and improve reliability on the priced facility and in areas affected by diversion. ORS 383 delegates authority to the Oregon Transportation Commission (OTC) to set pricing rates for state highways in accordance with state legislation.
2. Collaborate with relevant state, regional, and local agencies and communities when setting, evaluating, and adjusting program or project specific goals.
3. Reinvest a portion of revenues from pricing into modal alternatives both on and off the priced facility that encourage mode shift and VMT reduction per capita consistent with Federal and State law. Examples include, but are not limited to, transit improvements, bicycle and pedestrian improvements, and improvements to local circulation.
4. Identify opportunities to partner with other agencies to fund or construct transit, bike, and pedestrian improvements. Work with transit agencies and other jurisdictional partners, including consideration of opportunities identified in the High Capacity Transit Strategy and Regional Transit Strategy, to determine additional revenue needs and pursue funding needed to develop transit-supportive elements, expand access to transit, and to ensure equitable investments, particularly in cases where such improvements cannot be funded directly by pricing revenues due to revenue restrictions.
5. Consider non-infrastructure opportunities to encourage mode shift and reduce VMT per capita, including commuter credits, funding for transit passes, bikeshare and/or micromobility subsidies, partnerships with employer commuter programs, and carpooling /

vanpooling. Consider higher benefits, subsidies, discounts or exemptions for people with low-income or other qualifying factors based on equity analysis.

Pricing Policy 2. Center equity and affordability into pricing programs and projects from the outset.

The Metro Regional Congestion Pricing Study found that pricing strategies have the potential to help the greater Portland region improve racial equity and benefit marginalized communities. Our current transportation funding system is inequitable. Regressive funding sources such as fixed tax rates and fees disproportionately impact low-income motorists, and negative health impacts from high automobile reliance disproportionately harm Black, Indigenous, and other people of color (BIPOC), federally recognized tribes, and low-income communities.

Pricing programs with an equity framework should aim to increase access to opportunity, provide affordable options, create healthier and safer communities, and reduce income inequality and unemployment. Pricing has the potential to offer a suite of affordability programs, such as rebates, exemptions, or other investments. Reinvestment should be prioritized in areas designated as Metro's Equity Focus Areas most affected by pricing programs.

Policymakers and future project owners and operators should carefully consider how the benefits and costs of pricing impact different geographic and demographic groups. If not conducted thoughtfully, pricing could compound past injustices and harm Black, Indigenous, and other people of color (BIPOC), federally recognized tribes, and low-income communities. By focusing engagement at every step in the process on historically impacted residents, agencies can reduce harm and increase benefits. The policy illustrates how equity can be incorporated into pricing programs.

To implement Policy 2, agencies developing pricing programs or projects should take the following actions:

1. Conduct public engagement in a variety of formats, including formats that accommodate all abilities, all levels of access to technology, and languages other than English. Begin engagement at an early stage and re-engage the public in a meaningful manner at multiple points throughout the process.
2. Engage equity groups, people with low-income, and people of color in a co-creation process, beginning at an early stage, to help shape goals, outcomes, performance metrics, and reinvestment of revenues.
3. Use a consistent methodology across implementing agencies for defining equity groups and equity areas for pricing programs and projects, including but not limited to the methodology used for establishing the Equity Focus Areas. A consistent methodology for documenting benefits and burdens of pricing for equity groups, people with low-income, people of color, and equity areas should also be established across agencies. The methodology should consider a variety of factors, such as implementing agency, costs to the user, travel options, travel time, transit reliability and access, diversion and safety, economic impacts to businesses, noise, access to opportunity, localized impacts to emissions, water and air quality, and visual impacts.

4. Establish feedback mechanisms, a communication plan, and recurring regular engagement over time with the public, and with equity groups that were involved in the co-creation process.
5. Provide a progressive fee structure including elements such as exemptions, credits, or discounts for qualified users. Base eligibility on inclusion in one or more population categories, such as low-income, and minimize barriers to qualification by building on existing programs or partnerships where applicable. Target outreach for enrollment in a discounts, credits, or exemptions in equity areas and communities with higher-than-average shares of people with low income and people of color.
6. Create varied and accessible means of payment and enrollment, including options for people without access to the internet or banking services.
7. Reinvest a portion of revenues from pricing into communities with high proportions of people with low-income and people of color, and/or in Equity Focus Areas, consistent with Federal and State law. Use of these revenues should meet the transportation-related needs identified by the equity communities and people most impacted. Examples include commuter credits and free or discounted transit passes, or improved transit facilities, stops, passenger amenities, and transit priority treatments.
8. Enforcement of pricing and fine structures for non-payment should be designed to reduce the potential for enforcement bias and to minimize burdens on people with low incomes.
9. Create a process to measure how pricing programs achieve the actions items listed above to demonstrate accountability.

Pricing Policy 3. Address traffic safety and the safety of users of all travel modes, both on the priced system and in areas affected by diversion.

The Metro Regional Congestion Pricing Study found that pricing has a strong potential to help the greater Portland region improve safety outcomes and meet the safety priorities outlined in the Regional Transportation Plan. Pricing programs can improve safety by reinvesting revenue into locally supported traffic safety improvements. The study recommends focusing safety improvements on eliminating traffic deaths and serious injuries on city streets, or a Vision Zero approach.

Safety challenges vary greatly across the region. Safety improvements should be assessed at a project scale and built into a pricing programs' definition to ensure that the core of the project addresses these community needs. Detailed project-scale analysis should provide insight into where safety investments are needed and should address any project-related safety concerns. Safety outcomes of a pricing program can be measured by the level of revenue reinvestment in improvements that address fatalities and serious injuries on high injury corridors or roadways.

To implement Pricing Policy 3, agencies developing pricing programs or projects should take the following actions:

1. Collaborate with relevant state, regional, and local agencies and communities when identifying traffic safety impacts and selecting mitigations associated with pricing.

2. Use a data-driven approach to identify potential traffic safety impacts on the priced system and in areas affected by diversion both during and after implementation of pricing programs and projects; monitor with real-time data after implementation.
3. Context-specific monitoring and evaluation programs should be conducted by implementing agencies in coordination with partner agencies and be on-going and transparent. Establish feedback mechanisms, incident resources, and a communication plan in advance for the community and decision makers.
4. Adjust safety strategies in coordination with partner agencies based on monitoring and evaluation findings.
5. Reinvest a portion of revenues on the priced system and in areas affected by diversion to address safety issues caused by pricing programs and projects , consistent with Federal and State law. For example, through investments in transit, bike, and pedestrian improvements, or other investments in known crash reduction factors.
6. Pricing programs and projects should strive to reduce fatalities and serious injuries by aligning with local, state and regional safety and security policies.

Pricing Policy 4. Minimize diversion impacts created by pricing programs and projects prior to implementation and throughout the life of the pricing program or project.

Diversion is the movement of automobile trips from one facility to another because of pricing implementation. All trips that change their route in response to pricing are considered diversion, regardless of length or location of the trip, or whether they divert to or from the priced facility.

The Metro Regional Congestion Pricing Study found that pricing programs have the potential to lead to diversion impacts, as drivers shift from the freeway network to the arterials to avoid charges. Spillover/cut through traffic caused by a pricing program can exacerbate traffic safety concerns along other streets. Project designers should carefully consider the wide distribution of diversion impacts that may result from the program, particularly on regional high injury corridors. Implementing agencies can also look to high injury local streets and intersections for which to prioritize safety improvements. It is important for pricing programs to mitigate the negative impacts of diversion. Diversion onto nearby streets could be addressed with safety or transit improvements, for example. If pricing programs result in successful mode shift to transit, diversion impacts can be lessened.

To implement Pricing Policy 4, agencies developing pricing programs or projects should take the following actions:

1. Collaborate with relevant state, regional, and local agencies and communities when identifying diversion impacts and selecting mitigations associated with pricing.
2. Use a data-driven approach to define and identify diversion impacts both during and after implementation of pricing programs and projects. Following implementation monitor with real-time data.
3. Evaluate localized impacts of diversion including factors such as VMT per capita, VMT per capita in defined equity areas, noise, economic impacts to businesses, and localized

emissions, water quality, air quality, and the completeness of safety infrastructure and non-vehicular modal networks. This should include specific evaluation of diversion impacts in communities with people with low-income and people of color, and/or in Equity Focus Areas.

4. Context-specific monitoring and evaluation programs should be conducted by implementing agencies in coordination with partner agencies and be on-going and transparent. Establish feedback mechanisms and a communication plan in advance for the community and decision makers and ensure reinvestment is still applicable when impacted area changes.
5. Adjust mitigation strategies based on monitoring and evaluation findings. Areas impacted may change as the pricing program is implemented and diversion mitigation strategies are put into place.
6. Reinvest a portion of revenues into areas affected by diversion caused by pricing programs and projects consistent with Federal and State law.

Pricing Policy 5. Reduce greenhouse gas emissions and vehicle miles travelled per capita while increasing access to low-carbon travel options.

The Metro Regional Congestion Pricing Study found that pricing has the potential to help the great Portland region reduce greenhouse gas emissions and achieve Metro's climate goals. All of the scenarios tested in the study showed reductions in greenhouse gas emissions through reducing overall VMT per capita. Pricing policies were found to be effective in encouraging drivers to change their travel behavior such as using more sustainable travel modes like transit, walking, or biking. These changes in behavior are key to reducing greenhouse gas emissions in the region.

Pricing programs should be designed to meet climate goals without adversely impacting safety or equity. Climate improvements can be measured by percent reduction of greenhouse gasses per capita, percent reduction of criteria pollutants and transportation air toxics, percent reduction of vehicle miles traveled per capita, and shifts in travel behavior. Implementing agencies should consider the geographic and demographic distribution of targeted climate improvements, particularly taking into consideration the health impacts of pollutants and transportation air toxics that disproportionately harm Black, Indigenous, and other people of color and low-income communities.

To implement Pricing Policy 5, agencies developing pricing programs or projects should take the following actions:

1. Identify localized air pollutants and greenhouse gas emission impacts due to pricing and identify strategies for mitigation.
2. Set rates for pricing at a level that will reduce greenhouse gas emissions and improve air quality by managing congestion and reducing overall VMT per capita on the priced system and in areas affected by diversion. ORS 383 delegates authority to the Oregon Transportation Commission (OTC) to set pricing rates for state highways in accordance with state legislation.

3. Reinvest a portion of revenues from pricing into modal alternatives both on and off the priced facility consistent with Federal and State law, to reduce overall emissions by encouraging mode shift and VMT per capita reduction, including transit improvements as well as bicycle and pedestrian improvements and improvements to local circulation.
4. Develop and implement pricing so that it addresses and supports the Climate Smart Strategy and regional climate policies, including through the Congestion Management Process (CMP).

Pricing Policy 6. Coordinate technologies and pricing programs and projects to make pricing a low-barrier, seamless experience for everyone who uses the transportation system and to reduce administrative burdens.

The Metro Regional Congestion Pricing Study describes a wide range of technologies available that can be used in pricing programs to create a seamless and low-barrier experience. Programs can use electronic toll collection systems, mobile applications, short-range communication systems embedded in new vehicles, OReGO technologies that wirelessly connect to a vehicle's diagnostic ports, or online portals for self-reporting. The type of technology used will vary depending on the type of pricing program. Metro's study recommends a pilot phase for the region to trial one or more technologies before implementing a region-wide system.

There are several considerations to be taken when using technology in the implementation of a pricing program. First, emerging technologies can be more expensive than existing ones, yet existing technologies run the risk of becoming obsolete sooner. Second, some technologies (such as tolling systems) require a physical footprint that can take up limited physical space and create a visual aesthetic impact that may need design commission approval in some parts of the city. Further, technologies such as mobile apps or online portals that require users to take an action will likely be less accurate and reliable than automatic technologies. These technologies may also unfairly burden low-income travelers that do not have access to a mobile phone, computer, internet, or banking system. Technologies that enhance user experience while limiting barriers to use should be prioritized. Project designers should also consider a program's compatibility with existing pricing technologies used in the region (such as the Hop regional transit fare program or existing parking payment systems).

To implement Policy 6, agencies developing pricing programs or projects should take the following actions:

1. Coordinate technologies and user-friendly designs across pricing programs and projects to reduce burdens on the user and manage the system efficiently, including setting rates, identifying tolling technology and payment systems, and establishing discounts and exemptions.
2. Create varied and accessible means of payment and enrollment, including options for people without access to the internet or banking services.
3. Consider the upfront costs of technology investment balanced with long-term operational and replacement costs compared with expected revenue generation.

3.2.6 Mobility Policies

Within the greater Portland region, the State of Oregon and Metro have a shared goal of providing mobility such that people and businesses can safely, affordably, and efficiently reach the goods, services, places, and opportunities they need to thrive by a variety of seamless and well-connected travel options and services that are welcoming, convenient, comfortable, and reliable.

3.2.5.1 Mobility policy outcomes and policies

The mobility policy is intended to achieve the following outcomes identified by policymakers and stakeholders as critical to guide how transportation agencies plan for, manage, and operate the transportation system.

Policy outcomes

- **Equity – Black, Indigenous and people of color (BIPOC) community members, federally recognized tribes, and people with low incomes, youth, older adults, people living with disabilities and other marginalized and underserved communities experience equitable mobility.** BIPOC, federally recognized tribes, and other marginalized communities have often experienced disproportionately negative impacts from transportation infrastructure as well as disparities in access to safe multimodal travel options. Addressing these disparities is a priority for ODOT and Metro.

The regional transportation system should support access to opportunities for everyone, not just people in motor vehicles. Equity can be enhanced through providing strong multimodal networks with priority provided to improvements benefitting marginalized and underserved communities.

- **Efficiency - Land use and transportation decisions and investments contribute to more efficient use of the transportation system meaning that trips are shorter and can be completed by more travel modes, reducing space and resources dedicated to transportation.** Efficiency in this context means that transportation requires less space and resources. Efficiency can be improved by shortening travel distances between destinations. Shorter travel distances to destinations enhance the viability of using other and more efficient modes of transportation than the automobile and preserves roadway capacity for transit, freight and goods movement by truck and for longer trips. Efficiently using land and planning for key destinations in proximity to the where people live and work, contributes to shorter trip lengths. The transportation efficiency of existing and proposed land use patterns and transportation systems can be measured by looking at "vehicle miles traveled (VMT) per

capita" for home-based trips or "VMT per employee" for commute trips to/from work of an area.

- **Access and Options -People and businesses can conveniently and affordably reach the goods, services, places, and opportunities they need to thrive. People and businesses can choose from a variety of seamless and well-connected travel modes and services that easily get them where they need to go.** The viability of trips made by modes other than automobiles can be increased by investing in a connected, multimodal transportation system. Multimodal systems serve all people, not just those who have access to vehicles or the ability to drive them, and provide more route choices, increase safety and efficiency, and increase reliability. Closing gaps in networks, particularly pedestrian and bicycle networks, and closing special and temporal gaps in transit networks, can change travel preferences, reducing VMT/capita. Progress towards well connected, multimodal networks can be measured by mode with "system completeness."
- **Safety - People are able to travel safely and comfortably and feel welcome.** Unsafe transportation facilities can result in injury and loss of life and place a strain on emergency responders. Both unsafe conditions and perceived unsafe conditions can impact travel behavior, causing users to choose different routes or modes. Prioritizing investments that reduce the likelihood of future crashes and that improve safety and comfort for all users will increase mode choices and improve reliability. System completeness by travel mode is useful in identifying needs and investments that could enhance safety and comfort.
- **Reliability - People and businesses can count on the transportation system to travel where they need to go reliably and in a reasonable amount of time**. In a reliable transportation system, all users, including people in automobiles and using transit, can reasonably predict travel time to their destinations. Reliability is impacted by travel conditions, safety, street connectivity, congestion, and availability of travel options. Investments in safety, street connectivity, transit, transportation system management and operations (TSMO), and demand management can yield significant benefits for managing congestion and increasing reliability for all travelers. System completeness can be used as a measure of the availability of reliable travel options, including walking and biking. Average travel speed can be used as a measure to forecast areas of congestion including looking at the number of hours a facility is congested and the percentage of a facility that is congested for multiple hours per day. Average travel speed can also be used to look at total travel time between origin-destination pairs and identify bottlenecks that are most impacting reliability on key travel routes for vehicle modes, including freight and transit.

  For Throughways, the essential function is throughput and mobility for motor vehicle travel, including transit and freight vehicles, to maximize movement of people and goods. Throughways serve interregional and interstate trips and travel times are an important factor in people and businesses being able to make long-distance trips to and through the region and access destinations of regional and statewide significance in a reasonable and reliable amount of time.

For most Arterials, depending upon the street design classification and freight network classification, the essential functions are transit, bicycle and pedestrian travel and access, while balancing motor vehicle travel and the many other functions of arterials in intensely developed areas. Transit reliability on arterials can be improved with exclusive bus lanes, signal priority and other TSMO strategies. Improving automobile reliability through additional roadway capacity should follow the region's congestion management process and not come at the expense of non-motorized modes and achieving system completeness consistent with modal or design classifications in the Regional Transportation Plan (RTP) or achieving the VMT/capita target for the region or the jurisdiction.

Within the greater Portland region, the State of Oregon and Metro have a shared goal of providing mobility such that people and businesses can safely, affordably, and efficiently reach the goods, services, places, and opportunities they need to thrive by a variety of seamless and well-connected travel options and services that are welcoming, convenient, comfortable, and reliable.

The following policies aim to achieve these outcomes.

Mobility Policy 1	**Ensure that land use decisions and investments in the transportation system enhance efficiency in how people and goods travel to where they need to go.**
Mobility Policy 2	**Provide people and businesses a variety of seamless and well-connected travel modes and services that increase connectivity, travel choices and access to low carbon transportation options so that people and businesses can conveniently and affordably reach the goods, services, places and opportunities they need to thrive.**
Mobility Policy 3	**Create a reliable transportation system that people, and businesses can count on to reach destinations in a predictable and reasonable amount of time.**
Mobility Policy 4	**Prioritize the safety and comfort of travelers by all travel modes when planning and implementing mobility solutions.**
Mobility Policy 5	**Prioritize investments that ensure that Black, Indigenous and people of color (BIPOC) community members, federally recognized tribes, and people with low incomes, youth, older adults, people living with disabilities and other marginalized and underserved populations have equitable access to safe, reliable, affordable, and convenient travel choices that connect to key destinations.**
Mobility Policy 6	**Use mobility performance targets and thresholds for system planning and evaluating the impacts of plan amendments including: Vehicle Miles Travelled (VMT) per capita for home-based trips, VMT/employee for commute trips to/from work, system completeness for all travel modes, and travel speed reliability on the throughways.**

The Regional Mobility Policies apply to:

- the state highway system within the greater Portland region for:
    - identifying state highway mobility needs and solutions during system planning and plan implementation; and
    - evaluating the impacts on state highways of amendments to transportation system plans, acknowledged comprehensive plans and land use regulations pursuant to the Transportation Planning Rule (OAR 660-12-0060).
- throughways and arterials designated in the Regional Transportation Plan (RTP), which include state and local jurisdiction facilities, for identifying mobility needs and solutions during system planning and plan implementation.

Under this policy, Oregon Highway Plan volume-to-capacity ratio targets still guide operations decisions such as managing access and traffic control systems and can be used to identify intersection improvements that would help reduce delay, improve the corridor average travel speed, and improve safety. Local jurisdiction standards for their facilities still apply for evaluating impacts of amendments to transportation system plans, acknowledged comprehensive plans and land use regulations pursuant to the Transportation Planning Rule (OAR 660-12-0060) and guiding operations decisions.

Three performance targets and thresholds as described in Table 3-5 will be used to assess the adequacy of mobility in the Portland metropolitan area for the regional networks based on the expectations for each facility type, location, and function. These measures will be the initial tools to identify mobility gaps and deficiencies (needs) and consider solutions to address identified mobility needs. The subsequent actions describe how to apply these measures to system planning consistent with OAR 660-012, Sections 3.08.220 and 3.08.510 of the Regional Transportation Functional Plan (RTFP) and OHP Policy 1.G and assessing plan amendment consistent with OAR 660-012-0060.

Table 3-5 Mobility performance targets and thresholds

Measure	Application	Target
VMT/Capita for home-based trips and VMT/Employee for commute trips to/from work	System Planning	OAR 660 Division 44 (Metropolitan Greenhouse Gas (GHG) Emissions Reduction rule)) and OAR 660 Division 12 set VMT/capita reduction targets with which the 2023 RTP update and local TSPs will need to comply. The VMT/capita targets are: 20% reduction by 2035, 25% reduction by 2040, 30% reduction by 2045 and 35% reduction by 2050 (from 2005 levels). (a) The 2023 RTP and TSPs that meet this regional target will establish 2045 baseline VMT/capita and VMT/employee. All subsequent applications of this policy shall not increase VMT/capita or VMT/employee above the future baseline.
	Plan Amendments (b)	The plan amendment will have equal to or lower forecast VMT/capita for home-based trips and equal to or lower forecast

Measure	Application	Target	
		VMT/employee for commute trips to/from work than the District target.(c)	
System Completeness	System Planning	Complete networks and systems for walking, biking, transit, vehicles, freight, and implement strategies for managing the transportation system and travel demand (See Table 3 for guidance and Table 4 for completeness elements by facility type).[12] (The planned system, Strategic and Financially Constrained, will be defined in local jurisdiction TSPs and may not achieve completeness for all modes to target levels but the local jurisdiction TSP should identify future intent for all facilities given constraints and tradeoffs.)	
	Plan Amendments	100% of planned system Or Reduced gaps and deficiencies (See Table 5[13] for guidance)	
Travel Speed		RTP Motor Vehicle Designation	Thresholds (f)
	System Planning (d)	Throughways – Expressways (e) I-205 I-84 I-5 OR 217 US 26 (west of I-405) I-405 OR 213 from Beavercreek Road to I-205 OR 212-Sunrise Expressway	Average speed not below 35 mph for more than 4 hours per day
		Throughways – Non-Expressways (e) OR 99W west of Sherwood OR 99E Portland to OR 212 OR 99E from south of Oregon City OR 213 south of Beavercreek Rd US 30 OR 47 OR 224 OR 212 US 26 south of OR 212	Average speed not below 20 mph for more than 4 hours per day
	Plan Amendments	Same as system planning	Same as system planning

Table notes:

[12] See Tables on pages 10-11 of the Memo "Draft Regional Mobility Policy for the 2023 Regional Transportation Plan (10/28/22)" https://www.oregonmetro.gov/sites/default/files/2022/12/08/Draft-2023-Regional-mobility-policy-2023-RTP-10-28-2022.pdf Tables will be added to Appendix V in the final RTP

[13] See Table on page 19 of the Memo "Draft Regional Mobility Policy for the 2023 Regional Transportation Plan (10/28/22)" https://www.oregonmetro.gov/sites/default/files/2022/12/08/Draft-2023-Regional-mobility-policy-2023-RTP-10-28-2022.pdf Tables will be added to Appendix V in the final RTP

[a] Meeting these targets sets the region on a trajectory to meet state goals adopted in 2007 to reduce total GHG emissions from all sources to 75% below 1990 levels by 2050.

[b] Plan amendments that meet this target shall be found to not have a significant impact pursuant to the Transportation Planning Rule (OAR 660-12-0060).

[c] Metro will develop maps and/or tables and analyses of how VMT per capita and VMT and per employee and how it is distributed throughout the region. Metro will establish VMT/capita "Districts" that identify TAZ groupings (subareas) with similar land use characteristics and forecast VMT/Capita. A spreadsheet or similar tool will be developed to help assess potential changes to VMT/capita and VMT/employee and potential mitigations to minimize the need for application of the regional travel demand model for all plan amendments.

[d] Addressing motor vehicle congestion through additional throughway capacity should follow the RTP congestion management process, Sections 3.08.220 and 3.08.510 of the Regional Transportation Functional Plan and OHP Policy 1G, and should not come at the expense of achieving system completeness for non-motorized modes consistent with regional modal or design classifications or achieving the VMT/capita target for the region or jurisdiction.

[e] Throughways are designated in the Regional Transportation Plan and generally correspond to Expressways designated in the Oregon Highway Plan. Some throughways designated in the RTP are not Expressways in the Oregon Highway Plan but serve an important statewide function.

[f] The thresholds are used to identify areas of poor reliability where due to recurring congestion, average travel speeds drop below specified speed and duration thresholds. It will be used as a threshold to identify needs (deficiencies). It will not be applied as a standard that creates conflict with meeting OAR 660 Division 44 VMT per capita reduction targets. Solutions to address identified needs should follow the RTP congestion management process, Sections 3.08.220 and 3.08.510 of the Regional Transportation Functional Plan and OHP Policy 1G, and should not come at the expense of achieving system completeness for non-motorized modes consistent with regional modal or design classifications or achieving the VMT/capita target for the region or jurisdiction.

How do the measures work together?

Vehicle miles traveled (VMT)/capita will be a controlling measure in both system planning and plan amendments to ensure that the planned transportation system and changes to the system support reduced VMT/capita by providing travel options that are complete and connected and that changes to land use reduce the overall need to drive from a regional perspective and are supportive of travel options.

- For system planning, the final planned system must support OAR 660 Division 44 (Metropolitan Greenhouse Gas (GHG) Emissions Reduction rule) and OAR 660 Division 12 VMT reduction targets.
- For plan amendments, VMT/capita will be used to determine if the proposed plan amendment has a significant impact on regional VMT/capita that needs to be mitigated or not.

System completeness and travel speed reliability on throughways are secondary measures that will be used to identify needs and inform the development of the planned system. The policy requires that TSPs define the planned system for each mode using a variety of guidance documents. Additional RTP and state policies also guide the development of individual modal systems. It is important to note that the Regional Mobility Policy is one of many policies that

inform the development of the Regional Transportation Plan and local transportation system plans in the Portland region.

The regional and local "planned" system may not achieve completeness for all modes but should identify future needs and expectations for all facilities given constraints and tradeoffs. Similarly, reliability on throughways will inform state and regional needs of the throughway system as defined in in Table 3-5. . Identifying solutions for locations that do not meet the throughways travel speed reliability threshold shall follow the RTP congestion management process[14] and OHP Policy 1G[15], and should not come at the expense of achieving the VMT/capita target.

3.2.5.2 Mobility policy system planning actions

A planned system that can be used to review system completeness is the primary outcome of system planning. VMT/capita and travel speed on throughways are applied to system planning to support the identification of the planned system and transportation needs. The Regional Mobility Policy does not dictate how Metro or local agencies conduct system planning. It is one tool to be used to identify needs and define the planned system. System planning includes updates to long-range transportation plans, including the Regional Transportation Plan and locally adopted transportation system plans. System planning also includes planning for the transportation system in smaller geographies through ODOT facility plans, corridor refinement plans as defined in the Regional Transportation Plan (RTP) and OAR 660-012, and area plans, including concept plans for designated urban reserve areas. The following actions describe how each of the performance targets shall be used in tandem in system planning, which is supported by the flow chart in Figure 3-8.

1. Division 44 GHG Emissions Reduction Rule) and OAR 660 Division 12 (Transportation Planning Rule) set a VMT/capita reduction target for the Portland metropolitan area.[16] The 2023 RTP will identify the strategies needed to achieve this target and result in 2045 baseline VMT/capita for the region. This future baseline shall be used to estimate future VMT/capita for home-based trips and VMT/employee for commute trips to/from work at the TAZ level. The TAZ data shall be aggregated to develop "Districts" [17]with similar land use and VMT characteristics by Metro through the 2023 RTP update and implementation process. The percent change in VMT/capita for the region must meet the reduction target

[14] Section 3.3.4 of the RTP states that "The RTP calls for implementing system and demand management strategies and other strategies prior to building new motor vehicle capacity, consistent with the Federal Congestion Management Process (CMP) and Oregon Transportation Plan policies (including Oregon Highway Plan Policy 1G) . Appendix L to the RTP provides more detailed information. Sections 3.08.220 and 3.08.510 of the Regional Transportation Functional Plan (RTFP) further direct how Transportation System Plans implement the CMP.

[15] Policy 1G (Major Improvements) has the purpose of maintaining highway performance and improving highway safety by improving system efficiency and management before adding capacity.

[16] The Division 44 VMT reduction targets cannot currently be measured using Metro's Regional Travel Demand Model (RTDM); however, baselines for VMT/capita for home-based trips and VMT/employee for commute trips to/from work can be established from the RTDM for the RTP scenario that meet the Division 44 VMT reduction targets as measured via a different tool.

[17] VMT/capita "Districts" will be established that identify TAZ groupings (subareas) with similar forecast VMT/capita, considering use of RTP mobility corridor geographies as a starting point.

in Division 44 (GHG Emissions Reduction Rule), but the percent change in VMT/capita for each district will vary.

2. For system planning at the sub-regional, local jurisdiction (TSPs), or subarea levels, VMT/capita for home-based trips and VMT/employee for commute trips to/from work shall be measured for the "Districts" covering the plan area to ensure that land use and transportation plan changes are working in tandem to achieve the region's VMT/capita reduction target, resulting in reduced need to drive, improved viability of using other and more efficient modes of transportation than the automobile, and preserving roadway capacity for transit, freight and movement of goods and services. At the first major TSP update after this policy is implemented, system plans shall demonstrate that the planned transportation system achieves the regional OAR 660 Division 44 (GHG Emissions Reduction Rule) and OAR 660 Division 12 (Transportation Planning Rule) targets and that future system plan updates maintain or reduce aggregate VMT/capita for home-based trips and VMT/employee for commute trips to/from work for the "Districts" in the plan area compared to the 2045 baseline set in the 2023 RTP. Projections of VMT/capita must incorporate the best available science on latent and induced travel of additional roadway capacity consistent with OAR 660-012-0160. If a TSP's financially constrained list does not include any projects requiring review in OAR 660-012-0830, VMT per capita analysis work in OAR 660-012-0160(2)-(4) is not required.

3. System completeness definitions in guidance documents shall be used to identify needs and ensure that the planned transportation system is increasing connectivity and improving safety of the multimodal network. The planned system shall be established in local transportation system plans consistent with the RTP and Regional Transportation Functional Plan (RTFP) for each facility and will vary based on the modal functional classification and design classification. Table 3[18] provides guidance for defining the planned system and Table 4[19] identifies the elements that must be identified for each facility or service type.

4. Reliability for throughways based on average travel speed thresholds in Table 3-5 shall be used to assess performance of throughway facilities within the system planning study area for safe, efficient, and reliable speeds. Thresholds reflect a minimum average travel speed that shall be maintained for a specific number of hours per day, recognizing that the threshold average speed is not likely to be met during a number of peak hours, as described in Table 3-5. The percentage of the throughway system meeting the target may

[18] See pg. 10 of the Memo "Draft Regional Mobility Policy for the 2023 Regional Transportation Plan (10/28/22)" https://www.oregonmetro.gov/sites/default/files/2022/12/08/Draft-2023-Regional-mobility-policy-2023-RTP-10-28-2022.pdf Tables will be added to Appendix V in the final RTP

[19] See pg. 11 of the Memo "Draft Regional Mobility Policy for the 2023 Regional Transportation Plan (10/28/22)" https://www.oregonmetro.gov/sites/default/files/2022/12/08/Draft-2023-Regional-mobility-policy-2023-RTP-10-28-2022.pdf Tables will be added to Appendix V in the final RTP

also be considered. These thresholds shall inform identification of transportation needs and consideration of system and demand management strategies and other strategies[20] but shall not be used as standards at the expense of non-motorized modes and achieving system completeness for other modes consistent with regional modal or design classifications or achieving the VMT/capita target for the region or jurisdiction. Analysis segmentation of facilities within the study area will be determined based on the analysis software or modeling tool utilized.[21] Projections of VMT/capita must incorporate the best available science on latent and induced travel of additional roadway capacity.

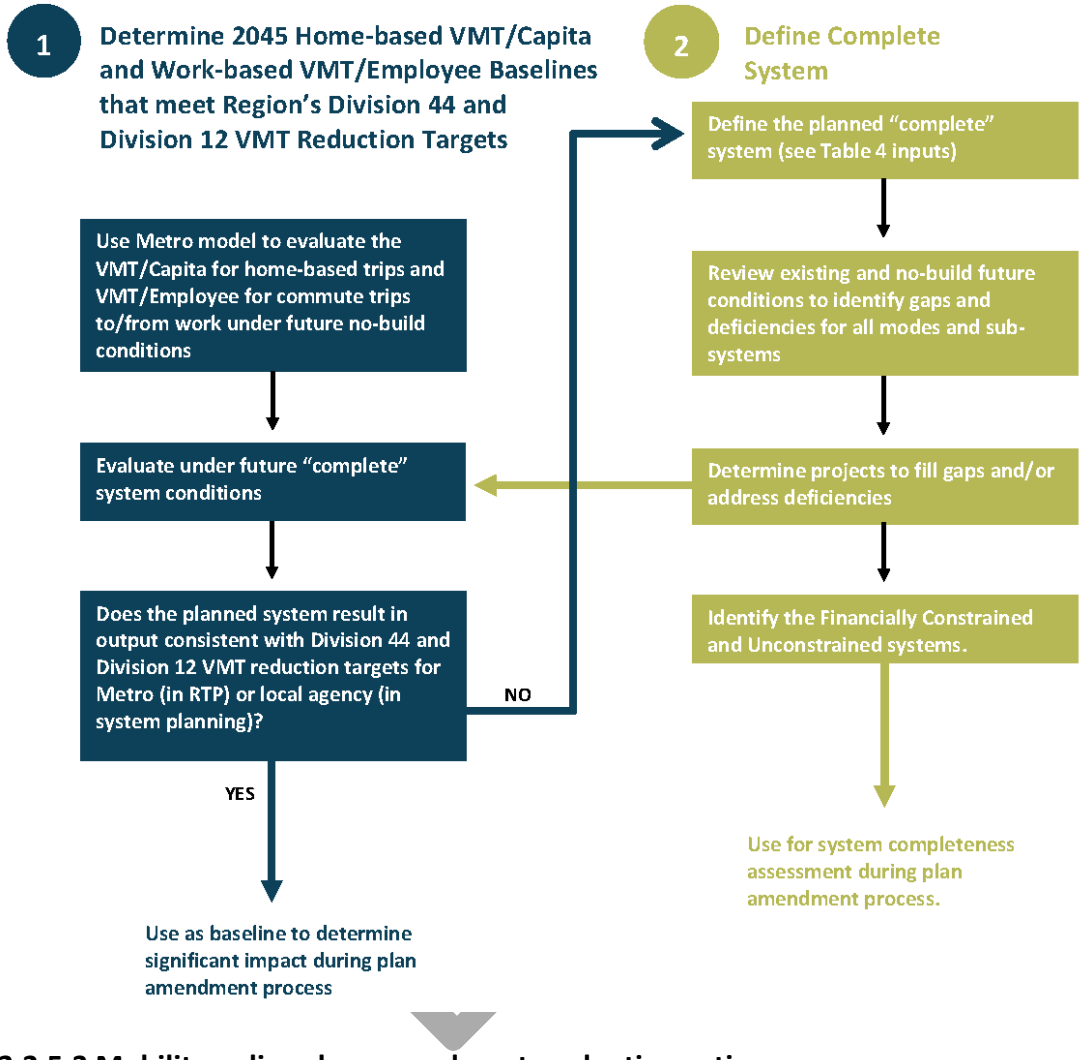
5. Interchanges shall be managed to maintain safe, efficient, and reliable operation of the mainline for longer trips of regional or statewide purpose through the interchange area. The main objective is to avoid the formation of traffic queues on off-ramps which back up into the portions of the ramps needed for safe deceleration from mainline speeds or onto the mainline itself. This is a significant traffic safety and operational concern as queues impact mainline operations and crashes affecting reliability. Deceleration space for vehicles exiting throughway mainlines can be improved by managing throughways for longer trips resulting in reducing off-ramp traffic volumes and by increasing capacity at the off-ramp terminal. Throughway off-ramp terminal intersection and deceleration needs shall be evaluated through system plans such as Interchange Area Management Plans, Corridor Plans, and Sub-area Plans.

6. In system plans, when identifying transportation needs and prioritizing investments and strategies, projects that create greater equity and reduce disparities between “Equity Focus Areas" and “Non-Equity Focus Areas” shall be prioritized. This action aims to improve equitable outcomes by burdening underserved populations less than and benefiting underserved populations as much or more as the study area population as a whole. Because the Equity Focus Areas as defined by the RTP are based on a regional average comparison, local governments shall conduct a more specific equity analysis at the local TSP scale consistent with OAR 660-012-0135.

[20] The RTP system sizing policies, regional congestion management process and OHP Policy 1F will be followed to determine mitigations that support meeting the throughway travel speed threshold.

[21] Supporting documentation will be needed as part of implementation of the policy to define the segmentation methodologies based on analysis options.

Figure 3-8 System Planning Process Utilizing the Mobility Policy Measures



3.2.5.3 Mobility policy plan amendment evaluation actions

All three of the mobility policy measures are applied to the evaluation of plan amendments. The following actions describe how each of the mobility targets and thresholds shall be used in tandem in evaluating plan amendments consistent with the Transportation Planning Rule (OAR 660-012-0060) and is supported by the flowchart in Figure 3-9.

1. Comprehensive plan amendments that do not surpass the trip generation thresholds in the Oregon Highway Plan Policy 1F will be found to have no significant impact and are not required to further evaluate VMT/capita, hours of congestion travel speed on Throughways, or system completeness.

2. In a jurisdiction with a TSP that has demonstrated compliance with achieving the region's Division 44 and Division 12 VMT reduction targets, comprehensive plan amendments that are forecast to maintain or lower VMT/capita for home-based trips and VMT/employee for commute trips to/from work compared to their 2045 baseline that achieve Division 44 targets, shall be found to have no significant impact consistent with the Transportation Planning Rule (OAR 660-12-0060)

3. Comprehensive plan amendments that have a significant impact because they a) increase VMT/capita for home-based trips or VMT/employee for commute trips to/from work or b) the jurisdiction has not demonstrated compliance with OAR 660 Division 44 and Division 12 VMT reduction targets shall mitigate that impact by adjusting their land use plan, supporting VMT/capita reduction through enhancing non-vehicular modes beyond what's in the financially constrained transportation system plan, and/or committing to transportation demand management. Enhancing non-vehicular modes means increasing system completeness for non-vehicular modes within the impact area of the plan amendment for those modes. Within the impact area, the system gaps will be identified based on the planned system in the TSP.

4. Large scale, typically legislative plan amendments will be obligated to develop a funding plan that will address the system gaps and bring additional projects that support VMT/capita reduction into the financially constrained transportation system plan and that help the district meet their VMT/capita target or mitigate the safety impacts of additional vehicle trips. In addition to addressing system completeness, a large plan amendment that is found have a significant impact on VMT/capita that cannot be mitigated will be required to review the impact of the plan amendment on meeting the travel speed on Throughways threshold and mitigate the impact. Addressing the impact of the plan amendment on throughways shall follow the RTP congestion management process, Sections 3.08.220 and 3.08.510 of the Regional Transportation Functional Plan and OHP Policy 1G and shall not come at the expense of achieving the VMT/capita target for the region.

5. Small scale, typically quasi-judicial plan amendments will need to demonstrate their proportionate impact on increased VMT/capita in the district and agree to conditions on the plan amendment or future conditions of development approval consistent with the local jurisdiction development code and project funding mechanisms to support reduced VMT/capita such as land use, transportation demand management, and/or off-site mitigations to support VMT reduction or mitigate safety impacts of additional trips.

6. System completeness assessment of comprehensive plan amendments shall identify the needs to meet the planned system for each mode, as established in regional and/or local system plans. For each mode, the completeness impact area will be defined based on routing from the comprehensive plan amendment site for the specified distances in Table

5 [22]. Table 5 [23] provides guidance for identifying the needs within each modal completeness impact area. For the comprehensive plan amendment, a proportional share of additional projects in the unconstrained transportation system plan, not included financially constrained transportation system plan, will be established based on additional daily trips for the plan amendment for both multi-modal trips as well as the vehicular trips for which the increased VMT/capita is being mitigated, as described in Figure 3-9.

7. Comprehensive plan amendments that demonstrate either of the following for analysis segments within the vehicular impact area shall be found to require mitigation, and a proportional share of the identified needs will be established for the comprehensive plan amendment based on additional daily trips:

    a. Degrades the travel speed of an existing or planned throughway such that it would not meet the performance target identified Table 3-5; or

    b. Degrades the travel speed of an existing or planned throughway that is otherwise projected to not meet the performance standards identified in Table 3-5.

8. Interchanges within the vehicular impact area shall be assessed for off-ramp queuing to maintain safe, efficient and reliable operation of the mainline for longer trips of regional or statewide purpose through the interchange area under the forecast comprehensive plan amendment.

[22] See pg. 19 of the Memo "Draft Regional Mobility Policy for the 2023 Regional Transportation Plan (10/28/22)" https://www.oregonmetro.gov/sites/default/files/2022/12/08/Draft-2023-Regional-mobility-policy-2023-RTP-10-28-2022.pdf Tables will be added to Appendix V in the final RTP

[23] See pg. 19 of the Memo "Draft Regional Mobility Policy for the 2023 Regional Transportation Plan (10/28/22)" https://www.oregonmetro.gov/sites/default/files/2022/12/08/Draft-2023-Regional-mobility-policy-2023-RTP-10-28-2022.pdf Tables will be added to Appendix V in the final RTP

Figure 3-9 Guidance for Assessing Plan Amendment Impacts

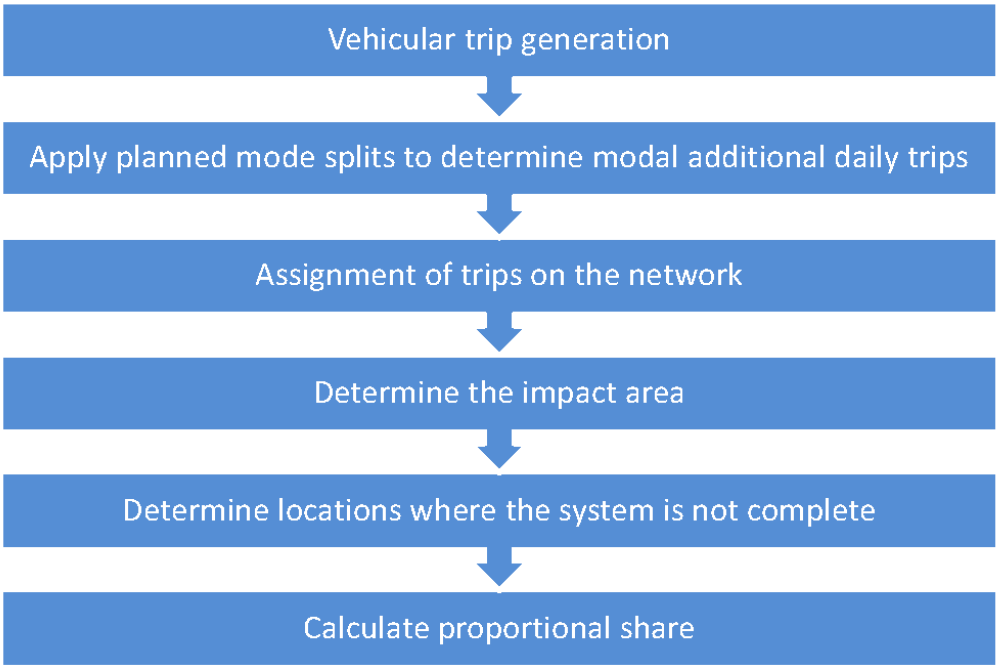
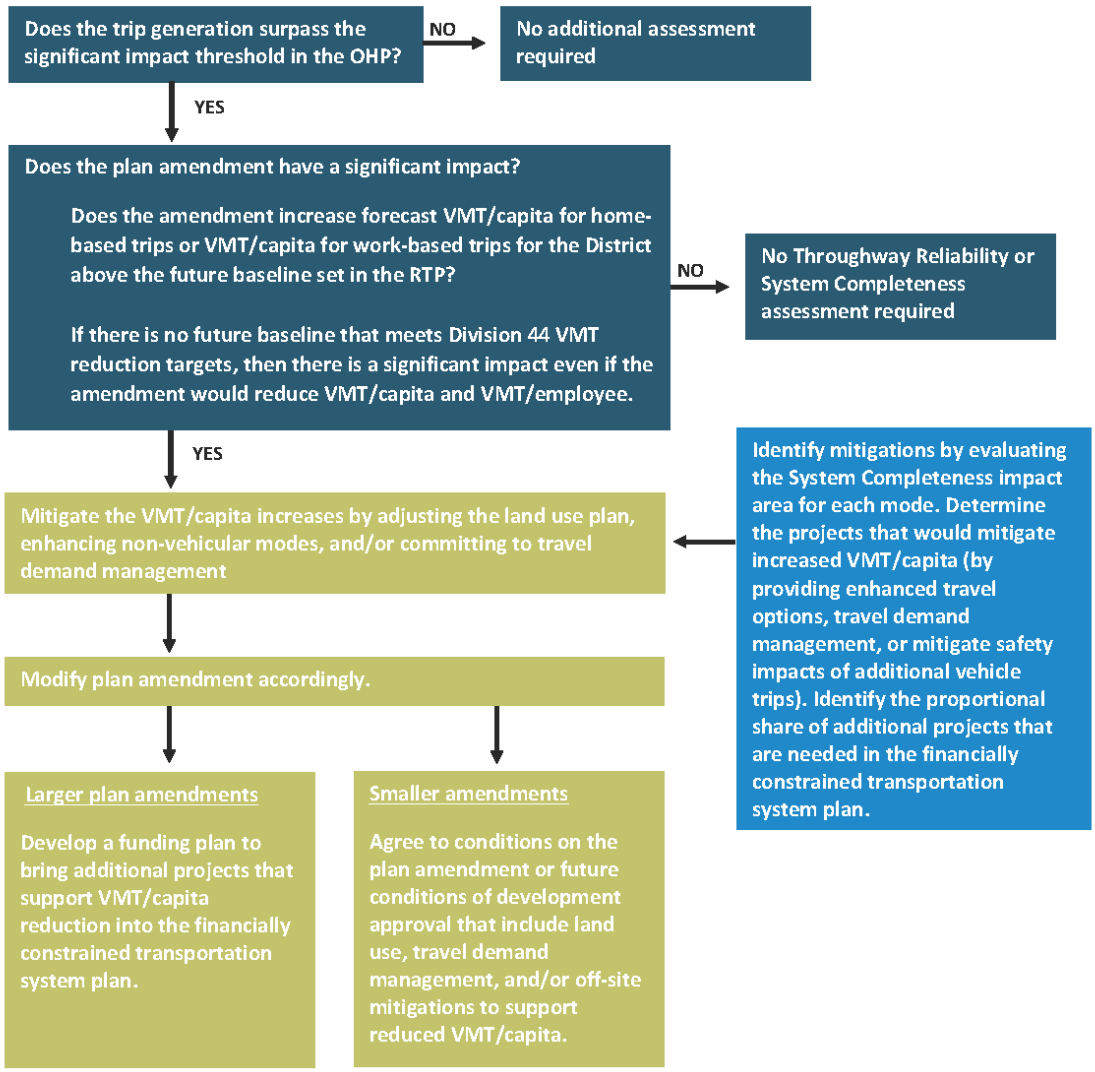


Figure Note: Vehicular trip generation with planned mode splits will be used until or unless mode specific trip generation resources become available.

Figure 3-10 Plan Amendment Process Utilizing the Mobility Policy Measures



3.3 REGIONAL NETWORK VISIONS, CONCEPTS AND POLICIES

This section describes a network vision, concept and supporting policies for each component of the regional transportation system. The network vision, concepts and policies represent a complete urban transportation system that meets the plan goals and supports local aspirations for growth.

Rendering of a Regional Street showing a four-lane street with a planted median, crosswalks, and buildings. One lane in each direction is a bus only lane. There is a bus and four cars. A painted green bikeway and sidewalk are separated from the roadway by a planted median. People are walking and crossing the street. Source: Metro Designing Livable Streets and Trails Guide

The network visions, concepts and policies provide define a seamless and well-connected regional system of regional throughways and arterial streets, freight networks, transit networks and services and bicycle and pedestrian facilities. The network policies emphasize safety, access, mobility and reliability for people and goods and recognize the community-building and placemaking role of transportation. The network visions, concepts and supporting policies will guide the development, design, and management of different networks of the regional transportation system. The transportation system components are shown in Figure 3-11.

Click on 2023 RTP Network Maps for an online zoomable version of each map. [LINK TO BE ADDED]

Figure 3-11 Regional transportation system components

3.3.1 Regional mobility corridor concept

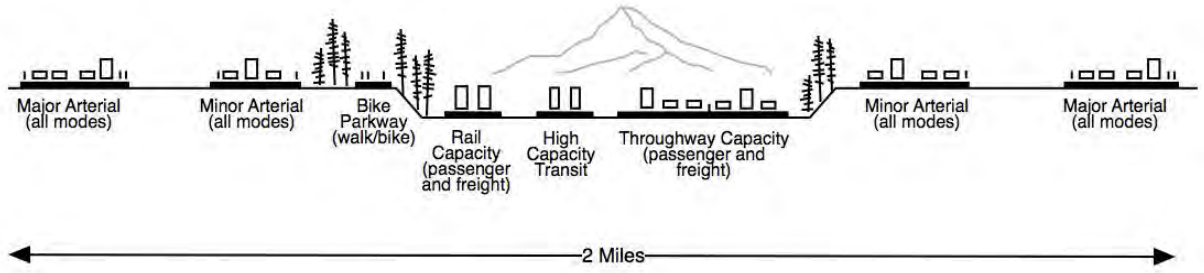
The regional mobility corridor concept envisions regional travel corridors defined by a central throughway and high capacity transit well supported by a network of arterial streets, frequent bus routes, freight/passenger rail and bicycle parkways to provide for regional, statewide and interstate travel. The function of this system of integrated transportation corridors is metropolitan mobility – moving people and goods between different parts of the region and connecting the region with the rest of the state and beyond. Mobility corridors also have a significant influence on the development and function of the land uses they serve. Mobility corridors are defined by the major centers of the 2040 Growth Concept. The regional mobility corridor concept calls for the consideration of parallel and interconnected facilities, different

travel modes, and land use when identifying needs and solutions to improve mobility within a corridor. The concept of a regional mobility corridor is shown in Figure 3-12.

Since the 1980s, regional mobility corridors have had throughway travel supplemented by high capacity transit service that provides an important passenger alternative. Parallel arterial streets, heavy rail, bus service, bicycle parkways and pedestrian/bicycle connections to transit also provide additional capacity in the regional mobility corridors. The full array of regional mobility corridor facilities should be considered in conjunction with the parallel throughways for system evaluation and monitoring, system and demand management and phasing of physical investments in the individual facilities. Bicycle and pedestrian travel and access to transit are also important as we plan and invest in regional throughways and arterial streets. New throughway and arterial facilities, such as freeway interchanges or widened arterial streets, should be designed and constructed in such a manner as to support bicycling, walking and access to transit.

The Mobility Corridor Strategies provided in the Appendix provides a summary of the 24 corridors, describing facilities, functions, land uses, and documenting transportation needs and strategies for addressing them. Updates to these strategies will be informed by the Regional Mobility Policy update described in Chapter 8.

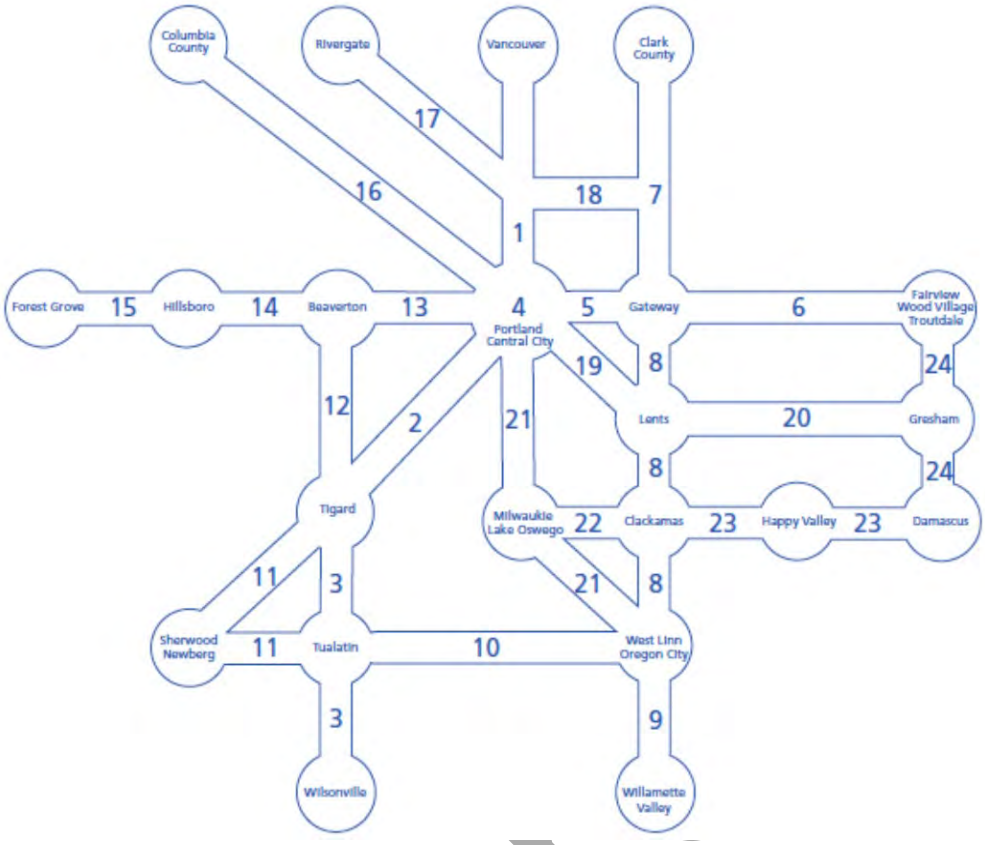
Figure 3-12 Regional mobility corridor concept



Note: Idealized concept for illustrative purposes showing recommended range of system analysis for the evaluation, monitoring, management and phasing of investments to throughways, arterial streets and transit service in the broader corridor. The illustration is modeled after the Banfield corridor that links the Portland central city to the Gateway regional center.

Figure 3-13 shows the general location of mobility corridors in the region.

Figure 3-13 Mobility corridors in the Portland metropolitan region

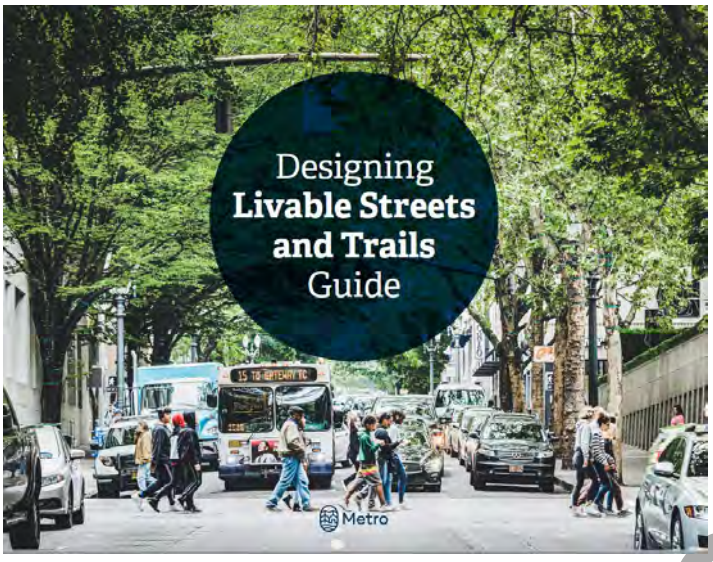


3.3.2 Regional Design and Placemaking Vision and Policies

Over the next several decades, the challenges faced by communities in greater Portland and the burdens placed upon the transportation network will multiply in number and complexity. Greenhouse gas emissions from motor vehicles and serious traffic crashes are two of the most pressing transportation issues; addressing them will require a transportation system designed to serve multiple travel modes, especially public transit, walking, and bicycling. Additionally, streets and trails must function not only as corridors for moving people, goods and services, but also as stormwater management facilities, community gathering spots and public spaces to enhance community livability.

The regional transportation system design classifications and policies in this section address federal, state and regional transportation planning mandates and support implementation of the 2040 Growth Concept.

Figure 3-14 Metro's Designing Livable Streets and Trails Guide[24]



Metro's Designing Livable Streets and Trails Guide provides design guidance depending on the intended functions of the arterial or throughway, the land uses the facility serves and adopted policy. In the design guidance, consideration is given to various arterial designs, designs for freight, trails, pedestrians, bicyclists and transit and the link between street design and stormwater management.[25] Design decisions, especially trade-offs in situations of limited road right-of-way, should use performance-based design and flexibility in design to achieve desired outcomes.

The purpose of the Guide is to support implementation of the 2040 Growth Concept and the Regional Transportation Plan. Along with other local and regional plans and policies, this Guide is a resource for the agencies responsible for designing, constructing, and maintaining the region's transportation system. Metro intends the design guidance to assist in designing new and reconstructed streets and trails but may also be applied to maintenance projects that preserve and extend the service life of existing streets and structures when minor retrofits are needed.

[24] Metro's Designing Livable Streets and Trails Guide complements existing national, state and local requirements and guidelines, and its recommendations are allowable under national guidance, including guidelines developed by the American Association of State Highway and Transportation Officials, the Federal Highway Administration and the National Association of City Transportation Officials. The Designing Livable Streets and Trails Guide has been developed based on current design guidance, case studies, best practices for urban environments, research and evaluation of existing designs, and professional review and input. It integrates design guidance for regional streets, regional trails, stormwater management and Greenstreet treatments into one guide to encourage a holistic and comprehensive approach to designing a complete transportation system.

25 Find regional design guidelines and other resources here: https://www.oregonmetro.gov/tools-partners/guides-and-tools/guidelines-designing-livable-streets-and-trails

3.3.1 Design and complete streets policies

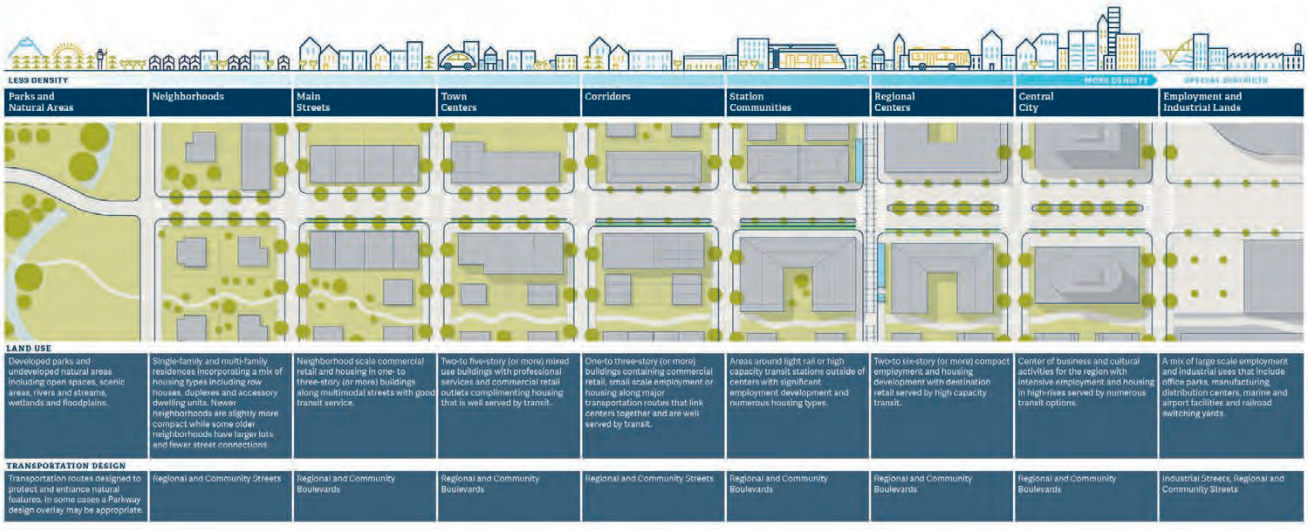
Policy 1	**Design the transportation system to implement the planned land uses and regional urban form envisioned in the 2040 Growth Concept.**
Policy 2	**Design a well-connected transportation system that serves all modes of travel.**
Policy 3	**Use regional street design classifications to guide development of streets that balance the needs of all users and functions of streets according to planned land use and desired outcomes.**
Policy 4	**Use transportation network and street design to help achieve regional goals and desired outcomes, including environmental and human health, climate action and resilience, a safe system, equitable transportation, mobility options, vibrant communities, and a thriving economy.**
Policy 5	**Avoid, minimize, and mitigate environmental impacts of the transportation system using Green Infrastructure design, street trees, wildlife habitat or waterway crossing improvements and other approaches.**
Policy 6	**Use a performance-based approach and decision-making framework to plan and design transportation projects and networks.**

Design Policy 1. Design the transportation system to implement the planned land uses and regional urban form envisioned in the 2040 Growth Concept.

The 2040 Growth Concept directs most new development to mixed-use centers, corridors and main streets. Realization of the Concept relies on a balanced transportation system that adequately serves planned uses while reducing vehicle miles traveled. Regional street design classifications support building and operating streets that are sensitive to the adjacent land use context, the roadway's functional classifications and the different needs and abilities of people traveling.

Figure 3-15 illustrates how the design of transportation facilities should change in response to planned and surrounding land use.

Figure 3-15 Land use and transportation transect

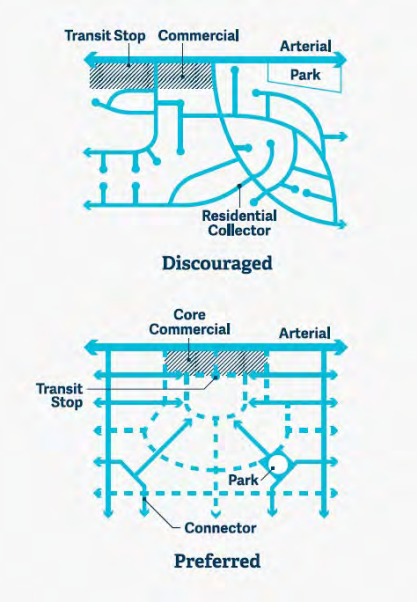


Graphic image of an illustrative road running through different types of land use. To view the full size illustration see the Designing Livable Streets and Trails at https://www.oregonmetro.gov/tools-partners/guides-and-tools/guidelines-designing-livable-streets-and-trails

Design Policy 2. Design a well-connected transportation system that serves all modes of travel.

Consistent with the mobility corridor concept, a well-connected network of complete streets provides multiple and direct routes between destinations. Figure 3-16 illustrates a well-connected street network.

Figure 3-16 Street connectivity

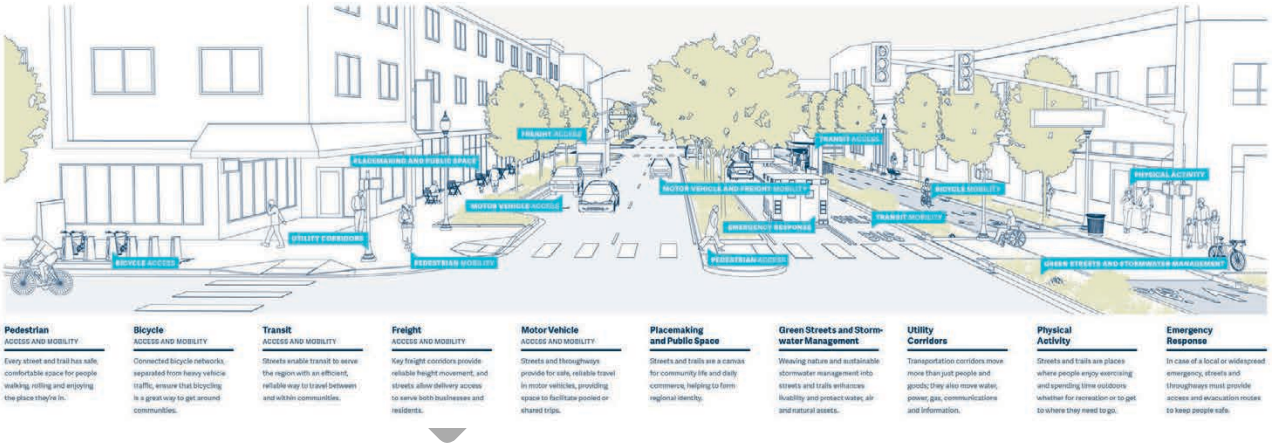


Because walking and biking are easier on a connected street network, a connected street network supports the 20-minute neighborhood concept, where all daily necessities are within a 20-minute walk of bike ride. Even where less-connected street networks have been established by jurisdictions, trails, paths, bridges, and midblock street crossings increase connectivity for people walking and bicycling. Emergency response also benefits from a well-connected street system.

Section 3.3.3.1 of the regional motor vehicle network policies provides regional street spacing standards. Environmental factors may impact street connectivity in some locations. Outside of centers, agencies should design street networks around, rather than through, environmentally sensitive lands and should mitigate impacts when they cannot be avoided. Street networks should allow for the preservation of continuous natural areas and parks.

Complete streets are transportation facilities that agencies plan, design, operate, and maintain to enable safe, convenient, and comfortable travel and access for users of all ages and abilities regardless of their mode of transportation. Complete Streets serve many functions and allow for safe travel by those walking, bicycling, driving automobiles, riding public transportation, or delivering goods. Figure 3-17 illustrates the multiple functions that streets serve.

Figure 3-17 Livable streets and trails functions



Graphic image of an illustrative street with call out boxes describing the different functions of the street. To view the full size illustration see the Designing Livable Streets and Trails at https://www.oregonmetro.gov/tools-partners/guides-and-tools/guidelines-designing-livable-streets-and-trails

Design Policy 3. Use regional street design classifications to guide development of streets that balance the needs of all users and functions of streets according to planned land use and desired outcomes.

Regional street design classifications provide an overall approach to design regional roadways based on its functional classification, the planned land use context, and achieving desired outcomes and community needs.

Table 3-6 summarizes typical design elements, including the planned number of motor vehicle travel lanes and target and design speed, for different travel modes for each of the regional street design classifications and illustrates how street design corresponds to 2040 land use design types and motor vehicle functional classifications.

Table 3-6 Planned regional transportation system and typical design components of regional design classifications

2040 Land Use Design Type	Design Classification	Street Connections	Prioritized Travel Modes	Motor vehicle Functional Classification	Target and Design Speed	Number of Lanes	Medians and Turn Lanes	Flex Zone Uses	Pedestrian Design	Bikeway Design	Transit Design	Freight Design	Green Streets/ Stormwater Management
Any	Freeways	Limited Grade-separated	Motor vehicle, freight, transit	Throughway	45 to 80 mph	Up to six with auxiliary lanes in some places	Center barrier, no turn lanes	Shoulder for emergency use, bus on shoulder or carpool	Parallel facility; crossings on over- or underpasses; crossings every 200 to 1,200 ft.	Multiuse path; crossings on over- or underpasses	Bus on shoulder, express bus, light rail	Enhanced mobility	Vegetated landscaping and green streets treatments to manage stormwater
Any	Highways	Limited Some grade-separated, signalized	Motor vehicle, freight, transit	Throughway	35 to 50 mph	Up to six with auxiliary lanes in some places	Median, limited turn lanes in some locations	Shoulder for safety, emergency use, bus on shoulder or carpool	Parallel facility or buffered sidewalks; crossings on over- or underpasses; crossings every 200 to 1,200 ft.	Multiuse path or separated bikeway; crossings on over- or underpasses	Bus on shoulder, express bus, light rail	Enhanced mobility	Vegetated landscaping and green streets treatments to manage stormwater
Centers, station communities and some main streets	Regional and community boulevards	Many; access management emphasized	Pedestrian, transit, bicycle; access for all modes	Major arterial (regional boulevard) Minor arterial (community boulevard)	20 to 25 mph	Two to four lanes	Median desired, some turn lanes; minimize additional crossing width at intersections	None, or separated bikeway, enhanced bus, parking, green streets	Buffered sidewalks, enhanced crossings and access to transit; crossings every 200 to 530 ft. (1 to 2 blocks)	Separated bikeway; enhanced crossings	Accessible stations, priority bus treatments as appropriate	Access: loading and unloading	Vegetated landscaping and green streets treatments to manage stormwater
Corridors, neighborhoods, some main streets and employment and industrial areas	Regional and community streets	Some to many; access management as possible	Balanced and modal network priorities	Major arterial (regional street) minor arterial (community street)	20 to 30 mph	Two to four lanes	Median desired; some turn lanes; minimize additional crossing width at intersections	None, or separated bikeway, enhanced bus, parking, green streets	Buffered sidewalks, enhanced crossings and access to transit; crossings every 200 to 530 ft (1 to 2 blocks)	Separated bikeway; enhanced crossings	Accessible stations, priority bus treatments as appropriate	Mobility on freight corridors; access: loading and unloading	Vegetated landscaping and green streets treatments to manage stormwater
Employment and industrial areas	Industrial streets	Some; access management emphasized	Freight, motor vehicle, transit	Major or minor arterial	20 to 40 mph	Two to four lanes	Median in some instances; some turn lanes	None, separated bikeway or multiuse path, enhanced bus, parking, green streets	Sidewalk with buffer or multiuse path; enhanced crossings and access to transit; crossings every 200 to 530 ft. (1 to 2 blocks)	Separated bikeway or multiuse path; enhanced crossings	Accessible stations, priority bus treatments as appropriate	Priority freight treatments, wider lanes and intersections	Vegetated landscaping and green streets treatments to manage stormwater

To view the full size table see the Designing Livable Streets and Trails at https://www.oregonmetro.gov/tools-partners/guides-and-tools/guidelines-designing-livable-streets-and-trails

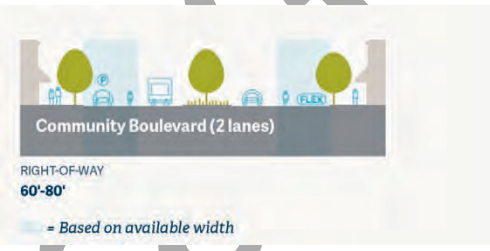
Regional design classifications apply to local transportation system plans throughout greater Portland. Cities or counties may adopt the classifications into their plans or provide a cross-reference if they use different terms. Regional street design classifications are assigned to all throughways and major and minor arterials in the regional transportation system as shown in Table 3-6 and Figure 3-20.

Regional street design concepts promote community livability and reliable travel by balancing all modes of travel and addressing the function and character of adjacent land uses. Linking land use and the physical design of transportation facilities is crucial to achieving state goals to limit reliance on any one mode of travel and to encourage increased walking, bicycling, carpooling, vanpooling and use of transit.

Freeways and highways

Freeways and highways connect major activity centers, including the central city, regional centers, industrial and employment areas, and intermodal facilities such as the Port of Portland. Freeways and highways provide intercity, interregional, and interstate connections. This design classification prioritizes long-distance and higher speed freight, motor vehicle and transit mobility. Freeways are grade separated; highways have a mix of grade-separated and at grade intersections. Freeways and highways cross all types of land uses, and buildings are typically not oriented to these facilities.

Regional and community boulevards



Regional and community boulevards serve the multimodal travel needs of the region's most intensely developed and developing activity centers, including the central city, regional centers, station communities, town centers and some main streets. Adjacent land uses and buildings should orient directly to the boulevard with ground-floor commercial activity, contributing to a pedestrian and bicycle-friendly environment. Buildings typically have designs, such as a storefront or arcade, which provide transition space from the street and support pedestrian access. Agencies design boulevards to prioritize pedestrian, bicycle, and transit travel.

Regional and community streets

Regional and community streets balance the multimodal travel and access needs of corridors, neighborhoods, and some main streets, along with employment and industrial areas. Regional and community streets can be located within residential neighborhoods as well as more densely developed corridors and employment centers. Development can be set back from the street. Regional and community streets can also serve as main streets with buildings oriented toward them at major intersections and transit stops.

Figure 3-20 shows design classifications for arterials and throughways.

Design Policy 4. Use transportation network and street design to help achieve regional goals and desired outcomes, including environmental and human health, climate action and resilience, a safe system, equitable transportation, mobility options, vibrant communities, and a thriving economy.

Transportation agencies can design facilities to achieve desired outcomes and support the health, safety, and economic and environmental sustainability of communities in the region. Practitioners refer to this approach as performance-based design. Table 3-7 illustrates how design characteristics of urban arterials can either promote or hinder desired outcomes.

Table 3-7 Design characteristics of healthy urban arterials[26]

Health Promoting Design	Unhealthy Design
Neighborhood asset for access and commerce	Physical barrier that divides neighborhoods
Supports neighborhood social and cultural connections	Exhibits neglect and physical decay
Safe travel speeds for all users	Traffic speeds too high to be safe for all users
Comfortable for all users to cross	Difficult to cross because of design and traffic
Link within pedestrian and bicycle networks	Barrier within pedestrian and bicycle networks

[26] Understanding and Improving Arterial Roads to Support Public Health and Transportation Goals, American Journal of Public Health, August 2017.

Designed to mitigate noise	Source of noise
Designed to mitigate air pollution	Near-roadway air pollution
Accessible to users of all abilities	Inaccessible to users with disabilities
Supports green infrastructure systems	Impervious paving materials, lack of shade
Contributes to revitalization without displacement	Location of residential and business gentrification

Design principles to achieve desired outcomes

- **Design with a safe system approach**: Use the safe systems approach in street design, managing speeds for safety, lowering speeds in areas where people are walking, bicycling, and accessing transit and separating users. Separation means creating physical barriers between people moving at different speeds. As speed differentials increase, so should the level of separation. Medians, access management treatments, protected bicycle lanes and other street design elements can minimize crashes.
- **Design for safe speeds**: Design streets to encourage safe speeds for all users – the safe target speed. Evaluating minimum sight distance, horizontal curvature, vertical curves and other design factors is based on the design speed. To achieve a safe target speed, the design speed should align with the target speed. Ultimately, posted speed should also align. Transportation agencies can achieve a desired target speed by street design elements. Wider, more open roadways encourage higher operating speeds. Conversely, a roadside with street-facing buildings, wide, buffered sidewalks, separated bikeways, on-street parking and street trees can lead to lower speeds.
- **Design for all users**: Design for people of all ages and abilities, as well as the design vehicle for a specific facility. Before developing a design, practitioners should consider each type of user and how they will navigate the street. Agencies should design streets keeping the green transportation hierarchy in mind. The hierarchy prioritizes functions for a typical street in this order: walking, bicycling, transit, freight, carshare/ taxi/commercial transport, and private automobiles. The selection of a design vehicle is an essential part of developing street and intersection designs. The design vehicle is the largest vehicle expected to use the street or intersection regularly. Because the selection of a design vehicle influences street dimensions such as turning radii, which in turn can impact safety and operating speeds, practitioners should choose the smallest possible design vehicle. Occasional larger vehicles can still be accommodated in the design by encroaching on opposing lanes or using multiple point turns. Likewise, agencies can use design features such as speed cushions or truck aprons to accommodate emergency vehicles and large trucks while providing speed management treatments that reduce overall traffic speeds.
- **Design for personal security and equity**: Use design to create streets where people of all races, genders, ages and abilities feel safe from crime and harassment. Because street design has been used to oppress and criminalize Black communities, communities must be engaged in the design process. Streets should be intuitive and easy to use regardless of race, income, age, ability, cultural background, or language.

- **Design to protect the environment**: Use green infrastructure design to avoid, minimize and mitigate the harmful environmental impacts of transportation facilities and achieve a healthier, more resilient landscape.
- **Design for the future**: Factor in rapid technological change and innovation. Agencies should consider allocating street space to the functions that matter most, and not necessarily to the newest technology. Street designs should also be flexible enough to support piloting new innovations.
- **Design with fiscal stewardship in mind**: Use innovative and creative design approaches to reduce costs and conserve resources for construction and life cycle costs, including operation, maintenance, and replacement costs. Include external costs, such as climate change impacts, to capture the full cost of specific design treatments.

Design Policy 5. Avoid, minimize, and mitigate environmental impacts of the transportation system using Green Infrastructure design, street trees, wildlife habitat or waterway crossing improvements and other approaches.

The effect that transportation infrastructure has on the health of the natural environment, particularly urban waterways, and habitat connectivity, is well documented. Transportation infrastructure has the potential to degrade water quality, create barriers to corridors for animal travel and increase air, noise and light pollution. Projects also have the potential to negatively impact cultural and historical resources if not planned and implemented carefully.

Projects should be designed to avoid or minimize impact or if avoidance is not possible, to maximize enhancement, protection, and improvement of natural, community and cultural resources through the application of Green Infrastructure design treatments.[27] The avoid, minimize, or mitigate approach is known as sequencing and involves understanding the affected environment and assessing transportation effects throughout the project development process.

The sequencing for projects follows this order:

- Avoiding the impact altogether by not taking a certain action or parts of an action.
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action or project.

[27] Refer to Appendix F for examples of mitigation strategies for different environmental resource areas. For example, street trees, vegetated swales and other green street treatments can intercept rainwater and convey stormwater in the public right-of-way, following best practices to minimize light pollution, installing appropriate wildlife crossings, screening sensitive habitats from noise and light, enhancing vegetation associated with wetlands and waterways for wildlife, limiting fill within wetlands, constructing bridges or open bottom culverts, creating new wetland areas, and restoring or rehabilitating damaged wetlands and waterways, using pervious materials and preserving, maintain or enhancing tree canopy. Refer to Metro's handbooks Green Streets: Innovative Solutions for Stormwater and Stream Crossings" and "Wildlife Crossings: Providing safe passage for urban wildlife for more information on these designs.

- Compensating for the impact by replacing or providing substitute resources or environments.

All streets and trails must manage stormwater, treating runoff to reduce pollution and infiltrate water into the ground, limiting how much stormwater and pollutants eventually make their way into vulnerable natural waterways. By incorporating green infrastructure treatments such as vegetated medians, planters, curb extensions and street trees, streets and trails can function as urban green corridors that not only manage stormwater but mitigate the harmful impacts of transportation on air, water, and wildlife habitat and connectivity. This function of streets and trails is imperative to human and environmental health.

One of the distinct advantages of having streets and trails function as green streets over "grey infrastructure" for stormwater management is their superior treatment of pollutants running off from roadways. While grey infrastructure options may have smaller footprints, they are typically more expensive to maintain and fail if not maintained. In addition, separate grey infrastructure elements are almost always needed to manage runoff quality and quantity.

Street trees and other green streets infrastructure provide a wide array of benefits in addition to stormwater management, offering wildlife habitat, improving air quality, providing shade and reducing the urban heat island affect, beautifying the surroundings, promoting human well-being and calming traffic.

On streets with high levels of walking and bicycling, street trees provide buffers from traffic and air pollution. Green streets can be further supported by using dark skies approaches to minimize the impact of street lighting on wildlife, human health, and the natural environment. Designing streets and trails for stormwater management can also incorporate and enhance other functions, such as placemaking. Agencies can use green street elements to create a stronger sense of place and make walking and biking more enjoyable.

Transportation agencies typically consider the following types of environmental, tribal, cultural and historical data during development of projects:

- High value fish and wildlife habitat areas and biodiversity corridors
- Threatened and endangered species, including vertebrate species and plants
- Vegetation and wildlife
- Fisheries
- Wetlands and waterways
- Flood hazard areas/floodplains
- Historic resources
- Tribal lands and legacies
- Air quality and greenhouse gas emissions

Figure 3-18 Examples of how green infrastructure can help achieve regional goals

RTP Goal	Examples of how Green Infrastructure can help achieve regional goals
Thriving Economy	Green infrastructure can promote economic growth as a valued public amenity, create construction and maintenance jobs, add to property value, support walkable and bikeable communities, businesses, and commercial districts, and lower the costs associated with climate change. Protecting the environment and natural resources today can save money for the future and reduce infrastructure construction and maintenance costs.
Mobility Options	Green streets can promote active travel and access to transit by providing enjoyable routes that are shaded and buffered from traffic. Green infrastructure treatments, such as access management and medians with bioswales, can be designed to support reliability and efficiency by reducing crashes and conflicting movements.
Safe System	Street trees and other green infrastructure can help calm traffic to desired speeds, provide welcoming places that increase security, and improve resiliency and reduce impacts of major storm events.
Climate Action and Resilience	Trees and green infrastructure can support climate adaptation by cooling streets, parking lots and buildings, better managing stormwater and reducing the urban heat island effect. Trees and vegetation can be managed to sequester greenhouse gases to help mitigate climate change. Green infrastructure can enhance and protect the natural environment by supporting clean air and water, filtering stormwater runoff, reducing erosion, protecting, creating, and connecting habitat for birds, fish, and other wildlife.
Equitable Transportation	Clean air and water and access to nature can be improved and habitat can be preserved and enhanced when green infrastructure is provided in marginalized communities. Green infrastructure can reduce water, air, noise, and light pollution, encourage active lifestyles and link people to trails, parks and nature that enhance human health and well-being. All stakeholders can be represented, including those that cannot speak for themselves – wildlife and the natural environment. Performance-based planning includes considering environmental effects throughout the planning process.

Design Policy 6. Use a performance-based approach and decision-making framework to plan and design transportation projects and networks.

As the demands on the transportation system increase, so does the need for flexibility in how roadways are designed. Performance-based planning and design expands design parameters to be more flexible. Performance-based planning and design incorporates many performance measures to assess how well a project will achieve desired outcomes. Measures and related goals may be

weighted to ensure that a project supports priority outcomes, for example reducing serious traffic crashes, identified in adopted plans and policies and through community engagement.

A performance-based design decision-making framework helps practitioners and stakeholders track decisions throughout the life of a project, as illustrated in Figure 3-19. This documentation process provides flexibility to choose the best design for a given context, while providing an effective way to manage risk when designing new or reconstructed roadways. The framework includes documenting the design considerations, and alternatives that were evaluated, based on clearly outlined project goals and meaningful stakeholder engagement.

Performance-based planning and design starts with a well-defined project need, accompanied by goals and related objectives. It then works to align design decisions with the project objectives and desired systemwide outcomes. This approach relies on developing and comparing design alternatives, using performance measures and analysis to assess progress toward achieving project objectives, and applying engineering judgment, informed by a multidisciplinary team, to reach a preferred design. Refer to Chapter 6 of the Designing Livable Streets and Trails Guide for a step-by-step guide and tools to address trade-offs and constraints.

Figure 3-19 The performance-based design decision-making framework

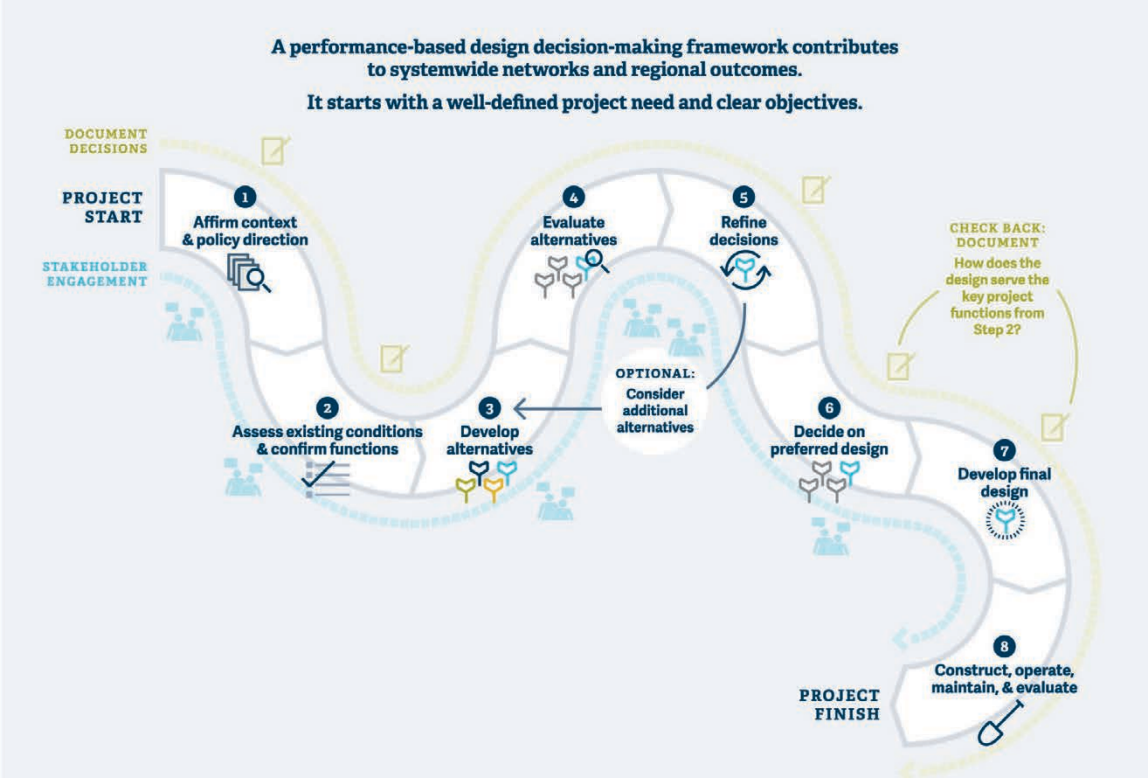


Figure 3-20 Regional design classifications map [To be added]

3.3.3 Regional motor vehicle network vision and policies

While the greater Portland region has changed dramatically over the past century, the shape of the major road network has not. Most regional streets were once farm-to-market roads, established along Donation Land Claim boundaries at half-mile or one-mile spacing. The region's throughway system evolved from the mid-1930s, when the first highway was built from Portland to Milwaukie, to the completion of I-205 in the early 1980s. Most of the throughway system was built along the same Donation Land Claim grid that shapes the regional street network, with most throughways following older farm-to-market routes or replacing major streets.

This inherited network design has proven to be an adequate match for accommodating the changing travel demands of our growing region. The Regional Motor Vehicle Network Concept applies this proven network design to developing and undeveloped areas in the region, while seeking opportunities to bring existing urban areas closer to this ideal when possible.

3.3.3.1 Regional motor vehicle network concept

The Regional Motor Vehicle Network Concept shown in Figure 3-21 illustrates policies for developing a complete and well-connected motor vehicle network that is safe and reliable, provides adequate capacity and supports all modes of travel.

Figure 3-21 Regional motor vehicle network concept

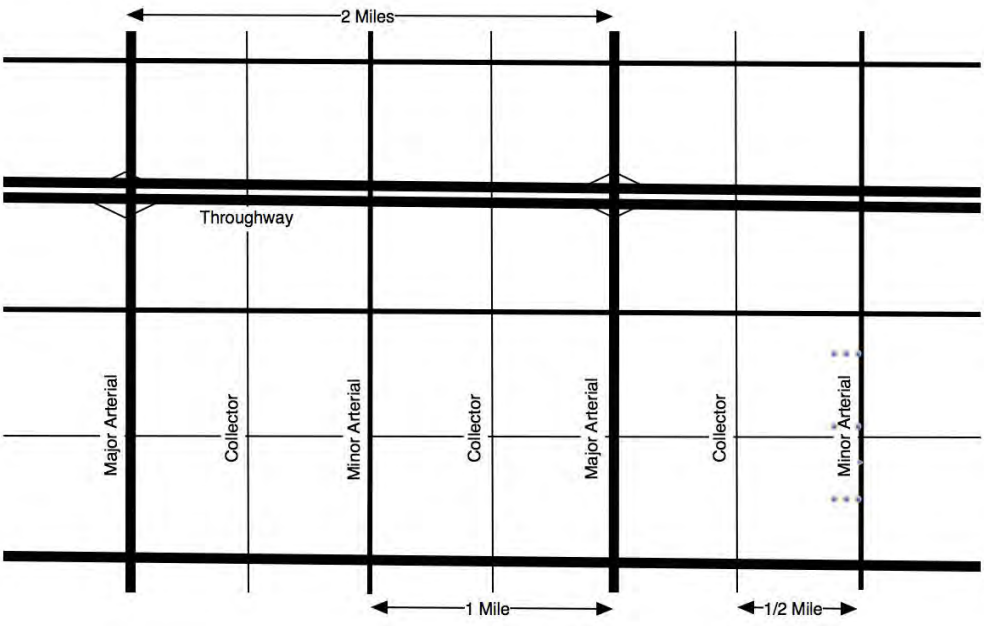


Image shows a conceptual network of streets, illustrating multimodal transportation corridors and showing ideal spacing of arterial streets. Most of the region's travel occurs off the throughway network, on a network of multimodal arterial streets that are further complemented by a well-connected network collector and local streets. The RTP policy places an emphasis on ensuring that arterial networks are fully developed as the region grows, providing both local circulation and preserving throughway capacity for regional and statewide travel.

3.3.3.2 Regional motor vehicle network policies

The planned motor vehicle network is defined by the roadway capacity defined in Table 3-8 (also see Table 3-6 in Section 3.3.1). The planned motor-vehicle network, by functional classification, is shown in Figure 3-23. Adding motor vehicle capacity beyond the planned system is subject to the regional Congestion Management Process defined in Section 3.3.4.

Table 3-8 Planned motor-vehicle network capacity

Motor Vehicle Functional Classification	Typical Number of Planned Travel Lanes
Throughway	Up to 6 through lanes with auxiliary lanes in some places
Highway	Up to 6 through lanes with auxiliary lanes in some places
Major arterial	Up to 4 through lanes with turn lanes and median
Minor arterial	2 to 4 through lanes with turn lanes and median

The regional motor vehicle concept and policies call for adequately maintaining the motor vehicle network, applying the congestion management process (Section 3.3.4) and regional mobility policy (Section 3.2.6) and data to identify needs and solutions; managing and optimizing throughway capacity to serve regional, statewide and interstate travel; and implementing a well-connected network of local, collector and arterial streets that is tailored to fit local geography, respect existing communities and planned development, and protect the natural environment. Increased network connectivity improves travel reliability and increases travel options.

Policy 1	**Preserve and maintain the region's motor vehicle network in a manner that improves safety, security and resiliency while minimizing life cycle cost and impact on the environment.**
Policy 2	**Use the Congestion Management Process, Regional Mobility Policy, safety and bike and pedestrian network completion data to identify motor vehicle network needs and solutions.**
Policy 3	**Actively manage and optimize capacity on the region's throughway network to maintain mobility and accessibility and improve reliability for longer, regional, statewide, and interstate travel.**
Policy 4	**Complete the region's planned throughway network up to six travel lanes (three lanes in each direction) as envisioned in the 2040 Growth Concept.**
Policy 5	**Prior to adding new throughway capacity beyond the planned system of motor vehicle through lanes, including adding or extending an auxiliary lane of more than one-half mile, demonstrate that system and demand management strategies, including access management, transit and freight priority, pricing, transit service and**

	multimodal connectivity improvements cannot adequately address identified needs consistent with the Congestion Management Process and Regional Mobility Policy.
Policy 6	**Prior to adding or extending an auxiliary lane of one-half mile or more, determine whether the new individual auxiliary lane alone or in combination with auxiliary lanes in the same corridor will collectively influence capacity, or alternatively whether each of the auxiliary lanes operate independently and address localized safety issues consistent with the Congestion Management Process and Regional Mobility Policy.**
Policy7	**Actively manage and optimize arterials according to their planned functions to improve reliability and safety and maintain mobility and accessibility for all modes of travel.**
Policy8	**Complete a well-connected network of arterial streets ideally spaced at approximately 1-mile apart and planned for up to four travel lanes to maintain transit and freight mobility and accessibility and prioritize safe pedestrian, bicycle and transit access for all ages and abilities using Complete Street design approaches.[28]**
Policy 9	**Complete a well-connected network of collector and local streets that provide for local circulation and direct vehicle, bicycle and pedestrian access to adjacent land uses and to transit for all ages and abilities.**
Policy 10	**Prior to adding new arterial street capacity beyond the planned system of motor vehicle through lanes, demonstrate that system and demand management strategies, including access management, transit and freight priority, transit service, and multimodal connectivity improvements cannot adequately address identified needs consistent with the Congestion Management Process and Regional Mobility Policy.**

Motor Vehicle Network connectivity

A well-connected network of complete streets is critical to achieving the 2040 Growth Concept vision. In general, the roadway network should be designed to provide for trips through or across the region on throughways, shorter trips through portions of the region on arterial streets and the shortest trips on collector and local streets.

This approach results in a **street hierarchy** of:

- throughways (for example, limited-access facilities such as I-84, US 26, I-5, I-205 and I-405)

[28] The number of through lanes may vary based on right-of-way constraints or other factors. Some places in the region may require additional lanes due to a lack of network connectivity. Major and minor arterial streets can either be 2 or 4 lanes with turn lanes as appropriate.

- arterial streets (for example, Cornell Road in Washington County, 82nd Avenue in the City of Portland and Sunnyside Road in Clackamas County)
- collector streets
- local streets

The traditional street classifications for throughways, arterial streets and other streets are a good starting point for distributing traffic in communities to avoid bottlenecks on overburdened routes or avoid the need to build overly wide streets as a community grows.

Throughways serve as longer-distance mobility routes, with limited access, and an emphasis on connecting major destinations. Arterial streets provide both mobility, moving traffic, goods, and people within the region, and access to property along the street. .

Building a regional motor vehicle network to accommodate all motor vehicle traffic during peak travel periods is not feasible or practical nor would it be desirable considering the environmental, climate, and community impacts.

By developing a well-connected network, the region can spread traffic across the entire network, reducing the need to overburden a few facilities. This will help reduce bottlenecks and congestion hotspots, decreasing the need to widen roads and intersections beyond their typical design. Connectivity also supports transit, biking and walking by making trip distances shorter and more direct and convenient. Improved travel reliability is a key overall outcome of all connectivity-oriented strategies. Refer to Section 3.3.2 for street design policies and principles.

Typical spacing and planned capacity for arterial streets

The regional motor vehicle network concept calls for one-mile spacing of major arterial streets, with minor arterial streets or collector streets at half-mile spacing, recognizing that existing development, streams and other natural features may interfere with this spacing. Major and minor arterial streets can be either 2 or 4 lanes with turn lanes as appropriate. Streets with 4 or more lanes should include medians, where possible, with appropriate median openings for turning movements and turn lanes. Access management strategies should be used on arterial streets and all streets with 4 or more lanes.

Shown in Figure 3-21, the illustrative arterial street network is complemented by a well-connected network of collector streets. This network of arterial and collector streets is multi-modal in design, serving automobiles, motorcycles, trucks, transit, bicycles and pedestrians. The regional arterial street design with a median reflects an accepted design that can support safe travel by all modes, accommodating urban levels of traffic, while also providing for bicycle and pedestrian travel and safe crossings at major intersections.

Traffic speeds, access and level of street connectivity vary depending on the function of the street. The design of transportation facilities should consider the facility's traffic function, all modes of travel, and community development goals. As identified in the Regional Active Transportation

Plan and Metro's livable street design guidelines, traffic speeds, traffic volumes and the volume of heavy trucks should be considered in the design of pedestrian and bicycle facilities on streets on the regional network.

Research and experience have shown that there are optimal street designs for various types of roadways. Street design, combined with connectivity help reduce congested hot spots and improve reliability. Local streets and collectors are planned to consist of 2-lanes with turn lanes where needed, major arterials are planned to consist of up to 4-lanes with medians and with turn lanes and access management strategies. Therefore, before adding additional through lanes beyond the planned system, plans and studies must demonstrate that the additional lanes beyond the planned system do not compromise the function of the roadway for all modes and that the planned system of through lanes, transit service, bike, pedestrian and other parallel arterial, operational, system and demand management solutions do not adequately address transportation needs first, prior to considering widening arterial beyond the planned system to address identified needs.

Throughways and auxiliary lanes

Throughways generally span several jurisdictions and often are of statewide importance linking the greater Portland area with neighboring cities, other parts of the state, other states, and Canada. Throughways are planned to consist of six through lanes (three lanes in each direction) with grade–separated interchanges or intersections, and serve as the workhorse for regional, statewide, and interstate travel. Additional through travel lanes may be needed in some places based on the importance of a facility to regional and state economic performance, excessive demand and limitations or constraints that prevent creation of a well-connected street network due to topography, existing neighborhoods, or natural resource areas.

Throughways carry between 50,000 to 100,000 vehicles per day, providing higher-speed travel for longer motor vehicle trips and serving as primary freight routes, with an emphasis on mobility. Throughways help serve the need to move both freight trucks and autos through the region. Throughways connect major activity centers within the region, including the central city, regional centers, industrial areas and intermodal facilities.

The Throughway functional classification generally corresponds to the Expressways functional classification in the Oregon Highway Plan. There are two types of Throughway designs as described in Table 3-8**.** Freeways, which are limited-access and completely grade separated interchanges and Highways, which include a mix of separate and at-grade access points. Throughway interchanges that are designated as Freeways in the OHP should be spaced no less than one mile apart in urban areas.[29]

[29] One mile is the minimum interchange spacing distance identified for Freeways in urban areas in Oregon. See https://secure.sos.state.or.us/oard/viewAttachment.action?ruleVrsnRsn=183660 for more information.

An auxiliary lane is the portion of the roadway adjoining the through lanes for speed change, turning, weaving, truck climbing, maneuvering of entering and leaving traffic, and other purposes supplementary to through-traffic. 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 and is not intended to function as a general purpose travel lane. Auxiliary lanes add additional motor vehicle capacity.

Analysis of throughway and auxiliary lanes

Prior to adding new throughway capacity beyond the planned system of motor vehicle through lanes, or adding or extending an auxiliary lane of more than one-half mile in length, or re-striping an auxiliary lane to serve as a general purpose through lane, transportation agencies must demonstrate that system and demand management strategies, including access management, transit and freight priority, pricing, transit service, and multimodal connectivity improvements cannot adequately address identified needs consistent with the Congestion Management Process and Regional Mobility Policy.

When a series of auxiliary lanes are added in the same corridor or one or more existing auxiliary lanes are extended through one or more interchanges, the auxiliary lanes may begin to function more like a general purpose travel lane. Therefore, prior to adding or extending an auxiliary lane of more than one-half mile, transportation agencies must whether the new individual auxiliary lane alone or in combination with auxiliary lanes in the same corridor will collectively influence capacity and measurably increase vehicle miles traveled, or alternatively whether each of the auxiliary lanes are operate independently and only address localized safety issues. Chapter 8 defines the parameters for future corridor refinement planning work specific to each regional mobility corridor, consistent with the Congestion Management Process and Regional Mobility Policy.

Arterial streets

Arterial streets are intended to provide general mobility for travel within the region and provide important connections to the throughway network. Arterial streets connect major commercial, residential, industrial and institutional centers with each other and link these areas to the throughway network. Arterial streets are usually spaced about one mile apart and are designed to accommodate motor vehicle, truck, bicycle, pedestrian and transit travel.

Arterial streets carry between 10,000 and 40,000 vehicles per day. Desired travel speeds vary depending on the surrounding and planned land use. Major arterial streets accommodate longer-distance trips and serve a regional traffic function. Minor arterial streets serve shorter trips that are localized within a community. As a result, major arterial streets usually carry more traffic than minor arterial streets. Research has highlighted the important role of major arterial streets in achieving regional goals for equity, safety, land use/economic development and mobility (especially for transit).[30] Many funding, design and policy challenges to improving them.

Streets designated with an arterial functional classification are shown in Figure 3-23 and include Boulevard and Streets described in Table 3-6.

Safety on arterial streets

Safety is a primary concern on the regional arterial system, where approximately 60 percent of the region's fatal and severe injury crashes occur. For this reason, much of the focus for achieving the region's Vision Zero target will fall upon improving safety on arterial streets. More attention to designs and operational strategies that have been demonstrated to improve the safety of the arterial system could reduce the number of people killed and injured, using national best practices as a guide. Efforts to substantively improve transportation safety in the region must give arterial roadways high priority, with a focus on the region's high injury corridors, and may include:

- proven designs and strategies such as medians, speed management, access management, improved pedestrian crossings and street lighting, replacing intersections with roundabouts, reducing speeds to levels which are safe for pedestrians, and road diets; and
- enforcement actions targeting high-risk behaviors, such as speeding, aggressive driving, driving under the influence, red-light running, and failure-to-yield at bike and pedestrian crossings; and
- education initiatives intended to promote safer behavior among all users of the transportation system.

[30] Metro "Safe and healthy urban arterials 2023 RTP policy brief", September 8, 2022
https://www.oregonmetro.gov/sites/default/files/2022/10/24/Safe%20and%20healthy%20urban%20arterials%20policy%20brief.pdf

Meeting regional safety targets requires ongoing, concerted efforts to continue to make the region's arterial roadways (also referred to as urban arterials) substantially safer, especially for pedestrians. Serious injury crash rates are used to prioritize corridor safety efforts.

Collector and local street connectivity

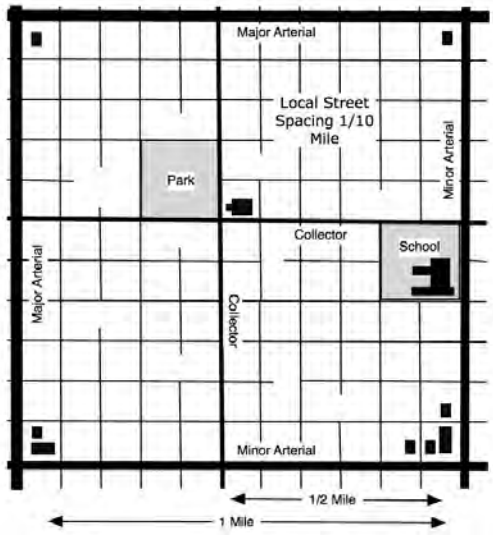
Collector and local streets are general access facilities that provide community and neighborhood circulation. They are not usually part of the regional transportation system except when located within designated 2040 areas or when they are part of the Regional Bicycle Network or Regional Pedestrian Network. Collector and local streets play an important role to the design and optimization of the regional transportation system. When local travel is restricted by a lack of connecting routes, local trips are forced onto the arterial and/or throughway networks, in some cases causing congestion on the regional system.

Local jurisdictions are responsible for defining the network of local and collector streets within the one-mile spacing grid of arterial streets. The Regional Transportation Functional Plan (RTFP) which implements the Regional Transportation Plan (RTP) and establishes the requirements for Transportation System Plans requires local street spacing of no more than 530 feet in new residential and mixed-use areas, and cul-de-sacs are limited to 200 feet in length to distribute vehicle movements and provide direct bicycle and pedestrian routes.[31] More frequent bike and pedestrian connections are required where collector and local streets cannot be constructed due to existing development or other topographic or environmental constraints.

A goal of the requirements is to encourage local traffic to use local and collector streets to minimize local traffic on regional arterial streets. Local street connectivity also benefits emergency response and access to schools and transit stops. Designs should retain the neighborhood character and livability along these local routes.

[31] Regional Transportation Functional Plan https://www.oregonmetro.gov/regional-transportation-functional-plan

Figure 3-22 Collector and local street network concept



Note: Idealized concept for illustrative purposes showing desired spacing for collectors and local streets in residential and mixed-use areas to serve local circulation, walking/rolling and bicycling. The illustration is modeled after neighborhoods in Southeast Portland.

Shown in Figure 3-22, the collector and local street network concept provides for bicycle and pedestrian travel and provides for direct access from local street networks to community destinations and transit on regional arterial streets.

Collector streets

Collector streets provide both access and circulation. As such, collectors tend to carry fewer motor vehicles at lower travel speeds than arterial streets. Collectors may serve as freight access routes, providing connections from industrial or commercial areas to the arterial network. Collector streets serve neighborhood traffic. Collectors provide local circulation alternatives to arterial streets. Collectors provide both circulation and access within residential and commercial areas, helping to disperse traffic that might otherwise use the arterial network for local travel.

Collectors may also serve as local bike, pedestrian and freight access routes, providing connections to the arterial and transit network. Collectors usually carry between 1,000 and 10,000 vehicles per day, with volumes varying by jurisdiction. Collector streets are ideally spaced at half-mile intervals, or midway between arterial streets. Auto speeds and volumes on collector streets are moderate.

Local streets

Local streets primarily provide direct access to adjacent land uses, and usually between 200-2,000 vehicles per day, with volumes varying by jurisdiction. Vehicle speeds on local streets are relatively low, which makes them good candidates for people biking, walking/rolling traveling to and within centers, to schools and to transit stops and stations.

While local streets are not intended to serve through traffic, the local street network serves an important role for supporting bicycle and pedestrian travel. As a result, regional local street connectivity policies require communities to develop a connected network of local streets to increase access to designated centers, to schools and to transit stops and stations on the regional transit network by people biking and walking/rolling.

3.3.3.3 Regional motor vehicle network classifications and map

The Regional Motor Vehicle Network is shown in Figure 3-23. Click on 2023 RTP Regional Network Maps for online zoomable version of map. [NOTE: Link to Be ADDED]

Figure 3-23 Regional motor vehicle network map

Regional Motor Vehicle Network

- Throughway
- Proposed Throughway
- Major arterial
- Proposed Major arterial
- Minor arterial
- Proposed Minor arterial
- Throughway Outside UGB
- Arterial Outside UGB
- Proposed Arterial Outside UGB
- Employment/Industrial
- Central city; Regional center; Town center
- County boundary
- Urban growth boundary
- Metropolitan Planning Area

See inset map

Inset map

0 Mile 1.5

0 8 16 Miles

Source: Metro

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3.3.4 Congestion management process

This section outlines the policy for implementing system and demand management strategies and other strategies prior to building new motor vehicle capacity, consistent with the Federal Congestion Management Process (CMP) and Oregon Transportation Plan (OTP) policies (including Oregon Highway Plan Policy 1G). Section 3.08.220 of the Regional Transportation Functional Plan (RTFP) implements the Regional Transportation (RTP) and establishes the requirements for Transportation System Plan.[32] In some parts of the greater Portland region the transportation system is generally complete, while in other parts of the region, especially those where new development is planned, significant amounts of infrastructure will be added. In both contexts, management strategies have great value. Where the system is already built out, such strategies may be the only ways to manage congestion and achieve other goals. Where growth is occurring, system and demand management strategies can be integrated before and during development to efficiently balance capacity with demand. New technologies are reducing the cost of demand management and new possibilities are emerging with autonomous and connected vehicles.

One component of the Congestion Management Process (CMP) is a toolbox of congestion reduction and mobility strategies, as shown in Table 3-8. This toolbox identifies a suite of strategies to manage congestion and address mobility needs prior to utilizing traditional roadway widening and other capacity projects. Prior to adding single occupant vehicle (SOV) capacity, agencies and jurisdictions should give consideration to the various strategies identified in this section, consistent with FHWA direction and RTP and OTP policies. Usually, multiple strategies are applicable within a corridor, while other strategies are intended to be applied region wide.

The CMP toolbox strategies were assembled to provide a wide range of strategies that could be used to manage congestion region-wide or within congested mobility corridors. They are arranged so that the strategies are considered in order from first to last. Even with the addition of capacity, many of the strategies can be implemented with the project to ensure the long-term management of a capacity project.

The CMP toolbox of strategies is shown in Table 3-9.

Table 3-9 Toolbox of strategies to address congestion in the region

[32] Regional Transportation Functional Plan https://www.oregonmetro.gov/regional-transportation-functional-plan

1		**Community design strategies** • Walkable communities and job centers facilitated by compact land use in combination with walking, biking and transit connections • Mixed-used areas and transit-oriented development • Parking management and pricing
2		**Travel Information and Incentives strategies** • Commuter travel options programs • Household individualized marketing programs • Car-sharing and eco-driving techniques • Safe Routes to School programs • Ridesharing (carpool, vanpool) services
3		**System management and operations strategies** • Real-time variable message signs and speed limits • Signal timing and ramp metering • Transit signal priority, bus-only lanes, bus pull-outs • Incident response detection and clearance • Access management (e.g., turn restrictions, medians)
Emerging		**Congestion pricing strategies** • Peak period pricing • Managed lanes • High occupancy toll (HOT) lanes
4		**Active Transportation strategies** • New biking and walking connections to schools, jobs, downtowns and other community places • Bicycle infrastructure (e.g., bicycle racks, lockers and other bicycle amenities at transit stations and other destinations) • Separated pathways and trails
5		**Transit strategies** • High capacity transit • Expanded transit coverage • Expanded frequency of service • Improvements in right-of-way to increase speed and reliability of buses and MAX • Community and job connector shuttles • Park-and-ride lots in combination with transit service
6		**Street and throughway capacity strategies** • Local and arterial street connectivity to spread out travel • Addition of turn lanes at intersections, driveway restrictions and other geometric designs such as roundabouts • Road widening to add new lane miles of capacity (e.g., adding auxiliary lanes, additional general-purpose lanes); pricing is considered when adding new throughway capacity in the region

The intent of the CMP Toolbox follows FHWA's direction to consider all available solutions before recommending additional roadway capacity in transportation system planning, corridor

refinement planning and subarea studies. **Appendix L** describes how this information is used in the region's process and RTP updates to identify needs and inform consideration and prioritization of multimodal strategies and investments to address congestion in the region.

3.3.5 Regional transit network vision and policies

With continued regional growth, come challenges including more congestion, higher housing prices, and constrained access to employment and daily needs. Increased transit service is a critical part of the overall solution to regional challenges. But the COVID-19 pandemic disrupted both transit use and service in the region. To achieve the regional vision in the 2040 Growth Concept and Climate Smart Strategy, transportation agencies and partners must meet the needs of people using transit today, while continuing to realize the Regional Transit Vision[33] to increase transit use and make transit more convenient, accessible, affordable, and frequent for everyone, especially those who rely on it.

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 using transit priority treatments and other strategies. Improve transit rider experience with seamless connections between transit providers, including transfers, information, and payment. Additionally, road authorities can partner with the transit agencies to implement transit priority treatments.

Make transit more accessible by promoting transit-oriented development of station areas and 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.

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.

[33] Link to 2018 Regional transit strategy https://www.oregonmetro.gov/regional-transit-strategy

3.3.5.1 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 greater Portland region. The South Metro Area Regional Transit (SMART) in Wilsonville provides regional transit service connecting Wilsonville to Portland and communities in Washington and Clackamas counties. In 2017, the state legislature, through HB 2017, designated Clackamas, Multnomah and Washington Counties as Public Transit Service Providers. The counties receive funding from the Statewide Transportation Improvement Fund to implement transit services to meet goals established by HB 2017, including providing services in areas not well-served by fixed route transit.

Bus service in other surrounding areas, all with connections to the regional network, 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). Just outside of the greater Portland region, Sandy Area Metro (SAM) and Canby Area Transit (CAT) provide transit service for Sandy and Canby.

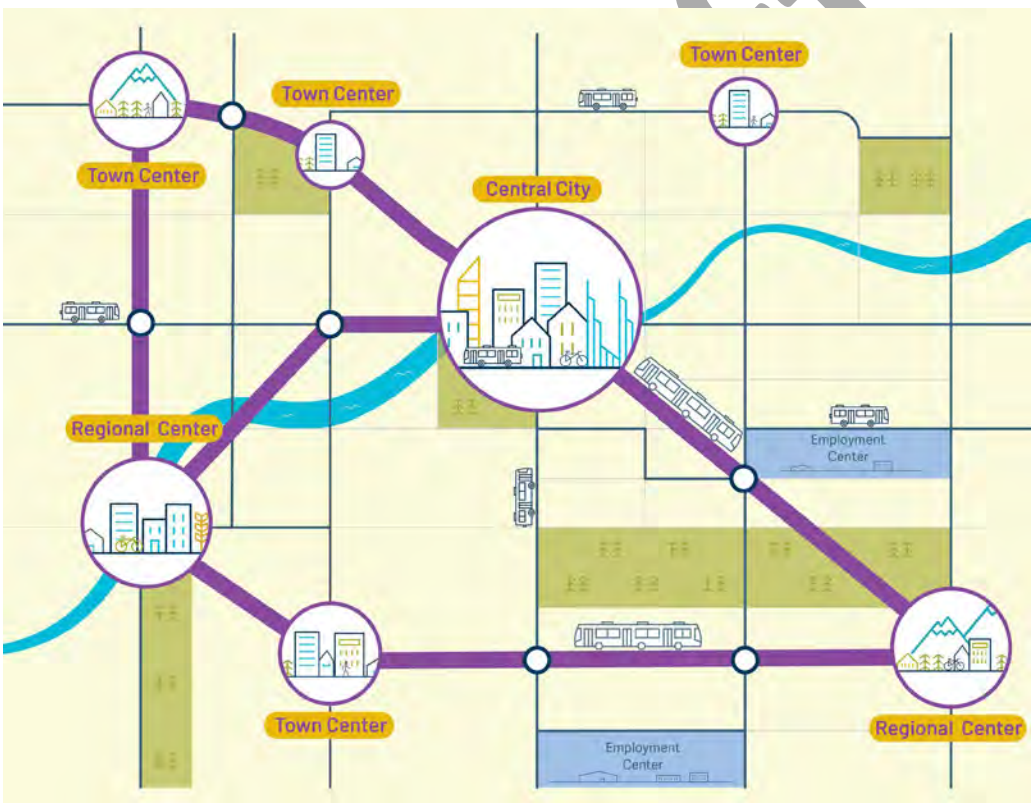
Transit is key to supporting the region's 2040 Growth Concept, which calls for focusing future growth in regional and town centers, station communities and 2040 corridors. A regional transit network, coupled with transit-supportive development patterns and policies that support taking transit, biking,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

- be less dependent on automobiles
- more equitably serve communities of color and other marginalized communities
- 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 3-24 shows how the regional transit system concept would connect the 2040 centers.

Figure 3-24 Regional transit network concept



The 2040 Growth Concept set forth a vision for connecting the central city to regional centers like Gresham, Clackamas and Hillsboro with high capacity transit. The High Capacity Transit Strategy expands this vision to include town centers like Milwaukie, Troutdale, and Sherwood along corridors to build onto that vision. The RTP goes further 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.

To leverage transit investments, it is important for cities and counties 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 support transit best can be found in Table 3-9.

Table 3-10 Effects of land use on transit service

Characteristic	Supportive	Not Supportive
Density	High	Low
Street layout	Small blocks Grid system	Long, winding streets Cul-de-sacs, dead-end
Mix of uses	Mixed use (e.g., commercial, residential, and office uses)	Single use (e.g., all residential, all industrial)
Pedestrian and bicycle environment	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
Site design	Buildings front the street and entrances	Buildings set back from the street and surrounded by surface parking
Parking	Limited Fee-based parking	Abundant Free

Source: TriMet

Transit-supportive development patterns include:

- A compact urban form that places destinations near transit.
- A mix of uses, and a balance of jobs and housing, which creates a place where activity occurs at least 18 hours a day.
- Locating a mix of services near transit, including grocery stores and medical clinics.
- 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 connections 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.

3.3.5.2 Regional transit network functional classifications and map

The Regional Transit Network includes future regional and local bus, better bus corridors, high capacity transit and intercity rail, reflecting the region's future transit vision as identified by Portland Streetcar System Concept Plan, TriMet's Service Enhancement Plans, SMART's 2017 Transit Master Plan (update currently underway), as well as local Transportation System Plans. Shown in Figure 3-26, the Regional Transit Network map has been updated to include new connections envisioned in the 2023 High Capacity Transit Strategy update and future transit service. The map also highlights areas planned to be served by community-job connector shuttles, including current and planned routes identified in Clackamas and Washington County's transit development plans. Click on RTP Regional Network Maps for online zoomable version of map. [NOTE: LINK TO BE ADDED]

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 workhorses 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.

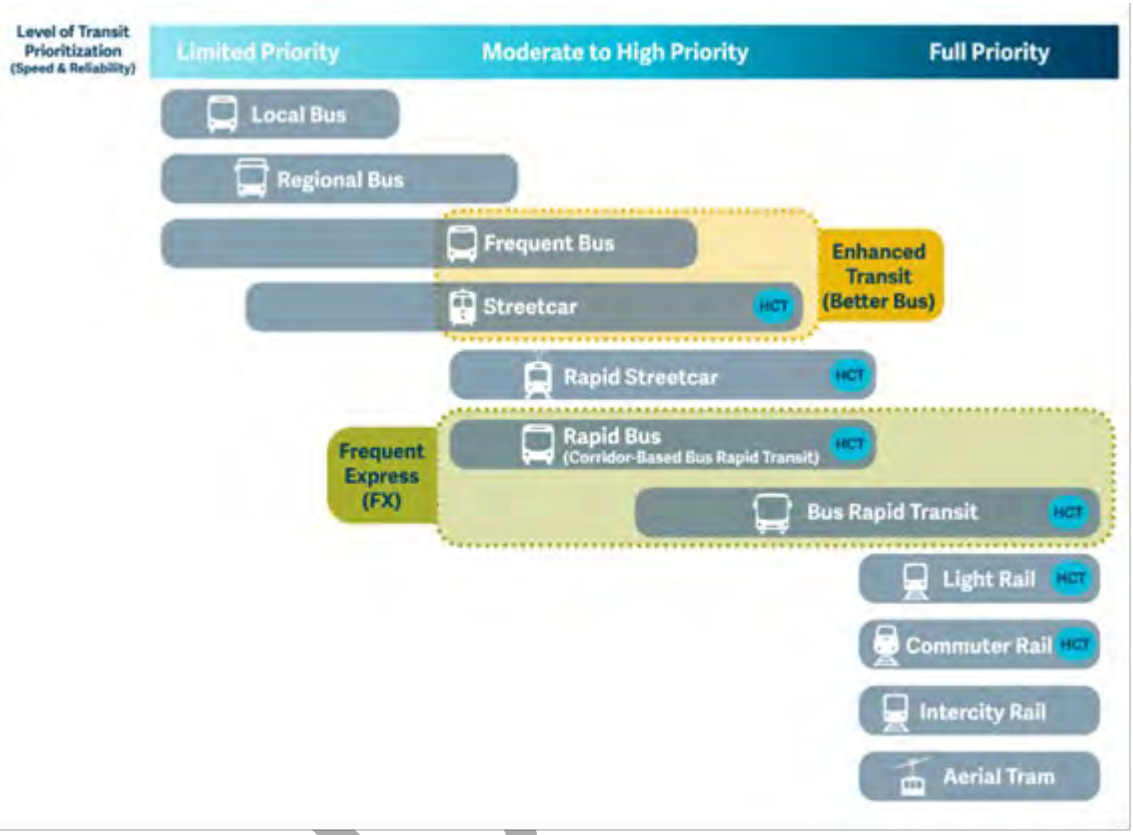
Our bus system operates in mixed traffic and provides service across the region. Alongside our bus system, we have implemented streetcar and corridor-based rapid bus. These services, along with frequent bus service, can and do include a variety of transit priority treatments. These tend to be more frequent and carry more transit riders than the regional and local bus system. The better bus program, new to our region, provides that transit priority to help improve transit speed and reliability above traditional transit service.

The region's high capacity transit system operates with the majority or all of the service in exclusive guideway. The high capacity transit system is the backbone of the broader transportation network, meant to connect to regional centers and carry more transit riders than the local, regional and frequent service transit lines.

The region's high capacity transit system operates with the majority of all of the service in exclusive right-of-way, consisting of six lines over a 75-mile network that serves more than 130

stations in the city of Portland, and the communities of Beaverton, Clackamas, Gresham, Hillsboro, and Milwaukie; and Portland International Airport. Figure 3-25 shows the broad transit spectrum that exists or is planned for regional transit system.

Figure 3-25 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.

Figure 3-26 Regional transit network map

Regional Transit Network

- Major bus stops
- Bus station
- Intercity rail terminal
- Air terminal
- Light rail
- Commuter rail
- Streetcar
- Inter-city passenger rail
- Future high speed rail
- Better bus corridor
- Planned High capacity transit (HCT)
- Frequent bus
- Regional bus
- Bus transit outside UGB
- Commercial job connectors
- Employment/Industrial
- Central city; Regional center; Town center
- County boundary
- Urban growth boundary
- Metropolitan Planning Area

See inset map

Inset map

0 Mile 1

0 5 10 Miles

Source: Metro

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5/18/2023

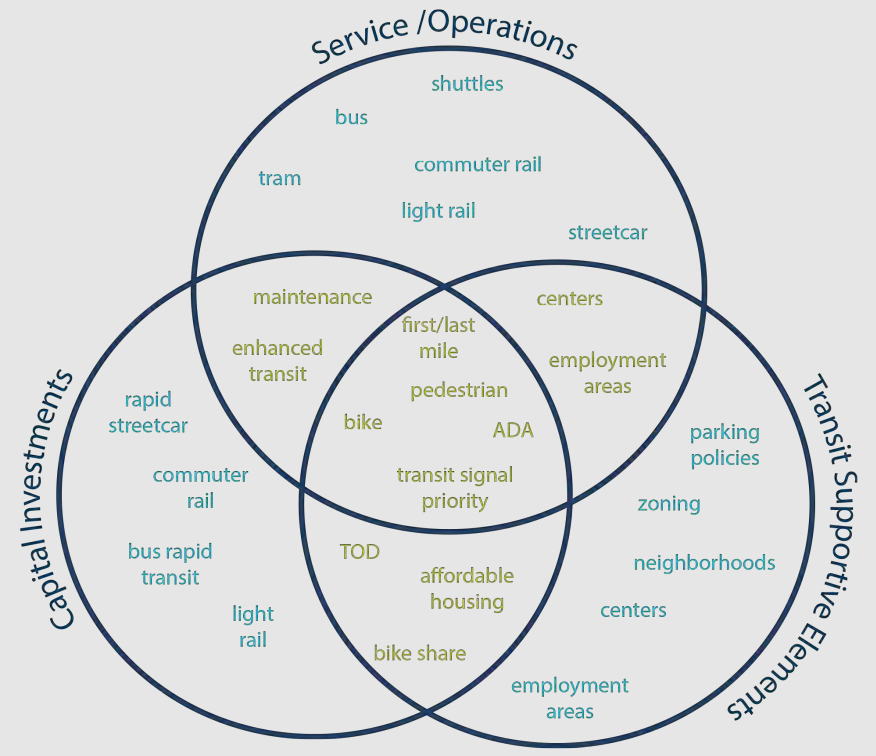
Implementation of the regional transit vision

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

- **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.
- **Capital investments in transit:** enhanced transit strategies that make Better Bus such as signal priority and/or dedicated lanes, or high capacity transit options such as bus rapid transit, light rail. commuter rail or high speed rail.
- **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 3-27 shows the relationships between these different types of investments.

Figure 3-27 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 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.

3.3.5.3 Regional transit network policies

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

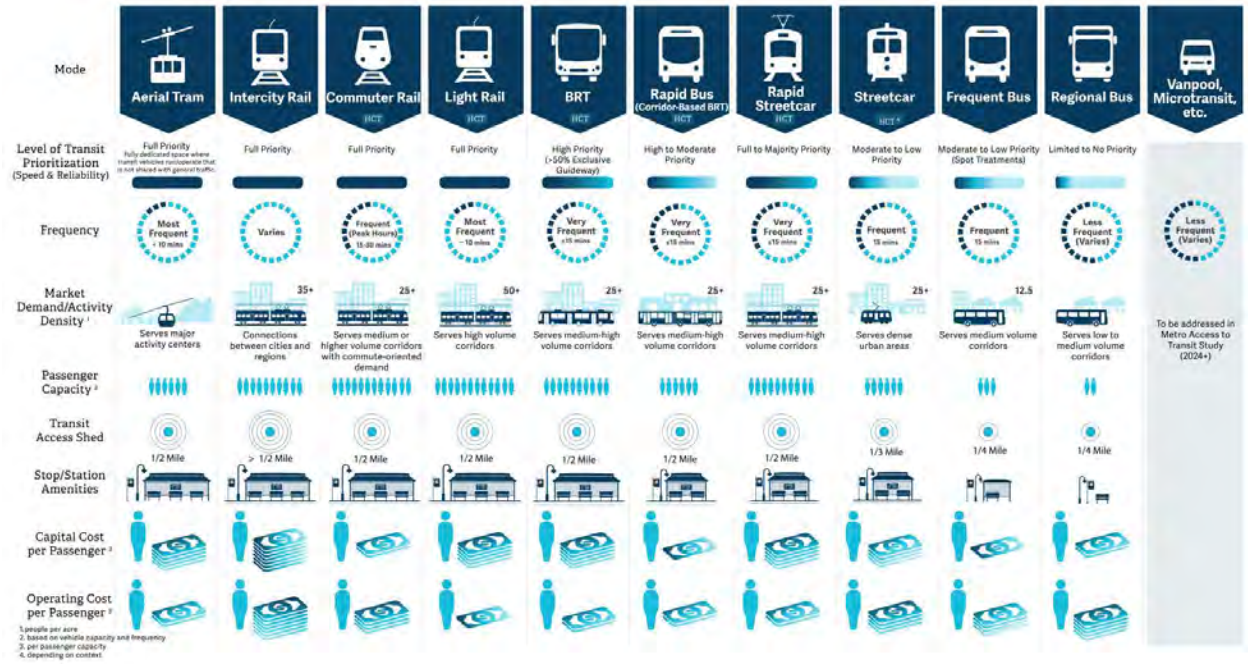
Policy 1	**Provide a high-quality, safe and accessible transit network that makes transit a convenient and comfortable transportation choice for everyone to use.**
Policy 2	**Ensure that the regional transit network equitably prioritizes service to those who rely on transit or lack travel options; makes service, amenities, and access safe and secure; improves quality of life (e.g., air quality); and proactively supports stability of vulnerable communities, particularly communities of color and other marginalized communities.**
Policy 3	**Create a transit system that encourages more people to ride transit rather than drive alone, and supports transitioning to a clean fleet that aspires for net zero greenhouse gas emissions to meet state, regional, and local climate goals.**
Policy 4	**Maintain the region's transit infrastructure in a manner that improves safety, reliability and resiliency while minimizing life-cycle cost and impact on the environment.**
Policy 5	**Complete a well-connected network of local and regional transit on most arterial streets – prioritizing expanding all-day frequent service along corridors and main streets linking town centers to each other and neighborhoods to centers.**
Policy 6	**Complete and strengthen a well-connected high capacity transit network to serve as the backbone of the transportation system. Prioritize transit speed and reliability to connect regional centers with the Central City, link regional centers with each other, and link regional centers to major town centers.**
Policy 7	**Make capital and traffic operational treatments in key locations and/or corridors to improve transit speed and reliability for frequent service.**
Policy 8	**Support expanded commuter rail and intercity transit service to neighboring communities and other destinations outside the region.**
Policy 9	**Increase access to transit by improving pedestrian and bicycle access to and bicycle parking at transit stops and stations. Use new mobility services to improve connections to high-frequency transit when walking, bicycling or local bus service is not an option.**

Policy 10	**Use technology to provide better, more efficient transit service, including meeting the needs of people for whom conventional transit is not an option.**
Policy 11	**Make transit affordable, especially for people with low incomes.**

Transit Policy 1. Provide a high quality, safe and accessible system that makes transit a convenient and comfortable transportation choice for everyone to use.

The region's economic prosperity and quality of life depend on a transportation system that provides every person and business in the region with access to safe, efficient, reliable, affordable and healthy travel options. But recovering from the pandemic-era ridership slump and meeting the region's transit ridership goals will require broader action, potentially including rethinking how transit serves the region's centers, finding resources to increase service, and redesigning streets to keep buses moving.

Figure 3-28 Tools for building a high-quality transit system



Rapid streetcar has less stops and more street priority for regional mobility between centers. Streetcar extends the reach of the high capacity transit network by facilitating mobility as a circulator within major centers.

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. Preferential treatments, such as transit signal priority, covered bus shelters, curb extensions, special lighting, enhanced sidewalks, protected crosswalks and bikeways, are all fundamental to making the transit network, especially frequent bus and high capacity transit, function at its highest level. In order to provide frequent and reliable service, the region needs to partner together to commit to investing in transit priority treatments and high capacity transit to ensure that transit can take people where they need to go on time.

. Safe and comfortable access to the stations is critical to the rider's experience and convenience, but also makes transit fully accessible to people of all ages and abilities. Similarly, typical fixed route transit service may not make sense for everyone throughout the region. people often rely on demand-response transit as well . New shared mobility models like microtransit could provide better service at lower cost in these situations and in increasing access to high-demand corridors. Technology is another tool. Intelligent transportation systems and services help improve the speed and reliability of transit. It also means taking advantage of the growth in personal technology to efficiently communicate information about transit options and leverage electronic, integrated ticketing systems. As tolling and congestion pricing moves forward in the region, discounts or exemptions should be considered to incentivize multimodal travel behavior and reduce impacts, including exemptions for public transit and reduced pricing for higher occupancy vehicles such as shuttles, vanpools, and carpools (Oregon Highway Plan Policy 6.10).

Transit Policy 2. Ensure that the regional transit network equitably prioritizes service to those who rely on transit or lack travel options; makes service, amenities, and access safe and secure; improves quality of life (e.g., air quality); and proactively supports stability of vulnerable communities, particularly communities of color and other marginalized communities.

The region's transit and broader transportation system should provide every person and business with equitable access to have the same opportunity to thrive, regardless of their race or ethnicity. Ridership during the pandemic held steadier on routes that have more people of color and people with low incomes and routes that serve arterials with a mix of jobs, housing, shops and other destinations. Making these trips more convenient and reliable means that people who are more likely rely on transit today will have better travel options. A regional transit system focused on mobility and access that addresses the transportation disparities faced by communities of color has the ability to open opportunities which can dramatically improve outcomes for people of color. By addressing the barriers faced by communities of color, outcomes for other disadvantaged communities will improve as well.

Using equity as a lens to guide decisions more broadly will ensure that the transit system benefits those who rely on it the most. An equity lens can also address disparities in:

- **Access:** New development and gentrification can lead to displacement, of which people of color and low-income are disproportionately affected by. As housing and transportation costs increase, households are being forced to move to areas with less transit service. To address this, projects should be prioritized in equity focus areas.
- **Safety and security:** People with low-income and people of color across the country disproportionately suffer from well-documented racial bias in and bear the burden of policing. Racial disparities exist in enforcing transportation laws and rules and issuing penalties for violations. Further, fines are not based on an individual's ability to pay, meaning that the penalty has greater impact for people with low-income and could lead to compounding consequences such as debt. At the same time, people of color are increasingly likely to be concerned for their safety when traveling due to fear of harassment and discrimination. Agencies should continue to pursue alternatives to

policing (e.g., TriMet's Safety Response Team) that discourage harassment without enforcement.

- **Technology:** As more transit fare collection systems embrace contactless payment, accessibility challenges can arise for people, especially people with low incomes or who are undocumented, underbanked or unbanked. Agencies should continue to monitor and pursue strategies to reduce barriers to accessing digital fare systems.

Offering ample opportunities for meaningful public engagement and input is critical to hearing diverse perspectives on goals, policies and projects. Continuing to strengthen existing partnerships with local community organizations can provide more individuals with voices that may not have had the platform to be heard. Any transit planning effort should directly incorporate community in the decision-making process.

Further, major infrastructure investments have implications within the communities they are located. Historic data shows that high capacity transit investments such as light rail contribute to both positive and negative outcomes for the communities they serve. Their potential displacement from the economic pressures that the investment brings ultimately undermines its long-term effectiveness. It is critical during planning for a new major transit investment that a strategy be developed that considers both the positive and negative impacts, particularly as it applies to the most at-risk populations who also tend to be the most transit dependent. Key focus areas should include affordable transit-oriented housing opportunities and contracting and job training benefits and opportunities for displaced and marginalized populations.

Transit Policy 3. Create a transit system that that encourages people to ride transit rather than drive alone and supports transitioning to a clean fleet that aspires for net zero GHG emissions, enabling us to meet our state, regional, and local climate goals.

Transit is a critical part of meeting regional goals for climate leadership and clean air, and an integral part of implementing the Climate Smart Strategy. Improving and expanding the transit system and use of transit in greater Portland will continue to play a significant role in reducing transportation-related air pollutants, including greenhouse emissions. For people to choose transit over driving, transit must be at least as convenient and reliable. A transit trip needs to get people to their destination at the scheduled time, consistently, and it must be easy to use. The route would ideally be a one-seat ride or have seamless connections and fares between trains, buses, shuttles or streetcar, regardless of the provider. It should be just a short walk or bicycle ride away via a safe, comfortable connection that is easy to find and navigate. Information about schedules, transfers and real time arrivals would be readily available and easy to access both on-board and at stops and stations. Most importantly, it needs to be a viable option in regard to travel times. The region should continue to pursue strategies that prioritize transit and make the bus run better (e.g., signal priority and bus lanes), integrate service, information, trip planning, and payment platforms across transit agencies, improve sidewalk, crossing and bicycle facilities, and adopt technology to make transit more predictable and user-friendly (e.g., electronic fare and real-time monitoring systems). By providing both more and better transit connections between

where people live and where they need to go, more people who drive today will be more likely to choose to use transit to travel instead.

Ongoing efforts to convert bus fleets to low and zero-emissions vehicles will further reduce emissions in the region. Electric trains and hybrid diesel/electric buses have been part of the regional fleet for many years and battery-electric buses have been added more recently. Both House Bill 2017 and the Low or No Emissions Buses and the federal Bus Facilities Grant Program funded by the 2021 Bipartisan Infrastructure Law have provided an opportunity to further invest in clean vehicles. As transit agencies in the region move toward a fleet without emissions, many are switching to renewable biodiesel fuel to reduce emissions in the interim. Further, renewable electricity from natural resources like sun and wind can be used to power both transit vehicles and facilities. Cleaner alternative fuels are the future of transit, and the region should continue to support the transition to a clean transit fleet and facilities. As more people are encouraged to ride on an improved and expanded transit network using clean vehicles, greater Portland will see emissions reduced for the transportation system more broadly as well.

Transit Policy 4. Maintain the region's transit infrastructure in a manner that improves safety, reliability and resiliency while minimizing life-cycle cost and impact on the environment.

While our transit system is still relatively new, it is starting to need more repairs and/or replacements to buses, streetcars, trains and their infrastructure as they age. It will become increasingly important to invest in upkeep as elements of the system begin to reach the end of their useful life to maintain a state of good repair. 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. The Federal Transit Administration's State of Good Repair program for rail and bus rapid transit systems that are at least seven years old includes incorporating industry best practices and recommendations related to reliability and safety to help transit agencies maintain bus and rail systems as part of the federal transportation performance management implementation.

It is also important to plan for future capacity needs of the 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. To make transit more reliable and convenient, these factors must also be addressed.

Transit Policy 5. Complete a well-connected network of local and regional transit on most arterial streets – prioritizing expanding all-day frequent service along corridors and main streets linking town centers to each other and neighborhoods to centers.

Improve local service transit

The local transit network provides basic service and access to local destinations and the frequent and high capacity transit network. It is designed to provide full transit service coverage to the region, ensuring that the majority of the region's population has transit service available to them – varying in type, frequency, and span based on needs and demand. It . Transit preferential treatments and passenger facilities are appropriate at higher ridership locations.

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. **C**ommunity and job connector shuttles also expand the reach of transit service 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.

One foundational support of the regional transportation system 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. They provide a lifeline of service to people who experience barriers to accessing the transportation system. Current service is still not enough to meet the existing demand or projected growth in demand concurrent with the region's growing population.

Expand regional and local frequent service transit

Providing regional transit along most arterial streets is another key piece of a high-quality network better serving existing and growing communities. 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.

Transit Policy 6. Make capital and operational improvements in key locations and/or corridors to improve transit speed and reliability for frequent service.

In order to meet the region's environmental, economic, livability and equity goals as we grow over the next several decades, we need to invest more to improve the efficiency of our system, particularly the more congested corridors in the frequent service bus network, to better support transit riders. More reliable, higher quality transit connections would better connect low-income and transit-dependent riders to jobs, school and services. A more fine-grained network of higher-quality transit service complements high capacity transit investments to help relieve transit congestion and grow ridership throughout the region.

There are many ways to increase transit speed and reliability throughout our system to make the bus better and reduce time spent traveling by transit for people riding. 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 3-10 describes the different types of treatments that have the potential to improve reliability that are part of the enhanced transit toolbox. Providing transit priority on the roadway and/or at signals that help buses avoid delay and/or bypass traffic mean trips on these routes stay on schedule and/or are faster. These features, combined with other preferential treatments, such as covered bus shelters, special lighting, enhanced sidewalks and bicycle facilities, and protected crosswalks, are fundamental to making the frequent bus network function at its highest level. The region should pursue these opportunities as they arise.

Table 3-11 Better Bus treatments to enhance frequent transit service

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

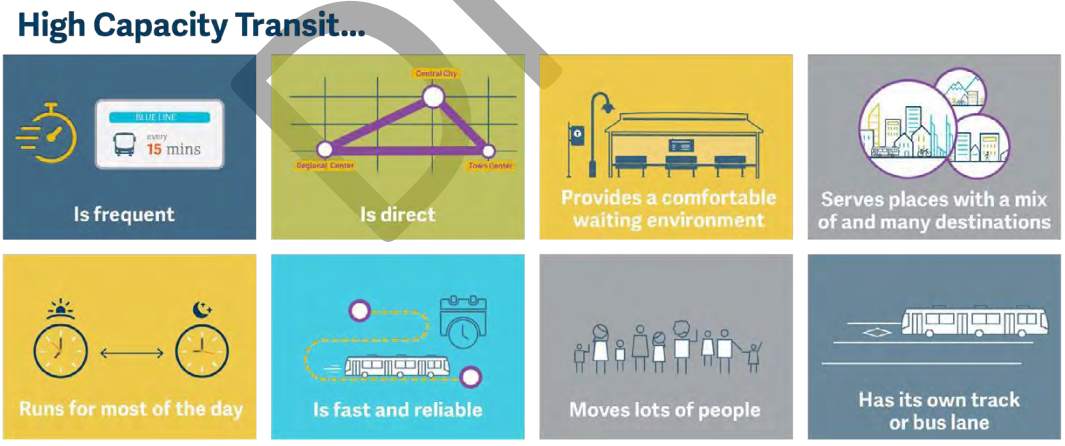
The Better Bus program employs public partnerships to implement treatments that increase capacity and reliability, yet are relatively low-cost to construct, context-sensitive, and able to be deployed quickly throughout the region where needed. Coordinated investments by multiple partners have the potential to provide major improvement over existing frequent service while being less capital-intensive and quick to implement than large-scale high capacity transit. Investments could 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 rapid bus (those identified as Developing or Future corridors in the 2023 High Capacity Transit Strategy). This creates a potential path for growing better bus into high capacity transit over time – starting with incremental, smaller-scale improvements that can be leveraged later when implementing a large-scale capital infrastructure investment.

Transit Policy 7. Complete and strengthen a well-connected high capacity transit network to serve as the backbone of the transportation system. Prioritize transit speed and reliability to connect regional centers with the Central City, link regional centers with each other, and link regional centers to major town centers.

High Capacity Transit (HCT) investments help the region concentrate development and growth in its centers and corridors. It is the backbone of the transportation network, connecting people to the central city, regional centers and major town centers with high-quality service (i.e., fast, frequent, safe and reliable). Linking these activity centers and station communities better

connects people with essential jobs, services, commerce and other major destinations (e.g., colleges, hospitals, affordable housing). High capacity transit serves regional routes where the most people need to travel to get where they need to go, often with relatively long trip lengths, to provide a viable alternative to the automobile in terms of convenience and travel time. Generally, these corridors make more broad connections across the region where the bus or other types of transit make connections and provide complementary services to fill in the network.

High capacity transit investments take existing strong transit connections to the next level in accessibility and priority on the roadway and at the signal – while shining a light on the corridor in which it travels to improve safety, access and livability for current and future riders. This type of service carries more transit riders more quickly, efficiently and comfortably than local, regional and frequent service transit lines through both a level of enhanced amenities and transit priority. Enhanced amenities refer to features that make high capacity transit more efficient, convenient, and comfortable: vehicles that are larger and allow boarding from all doors, transit centers and stations with near-level boarding, and frequent service (striving for frequencies of 10 minutes or better during the peak hours and 15 minutes during off peak hours). It also refers to transit centers and stations with covered waiting shelters, benches, schedule and real-time bus and train arrival information and special lighting. Other amenities could include ticket machines, restroom facilities, bicycle parking (e.g., bicycle stations or bike & rides), civic art and commercial services. Enhanced priority investments refer to dedicated tracks or lanes in the street that improve speed and/or reliability, getting people to destinations faster and on-time. High capacity transit operates on a fixed guideway or within an exclusive right-of-way on tracks or in the street, to the greatest extent possible.



The region should continue to pursue coordinated partnerships in planning for and investing in these major capital improvements that prioritize transit over other modes, construct features that improve speed, reliability, and access to transit, and address community needs and gaps. Adopted transit-supportive land use and transportation policies and strategies, such as high-density and mixed-use zoning, reduced parking requirements, and affordable housing incentives are critical to

ensuring a corridor is ready for high capacity transit investment. To optimize and leverage transit supportive land uses, alignments and station locations should be oriented towards existing and future high density, mixed-use development and connect intermodal passenger facilities. 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.

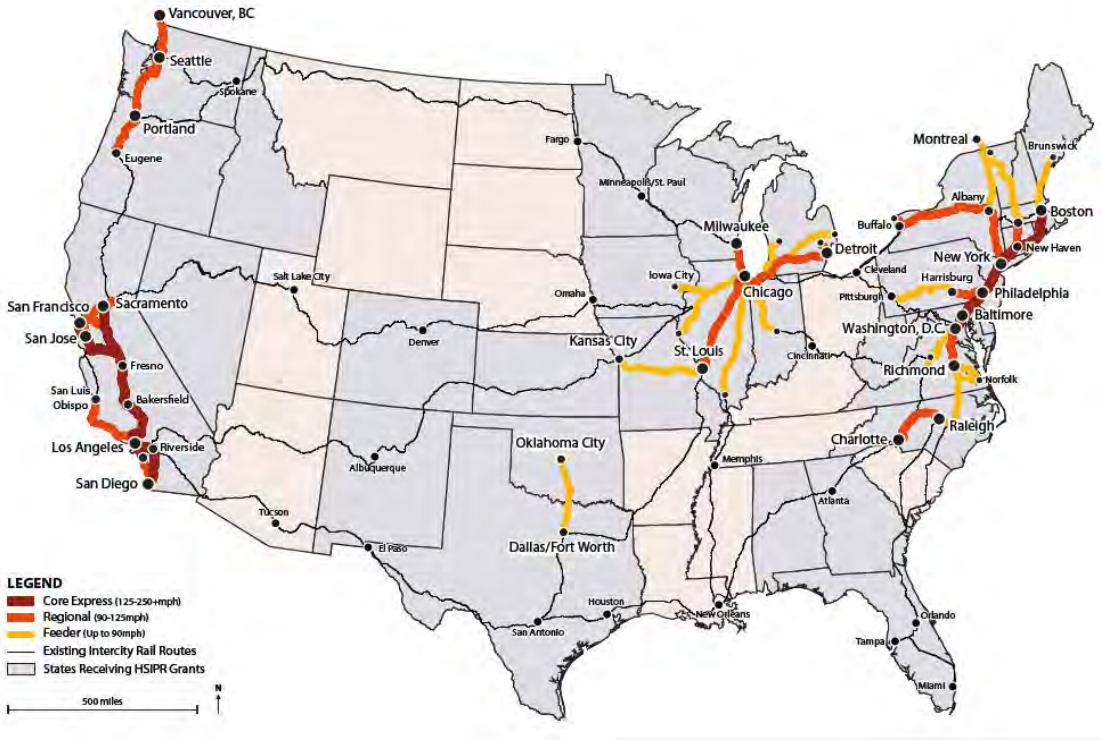
Transit Policy 8. Support expanded commuter rail and intercity transit service to neighboring communities and other destinations outside the region.

Intercity passenger rail and bus service to communities outside of the region provides an important connection to the regional transit network. Current travel patterns are showing a rising demand for intercity transit service solutions for improving passenger rail in the future in response to rising demand, while also balancing similarly increasing freight service needs. The following corridors have a high likelihood to support intercity or commuter rail service in the future: Portland-Newberg, Portland-Astoria, Portland-California and Chicago to Seattle via Salt Lake City and Portland (formerly Amtrak Pioneer). Metro, regional partners and corridor communities should consider right-of-way preservation for these corridors and consider land use planning activities that focus on transit-supportive development around potential future station areas.

Portland-Salem/Keizer-Eugene is the most promising corridor for expanding commuter rail and intercity transit service travel times, reliability, frequency and connectivity with and accessibility of regional and local transit, bicycle and pedestrian networks. There is existing Amtrak passenger rail service on a more highly used freight corridor (Union Pacific Mainline) and there is the potential for an alignment either extending or tying into WES commuter rail service on a lightly used freight corridor (Oregon Electric Line) from to Wilsonville to Salem, currently served by Wilsonville's SMART and Salem's Cherriots today. All were evaluated in the 2010 Oregon Rail study as potential solutions for improving intercity rail service on the corridor, but the alignment tying into WES attracted more riders (by one to four percent). When developing inter-regional rail service, this corridor alignment should take priority for improving passenger rail service between Eugene and Portland in the nearer-term future.

In the future, a fast, frequent, reliable and environmentally responsible high-speed transit connection could serve as a catalyst to transform the Pacific Northwest. The Pacific Northwest Corridor is an important intercity rail connection between Eugene, Oregon and Vancouver, British Columbia. It is one of eleven corridors shown in Figure 3-30 identified for improved inter-city rail connections and potential high-speed rail investments to better connect communities across the U.S. Ultra-high-speed rail on the corridor should complement and bolster the broader intercity passenger rail system – for instance, Amtrak Cascades could connect smaller cities (including Salem and Eugene nearer-term) to the corridor and the regional hubs connected by it.

Figure 3-29 U.S. High speed intercity passenger rail network

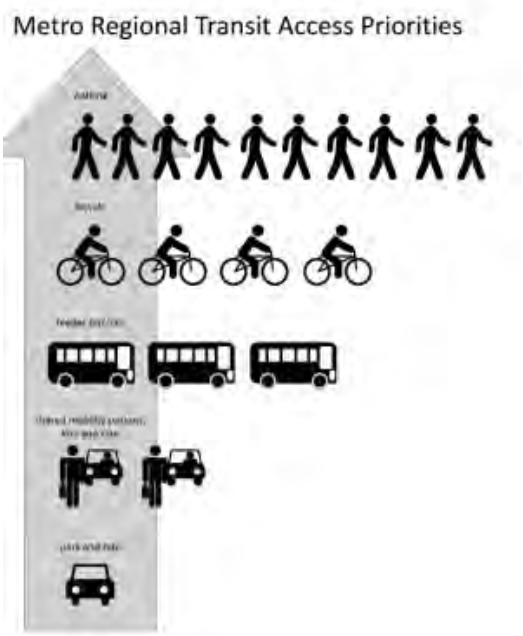


Source: U.S. Department of Transportation (April 2016)

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 more broadly. Additional collaboration and funding are needed to support the development of this level of service.

Transit Policy 9. Increase access to transit by improving pedestrian and bicycle connections to and bicycle parking at transit stops and stations. Use new mobility services to improve connections to high-frequency transit when walking, bicycling or local bus service is not an option.

Figure 3-30 Regional transit access priorities



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

People access transit via walking, bicycling, bus, rail, carpools, shared mobility (like Uber and Lyft or Biketown) and private automobiles. In 2040 corridors, main streets and centers, transit is supported by providing transit-supportive development and well-connected street systems to allow convenient bicycle and pedestrian access. 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 and helps the transit network function at its highest level. At some point in their trip, all transit riders are pedestrians 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. 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. Further, transit, pedestrian and bicycle travel benefit as improvements are made to each of the modes.

Figure 3-30 depicts the region's priorities for providing multi-modal access to the region's transit system. It prioritizes walking and biking to transit and deemphasizes driving to transit. In select locations, park-and-ride facilities may provide vehicular access to the high capacity or even frequent service network for areas that cannot be well-served by local transit due to topography, street configuration, or lack of density.

- Improving pedestrian and bicycle access to transit stops and stations is accomplished through filling sidewalk gaps within a mile and bicycle and trail network gaps within three miles, integrating trail connections and shade trees, and providing pedestrian and bicycle protected crossings. Additionally, amenities at stops and stations further support people walking and bicycling to transit, including shelters, shade trees and seating; bicycle repair stations, lockers, secured, covered bicycle parking and/or Bike and Rides; and co-located bike and scooter sharing facilities. Allowing bicycles on board transit also helps expand active transportation connections, particularly the use of apps to let bicycle riders know if a bus or train has bicycle space available.

  Additionally, managing or pricing parking spaces and reducing the number of spaces that developments near transit provide a safer, more active transportation-oriented environment near stations. The Climate Friendly and Equitable Communities (CFEC) rules require many cities in the region to reduce or eliminate parking requirements and manage or price parking in areas with high levels of transit service).

Explore new ways to improve connections to high frequency transit

Advances in technology have given rise to new transportation services that make it easier for people to share vehicles and have the potential to work alongside transit to significantly extend the range and convenience of car-free trips in the region. Many of these options, including ride-hailing and bike, e-bike, scooter, and car sharing, are available and widely used in certain parts of the region. These new services can help bridge the gap to first and last-mile high frequency and, particularly, high capacity transit access. Improving connections and interactions between shared mobility and transit can be accomplished by:

- Ensuring designated transit streets are designed and managed to prioritize transit and shared travel. Ride-hailing and e-commerce delivery vehicles are using an increasing amount of curb space in some congested areas. Agencies can manage the curbside to prioritize ride-hailing services carrying more than one passenger and avoid conflicts with transit vehicles.
- Dedicating 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 drop-offs 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.
- Coordinating with shared mobility companies to support shared connections to transit stations. Several communities already fund vanpools or operate shuttles to and from transit stations. Similarly, public agencies can partner with microtransit or carsharing, pooled ride-hailing services or dockless bike/scooter sharing companies to subsidize or promote trips via these modes to transit stations. The City of Portland's Transportation Wallet, which offers credits that people can use to pay for transit and a variety of new mobility services to residents in Parking Districts, affordable housing sites, and new multi-family buildings. These

programs allow people access to a suite of options that can complement existing options or connect them to transit when the bus or train only covers part of their journey.

Transit Policy 10. Use technologies to provide better, more convenient and efficient transit service, including meeting the needs of people for whom conventional transit is not an option.

Typical fixed route transit service may not make sense for everyone throughout the region. People commuting to employment centers in more suburban areas rely on slower, often infrequent buses or may not be served by existing bus service Similarly, 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 does not 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 where we need to enhance service on high-ridership lines while piloting 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 on fixed routes. As these options continue to mature, agencies 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 increase resources available to serve high-demand corridors. The growth in new mobility technologies also includes new real-time fleet management and route optimization tools as well as trip planning services and ride matching services that can help people identify a transportation service that meets their needs or someone with whom they can share a ride. These technologies can be used to increase the quality and/or productivity of infrequent or high-cost services, or to help people find a service that meets their needs when conventional transit isn't available to them.

Making it easy to plan, book, and pay for trips, including across agency and even shared mobility platforms, is one way to make transit more convenient for people riding. Smartphone apps are now the most common way for people in the Portland region to access information about their transportation options and are well-suited to provide the type of real-time information that people need to coordinate trips while accounting for potential transit delays. This is especially true for people accessing transit through amidst the changing landscape of new mobility services in the region. TriMet's Open Trip Planner integrates data on transit routes, schedules and real-time arrivals and tracking; bicycling and walking travel times; and shared mobility options to make it easy to plan multimodal trips on an interactive map platform optimized for smartphones.

Other private travel information apps offer similar services; transit agencies can make schedule and route information available in the format that these tools use to allow their services to how up in these apps. There are two important issues to consider when integrating transit and shared mobility data:

- Ensuring that third-party apps use that data in a way that supports transit. 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 those services. 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.

- Maintaining access for the many people who can't or don't access apps or make online payments, which can include many of the same travelers who rely on transit. These travelers often need to overcome both cultural barriers (for example, limited English proficiency and concerns about personal safety when traveling in public) and technological ones (such as a lack of access to smart phones or data plans that allow for easy online access to information from anywhere) in order to access the increasing number of online travel information and services.

Transit Policy 11. Make transit is affordable, especially for people with low incomes.

Ensuring that transit is affordable alleviates the cost of and encourages alternatives to owning automobiles. It is therefore important to ensure that transit is affordable, particularly for the riders that rely on it the most. The cost of transportation burdens many households in the metropolitan region and is usually the second largest share of household costs (after housing).

People of color, with limited English proficiency, with low-income, with disabilities, age 65 or older and 18 or younger are those most affected by transportation costs. C-TRAN and TriMet offer reduced fares for youth, seniors, people on Medicare, and people with low incomes. Most SMART buses are free – there is a fee for Dial-a-Ride service and for the 1X to Salem which also offers a reduced fare. Broadening these programs to further reduce or even eliminate some fares or offering other financial assistance that could be applied to costs of fees would help alleviate cost-burden for those who rely on transit. One way to do that is by making transit free for youth – a clear community priority identified during the Get Moving 2020 transportation funding measure process.

Research has shown that people form opinions about transit early on, with early use being a key indicator of ridership in the future. Removing barriers to acquiring reduced or free transit fares can make it possible for individuals with limited access to documents, identification, or internet to receive these benefits. Fare capping, an approach utilized by TriMet's Hop Fastpass, allows people to pay for a reduced monthly pass by the ticket rather than all at once up front. Programs like TriMet's Access Transit, which provide fares to non-profit and community-based organizations at lower to no cost to distribute to clients, help to further increase the reach and accessibility of reduced fare programs. The region should build partnerships with non-profit and human service providers to support expanding these types of programs, disseminate more information about reduced fare programs and work through ways in which these programs can be more effective. The City of Portland's BIKETOWN for All program is one example of how to increase integration of free or reduced fare programs by including students receiving federal aid (FAFSA) and people

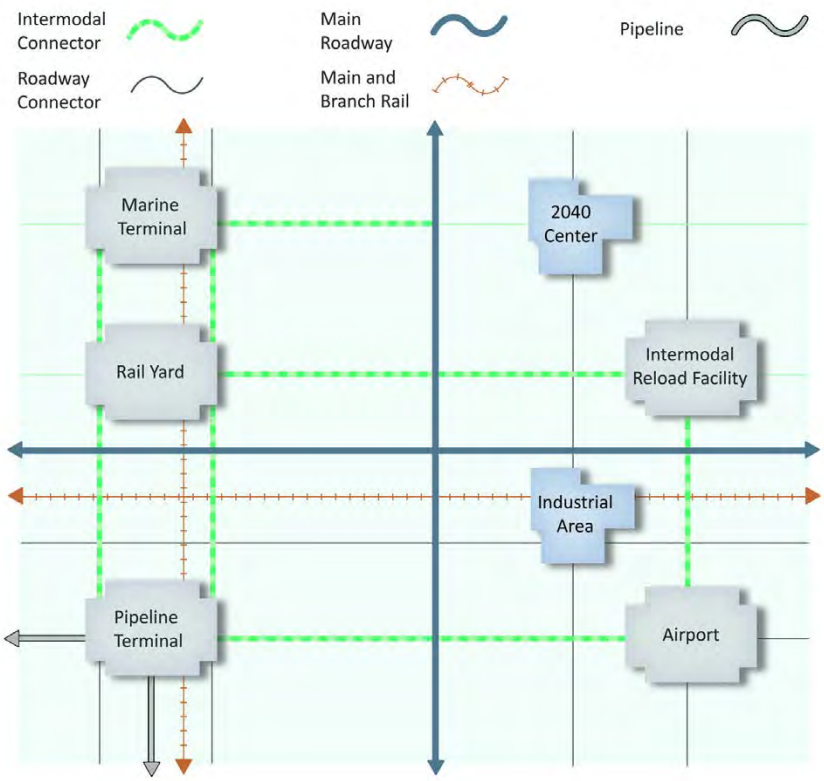
receiving food assistance (Oregon Trail Card, SNAP). This should also include advocating in the state legislature and to the voters to increase, deepen, and sustain long-term funding for programs which support keeping transit affordable for riders.

3.3.6 Regional freight network vison and policies

Informing the regional framework for freight policy is the understanding that the Portland – Vancouver region is a globally competitive international gateway and domestic hub for commerce. The multimodal freight transportation network is a foundation for economic activities, and we must strategically maintain, operate and expand it in a timely manner to ensure a vital and healthy economy.

The Regional Freight Strategy addresses the needs for freight through-traffic as well as regional freight movements, and access to employment and industrial areas, and commercial districts. The Regional Freight Network Concept contains policy and strategy provisions to develop and implement a coordinated and integrated freight network that helps the region's businesses attract new jobs and remain competitive in the global economy. The transport and distribution of freight occurs via the regional freight network, a combination of interconnected publicly and privately owned networks and terminal facilities. The concept in Figure 3-31 shows the components of the regional freight system and their relationships.

Figure 3-31 Regional freight network concept



Rivers, mainline rail, pipeline, air and truck routes and arterial streets and throughways connect the region to international and domestic markets and suppliers beyond local boundaries. Inside the region, throughways and arterial streets distribute freight moved by truck to air, marine and pipeline terminal facilities, rail yards, industrial areas and commercial centers. Rail branch lines and heavy vehicle corridors connect industrial areas, marine terminals and pipeline terminals to rail yards and truck terminals. Pipelines transport petroleum products to and from terminal facilities.

3.3.6.2 Regional freight network policies

The Regional Freight Network Policies reflect the policy framework of the Regional Freight Strategy. Specific actions that Metro, in partnership with cities, counties, agencies and other stakeholders can take to implement the policies are identified in Chapter 8 of the Regional Freight Strategy.

Policy 1	**Plan and manage our multimodal freight transportation infrastructure using a systems approach, coordinating regional and local decisions to maintain seamless freight movement and access to industrial areas and intermodal facilities.**

Policy 2	**Manage the region's multimodal freight network to reduce delay, increase reliability and efficiency, improve safety and provide shipping choices.**
Policy 3	**Better integrate freight issues in regional and local planning and communication to inform the public and decision-makers on the importance of freight and goods movement issues.**
Policy 4	**Pursue a sustainable multimodal freight transportation system that supports the health of the economy, communities and the environment through clean, green and smart technologies and practices.**
Policy 5	**Protect critical freight corridors and access to industrial lands by integrating freight mobility and access needs into land use and transportation plans and street design.**
Policy 6	**Invest in the region's multimodal freight transportation system, including road, air, marine and rail facilities, to ensure that the region and its businesses stay economically competitive.**
Policy 7	**Eliminate fatalities and serious injuries caused by freight vehicle crashes with passenger vehicles, bicycles and pedestrians, by improving roadway and freight operational safety.**
Policy 8	**Adapt future freight system investments to emerging technologies and shifts in goods movement, including the emergence of e-commerce and automated delivery systems.**

Freight Policy 1. Plan and manage our multimodal freight transportation infrastructure systems approach, coordinating regional and local decisions to maintain seamless freight movement and access to industrial areas and intermodal facilities.

A comprehensive, systems approach is central to planning, managing, and using the region's multimodal freight transportation infrastructure. This approach provides a strong foundation for addressing core throughway network bottlenecks, recognizing and coordinating both regional and local decisions to maintain the flow and access for freight movement that benefits all.

The transport and distribution of freight occurs via a combination of interconnected publicly and privately-owned networks and terminal facilities.

Freight Policy 2. Manage the region's multimodal freight network to reduce delay and increase reliability and efficiency, improve safety and provide shipping choices.

The 2005 Cost of Congestion to the Economy of the Portland Region Study reported that our region has a higher-than-average dependency on traded sector industries, particularly computer/electronic products, wholesale distribution services, metals, forestry/wood/paper products, and publishing; business sectors that serve broader regional, national, and international markets and bring outside dollars into the region's economy.

These industries depend on a well-integrated and well-functioning international and domestic transportation system to stay competitive in a global economy.

As an international gateway and domestic freight hub, the region is particularly influenced by the dynamic trends affecting distribution and logistics. As a result of these global trends, U.S. international and domestic trade volumes are expected to grow at an accelerated rate. The value of trade in Oregon is expected to double by 2040, to $730 billion.[34] The region's forecasted population and job growth – an additional 917,000 residents and 597,000 jobs to be added between 2010 and 2040[35] – along with the associated boost in the consumption of goods and services are significant drivers of projected increases in local freight volume.

This policy is the first step to improved freight and goods movement operations on the existing system and includes preservation, maintenance and operations-focused projects and associated planning and coordinating activities. It focuses on using the system we have more effectively.

It is critical to maximize system operations and create first-rate multimodal freight networks that reduce delay, increase reliability, maintain and improve safety and provide cost-effective choices to shippers. In industrial and employment areas, the policy emphasizes providing critical freight access to the interstate highway system to help the region's businesses and industry in these areas remain competitive. Providing access and new street connections to support industrial area access and commercial delivery activities and upgrading main line and rail yard infrastructure in these areas are also emphasized.

In order to carry out an overall policy of reducing delay and increasing reliability, it will be necessary to expand the types of programs and amounts of funding for freight transportation infrastructure to adequately fund and sustain investment in our multimodal freight transportation network in order to ensure that the region and its businesses stay economically competitive.

Freight Policy 3. Better integrate freight issues in regional and local planning and communication to inform the public and decision-makers on the importance of freight and goods movement issues.

To gain public support for projects and funding of freight initiatives, and to better inform elected officials when making land use and transportation decisions, a program that informs the public is required.

Potential freight impacts should be considered in all modal planning and funding, policy and project development and implementation and monitoring. This also means better informing the region's residents and decision makers about the importance of freight movement on our daily lives and economic well-being. Metro will work with its transportation partners to improve the level of freight information available to decision-makers, the business community and the public.

[34] Federal Highway Administration, Freight Analysis Framework version 3.4, 2013

[35] Metro 2040 growth forecast. Represents forecasted population and jobs within 4-county area (Multnomah, Clackamas, Washington and Clark counties).

Freight Policy 4. Pursue a sustainable multimodal freight transportation system that supports the health of the economy, communities and the environment through clean, green and smart technologies and practices.

This policy deals with traditional nuisance and hot spot issues associated with "smokestack and tailpipe" problems, but it also recognizes the many current contributions and new opportunities for the evolving green freight community to be part of the larger environmental and economic solution set required in these times, including reducing greenhouse gas emissions.

It is important to ensure that the multimodal freight transportation network supports the health of the economy and the environment by pursuing clean, green and smart technologies and practices. Details of the most promising innovations and technologies have been developed as part of the Regional Freight Strategy's Technology for Sustainable Freight Transport, as identified in Chapter 6 of the strategy.

Freight Policy 5. Protect critical freight corridors and access to industrial lands by integrating freight mobility and access needs into land use and transportation plans and street design.

This policy targets land use planning and design issues that can affect the ability of freight, goods movement and industrial uses to live harmoniously with their neighbors. Freight---sensitive land use planning includes everything from long-range aspirations for freight and industrial lands to short-term and smaller scale design and access issues.

It is important to integrate freight mobility and access needs in land use decisions to ensure the efficient use of prime industrial lands, protection of critical freight corridors and access for commercial delivery activities. This includes improving and protecting the throughway interchanges that provide access to major industrial areas, as well as the last-mile arterial connections to both current and emerging industrial areas and terminals.

Freight Policy 6. Invest in the region's multimodal freight transportation system, including road, air, marine and rail facilities, to ensure that the region and its businesses stay economically competitive.

This policy focuses on planning and building capital projects and developing the funding sources, partnerships, and coordination to implement them.

It is important to look beyond the roadway network to address needs of the multi-modal and intermodal system that supports our regional economy. As described in the Regional Freight Strategy, freight rail capacity is adequate to meet today's needs but as rail traffic increases additional investment will be needed in rail mainline, yard and siding capacity.[36] Whenever right-of-way is considered for multiple uses such as freight rail, passenger rail and trails, analysis must include long-term needs for existing freight and freight rail expansion to ensure that necessary future capacity is not compromised.

[36] Port of Portland, Port of Portland Rail Plan, 2013.

In addition, navigation channel depth on the Columbia River continues to be the limiting factor on the size, and therefore the number, of ships that call on the Portland-Vancouver Harbor.

Freight Policy 7. Eliminate fatalities and serious injuries caused by freight vehicle crashes with passenger vehicles, bicycles and pedestrians, by improving roadway and freight operational safety.

This policy and the potential design solutions focuses on addressing the issue of eliminating fatalities and serious injuries due to freight vehicle crashes with passenger vehicles, bicycles and pedestrians.

Freight Policy 8. Adapt future freight system investments to emerging technologies and shifts in goods movement, including the emergence of e-commerce and automated delivery systems.

This policy is focused on addressing the continued growth in e-commerce and delivery trips and the need for industrial land that provides for an increase in distribution centers and fulfillment centers.

3.3.6.3 Regional freight network classifications and map

The Regional Freight Network map, shown in Figure 3-32 applies the regional freight network concept on the ground to identify the transportation networks and facilities that serve the region and the state's freight mobility needs. Click on RTP Regional Network Maps for online zoomable version of map. [NOTE: LINK TO BE ADDED]

The regional freight network has a functional hierarchy like that of the regional motor vehicle network. To show the continuity of the freight system in both Oregon and Washington state, the map shows the freight routes in Clark County, north of the Columbia River and rural freight routes designated by Clackamas and Washington counties that connect to the regional freight network designated within the metropolitan planning area boundary. The Regional Freight Network map also includes six inset maps (brown dotted line boxes) that focus on the key intermodal facilities (marine terminals, rail yards and pipeline facilities) and rail lines to highlight the importance of the rail network and have better visibility for the rail lines.

The different functional elements of the regional freight network are:

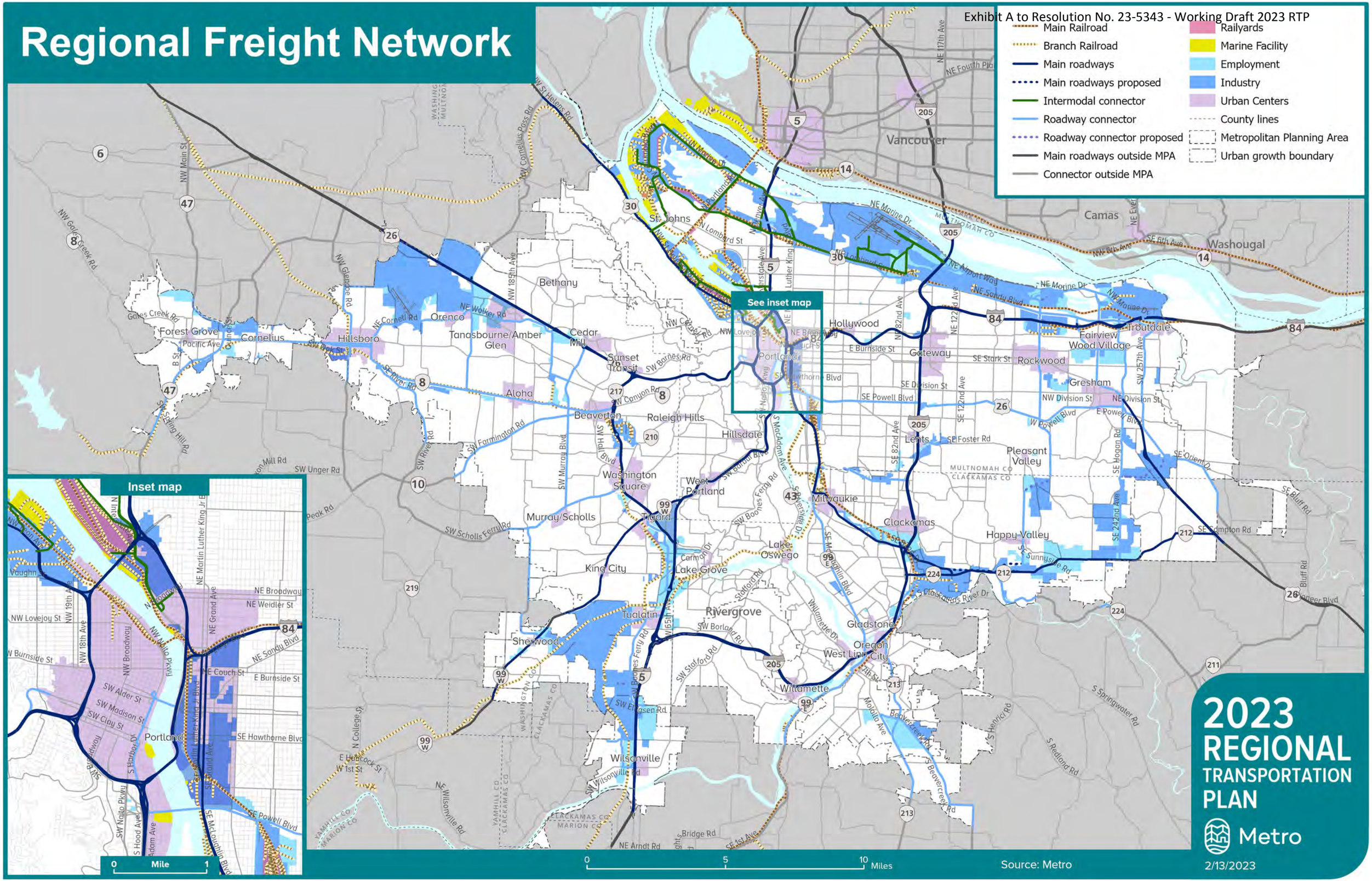
- **Main line rail –** Class I rail lines (e.g., Union Pacific and Burlington Northern/Santa Fe).
- **Branch line rail –** Non-Class 1 rail lines, including short lines (e.g., Portland and Western Railroad).
- **Main roadway routes –** Designated freights routes that are freeways and highways that connect major activity centers in the region to other areas in Oregon or other states throughout the U.S., Mexico and Canada.
- **Regional Intermodal Connectors –** Roads that provide connections between major rail yards, marine terminals, airports, and other freight intermodal facilities, and the freeway and highway system. Marine terminals, truck to rail facilities, rail yards, pipeline terminals, and air freight facilities are the primary types of intermodal terminals and businesses that the tier 1 and NHS intermodal connectors are serving in the Portland region. An example of a NHS

intermodal connector is Marine Drive between the marine terminals (Terminal 5 and 6) and I-5, which in 2014 had over 4,100 average daily trucks. Another NHS intermodal connector is Columbia Boulevard between I-5 and OR 213 (82nd Avenue) which had over 3,500 average daily trucks and is a vital freight connection between the air-freight terminal at Portland International Airport and both I-5 and I-205. These Regional Intermodal Connectors are carrying many more trucks than the typical road connectors on the Regional Freight Network map. They are also of critical importance for carrying commodities that are being exported from and imported into the state and across the country.

- **Roadway connectors –** Roads that connect other freight facilities, industrial areas, and 2040 centers to a main roadway route.
- **Marine facilities –** A facility where freight is transferred between water-based and land-based modes.
- **Rail yards –** A rail yard, railway yard or railroad yard is a complex series of railroad tracks for storing, sorting, or loading and unloading, railroad cars and locomotives. Railroad yards have many tracks in parallel for keeping rolling stock stored off the mainline, so that they do not obstruct the flow of traffic.

Figure 3-32 Regional freight network map

Regional Freight Network



Source: Metro

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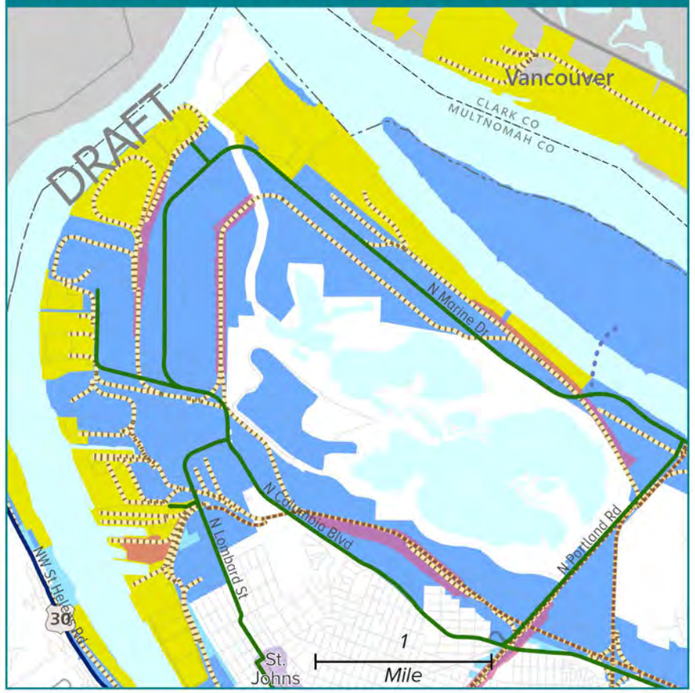
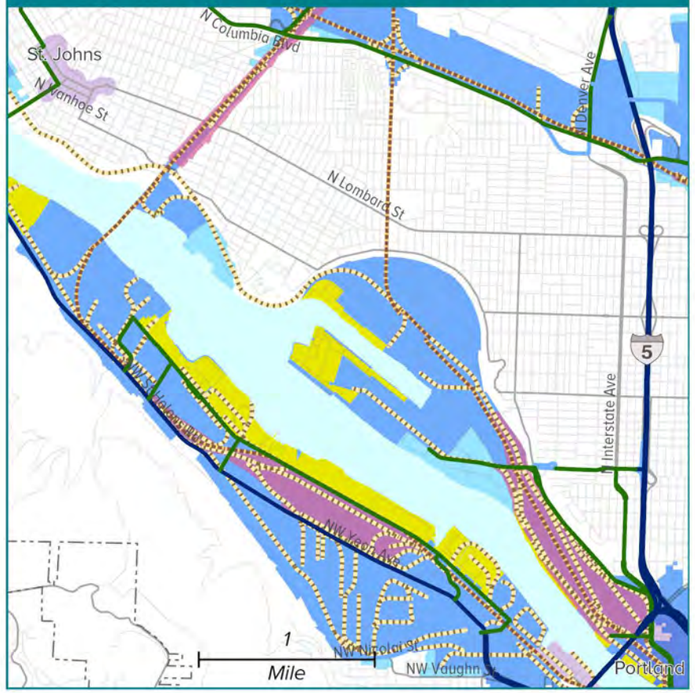
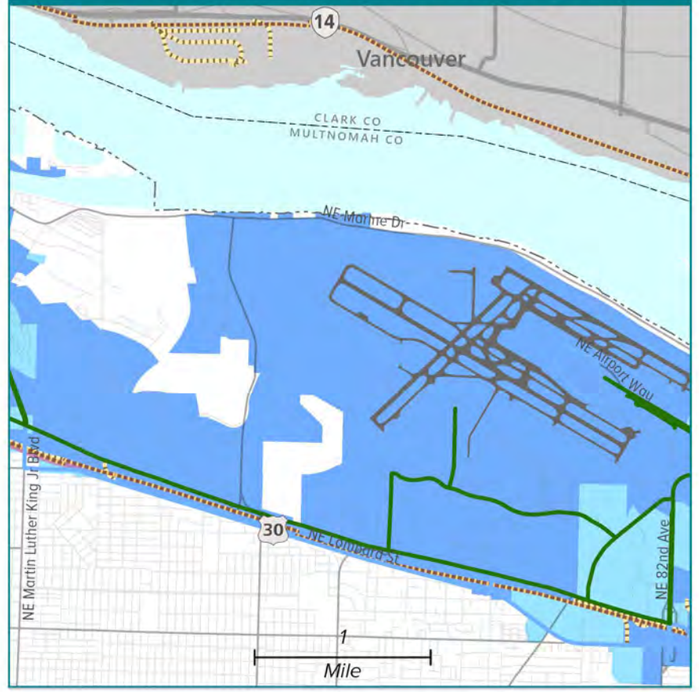
1. North Portland Marine Terminals



2. NW Industrial and Swan Island



3. Portland International Airport



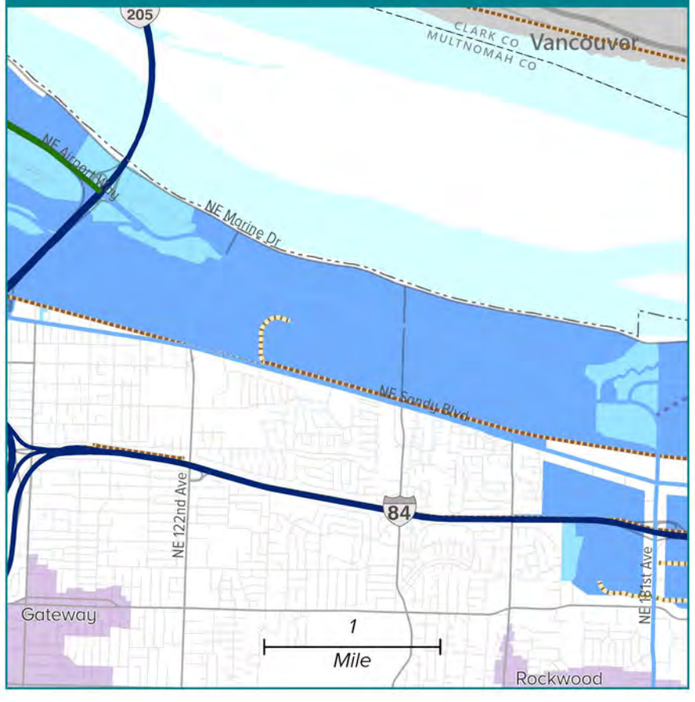
Legend

(dotted lines are proposed projects and do not identify specific alignments)

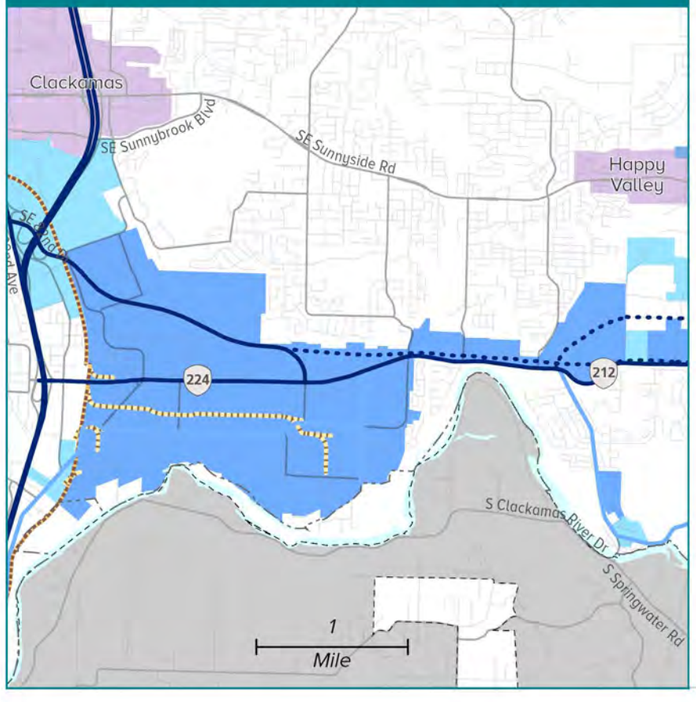
- Main Railroad
- Branch Railroad
- Main roadway routes
- Roadway connectors
- Freight routes outside MPA boundary
- Intermodal connectors
- Marine Facility
- Railyards
- Urban centers
- Industrial area
- Employment area
- County lines
- Urban growth boundary
- Metropolitan planning area

Source: Metro

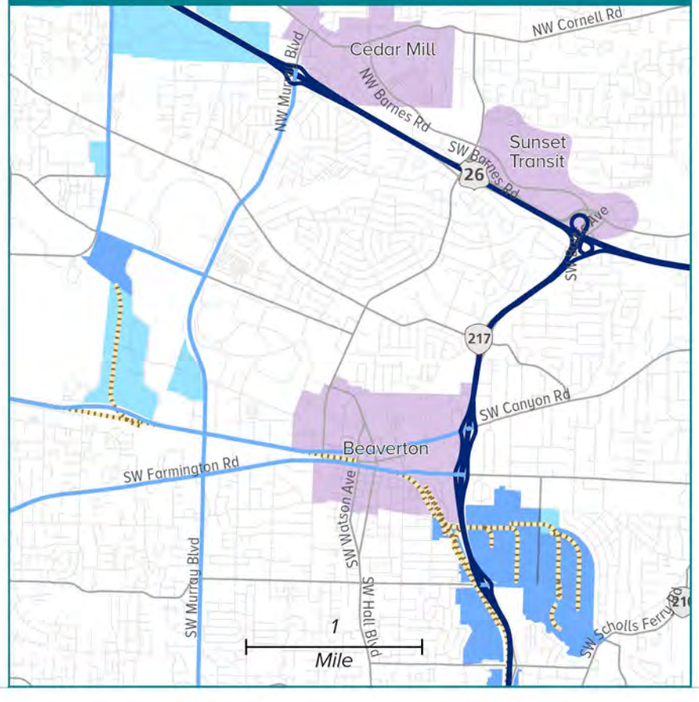
4. Kenton Rail Line/Columbia Corridor



5. Clackamas Industrial Area



6. Beaverton Industrial Area



3.3.7 Regional active transportation network vision

A complete and welcoming active transportation network allows people of all ages, abilities, income levels and backgrounds to access transit, walk and bike easily and safely for many of their daily needs. The Regional Active Transportation Network vision was developed in the Regional Active Transportation Plan and starts with the understanding that integrated, complete and seamless regional pedestrian, bicycle and transit networks are necessary to achieve local and regional transportation goals, aspirations and targets.

Active transportation is human-powered transportation that engages people in healthy physical activity while they travel from place to place. People walking, bicycling, the use of strollers, wheelchairs /mobility devices, skateboarding, and rollerblading are active transportation.

Active transportation supports public transportation because most trips on public transportation include walking or bicycling. Many people in the region incorporate walking, transit and riding a bicycle into daily travel. The regional active transportation network concept focuses on the integration of bicycle, pedestrian and transit travel and connecting local pedestrian and bicycle networks into a coordinated and complete regional network.

The regional active transportation network is composed of pedestrian-bicycle districts and regional bikeways and walkways that connect to and serve high capacity and frequent transit. Pedestrian-bicycle districts are urban centers and station communities. The following ten guiding principles were developed in the Regional Active Transportation Plan to guide development of the regional active transportation network.

1. Bicycling, walking, and transit routes are integrated and connections to regional centers and regional destinations are seamless.
2. Routes are direct, form a complete network, are intuitive and easy-to-use and are accessible at all times.
3. Routes are safe and comfortable for people of all ages and abilities and welcoming to people of all income levels and backgrounds.
4. Routes are attractive and travel is enjoyable.
5. Routes are integrated with nature and designed in a habitat and environmentally sensitive manner.
6. Facility designs are context sensitive and seek to improve safety and balance the needs of all transportation modes.
7. Increases corridor capacity and relieves strain on other transportation systems.
8. Ensures access to regional destinations for people with low incomes, people of color, people living with disabilities, people with low-English-proficiency, youth and older adults.
9. Measurable data and analyses inform the development of the network and active transportation policies, including metrics for air quality and safety.

10. Implements regional and local land use and transportation goals and plans to achieve regional active transportation modal targets.

Developing the regional active transportation network according to the guiding principles will provide a well-connected network of complete streets and off-street paths integrated with transit and prioritizing safe, convenient and comfortable pedestrian and bicycle access for all ages and abilities. This will help make walking and bicycling the most convenient and enjoyable transportation choices for short trips and provide access to regional destinations, jobs, regional and town centers, schools, parks and essential daily services. It will also increase walking and bicycling access for underserved populations and ensures that the regional active transportation network equitably serves all people.[37]

3.3.7.1 Regional Active Transportation Plan (2014)

The Regional Active Transportation Plan (ATP) and the Designing Livable Streets and Trails Guide provides recommended design guidance for trails/multi-use paths, and low volume and high-volume streets. The appropriateness of each design is based on adjacent motor vehicle speeds and volumes. While it may be difficult for transportation agencies to provide a comfortable facility on some arterial streets these routes should be improved over time, through better designs and lower auto speeds accompanying a more compact urban form. In the short-term providing low-volume routes for bicycle travel will help increase the number of people riding bicycles.

Arterial streets typically provide direct routes that connect to centers and daily destinations. Cyclists tend to travel on arterial streets when they want to minimize travel time or access destinations along them. Oregon State statutes and administrative rules establish that bicycle facilities are required on all collector and higher classification arterial streets when those roads are constructed or reconstructed.

Low-volume streets often provide access to centers and daily destinations as well as residential neighborhoods, complementing bicycle facilities located on arterial streets. Though these routes are often less direct than arterials, attributes such as slower speeds and less noise, exhaust and interaction with vehicles, including trucks and buses, can make them more comfortable and appealing to many cyclists. Recent research suggests that providing facilities on low-volume streets may be a particularly effective strategy for encouraging new bicyclists, which helps increase bicycle mode share in the region.

Regional trails typically provide an environment removed from vehicle traffic and function as an important part of the larger park and open space system in a community and in the region. Trails often take advantage of opportunities for users to experience natural features such as creeks, rivers, forests, open spaces and wildlife habitats, as well as historic and cultural features, with

[37] Underserved populations include low income, low-English proficiency, minority, solder adults (over 65) and youth (under 18).

viewpoints and interpretive opportunities. In the highest use areas, regional trails should be designed to provide separation between bicyclists and pedestrians.

Off-street facilities also complement on-street bikeways, providing access to 2040 Target Areas while providing a travel environment with fewer intersecting streets than on-street bikeways, thereby allowing for faster travel times. This makes off-street facilities especially attractive for serving long distance bicycle trips. Similar to low-volume streets, off-street facilities provide an environment more removed from vehicle traffic, which is appealing to families and new or less confident cyclists.

3.3.8 Regional bicycle network concept and policies

Residents in the region have long recognized bicycling as an important form of transportation. The RTP elevates the importance of supporting bicycle travel because of the mobility, economic, environmental, health, and land use benefits it provides.

Sidewalks, trails, bicycle facilities and transit cannot achieve their full potential if they are treated as stand-alone facilities – they must be planned and developed as part of a complete network.

Section 3.08.140 of the Regional Transportation Functional Plan (RTFP), the implementing plan of the Regional Transportation Plan (RTP), requires that local jurisdictions include a bicycle plan to achieve the following:

- an inventory of existing facilities that identifies gaps and deficiencies in the bicycle system;
- an evaluation of needs for bicycle access to transit and essential destinations, including direct, comfortable and safe bicycle routes and secure bicycle parking;
- a list of improvements to the bicycle system;
- provision for bikeways along arterials, collectors and local streets, and bicycle parking in centers, at major transit stops, park-and-ride lots and institutional uses; and
- provision for safe crossing of streets and controlled bicycle crossing on major arterials.

3.3.8.1 Regional bicycle network concept

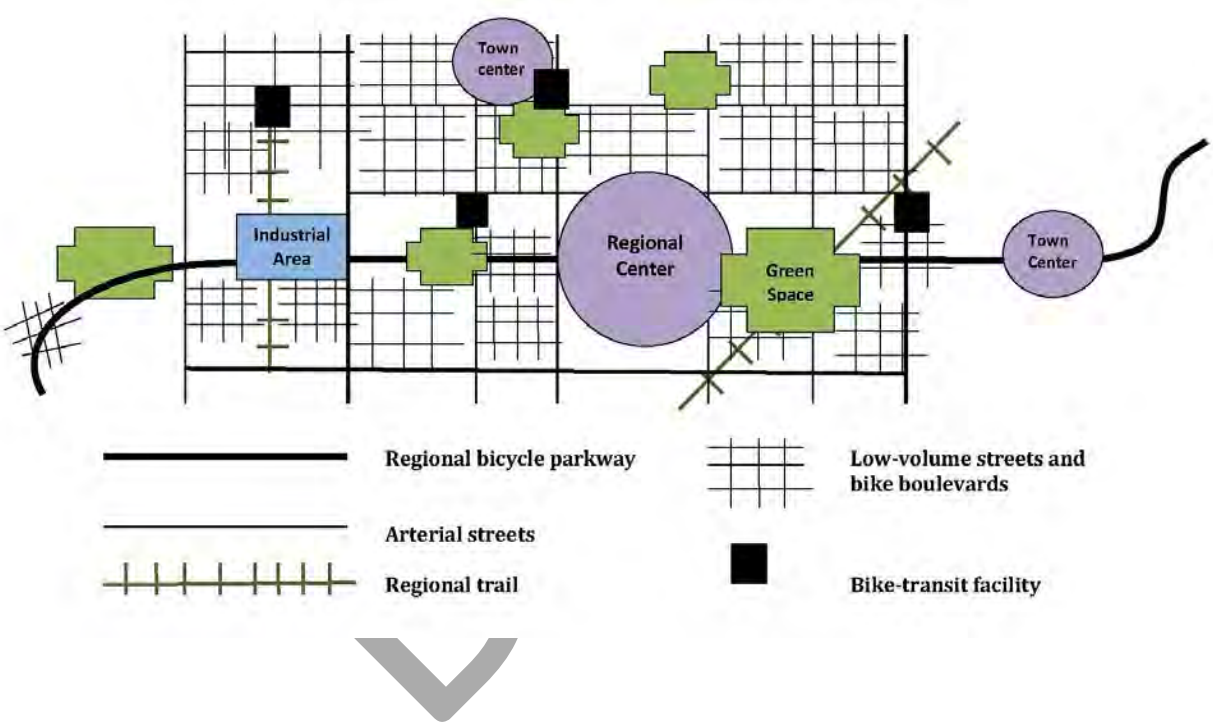
The regional bicycle network concept includes:

- A bicycle parkway in each of the region's Mobility Corridors within the MPA boundary to provide transportation options in these corridors.
- A network of bicycle parkways spaced approximately every two miles, that connect to and/or through every town and regional center, many regional destinations and to most employment and industrial land areas and regional parks and natural areas (all areas are connected by regional bikeways, the next functional class of bicycle routes).

- A network of regional bikeways that connect to the bicycle parkways, providing an interconnected regional network. Local bikeways connect to bicycle parkways and regional bikeways.
- Regional bicycle districts. Regional and town centers and station communities were identified as bicycle districts, as well as pedestrian districts.

Figure 3-33 shows the components of the regional bicycle network concept and their relationship to adjacent land uses. A region-wide bicycle network would be made up of on-street and off-street routes with connections to transit and other destinations.

Figure 3-33 Regional bicycle network concept



3.3.8.2 Regional bicycle network policies

This section describes the policy framework of the Regional Bicycle Network Concept. Specific actions that Metro, in partnership with cities, counties, agencies and other stakeholders can take to implement the policies are identified in the Regional Active Transportation Plan.

Policy 1	**Make bicycling the most convenient, safe and enjoyable transportation choice for short trips of less than three miles**
Policy 2	**Complete an interconnected regional network of bicycle routes and districts that is integrated with transit and nature and prioritizes seamless, safe, convenient and comfortable access to urban centers and community places, including schools and jobs, for all ages and abilities.**
Policy 3	**Complete a green ribbon of bicycle parkways as part of the region's integrated mobility strategy.**
Policy 4	**Improve bike access to transit and community places for people of all ages and abilities.**
Policy 5	**Ensure that the regional bicycle network equitably serves all people.**

Bicycle Policy 1. Make bicycling the most convenient, safe and enjoyable transportation choice for short trips of less than three miles.

The average length of a bicycle trip in the region is about three miles.[38] Nearly 45 percent of all trips made by car in the region are less than three miles, and 15 percent are less than one mile.[39] With complete networks, education, encouragement and other programs, many short trips made by car could be replaced with bicycle or pedestrian trips, increasing road capacity and reducing the need to expand the road system. Technologies such as bike-sharing provide a new toolkit to make bicycling even easier for short trips.

In 2011, the Federal Transit Administration (FTA) established a formal policy on the eligibility of pedestrian and bicycle improvements for FTA funding and defined the catchment area for pedestrians and bicyclists in relation to public transportation stops and stations. The policy recognized that bicycle and pedestrian access to transit is critical and defined a three mile catchment area for bicycle improvements and a half mile catchment area for pedestrian improvements. [40]

Bicycle travel holds huge potential for providing transportation options that can replace trips made by auto, especially for short trips. Bicycle trips made in the region for all purposes grew by

[38] 2011 Oregon Household Activity Survey.

[39] 2011 Oregon Household Activity Survey. Vehicle trips by length for trips wholly within Clackamas, Multnomah, Washington and Clark Counties.

[40] Final Policy Statement on the Eligibility of Pedestrian and Bicycle Improvements Under Federal Transit Law

190 percent since 1995.[41] When bicycling is safe, comfortable, convenient and enjoyable, people have the option of making some of those short trips by bicycle.

Actions to implement this policy can be found in Chapter 12 of the 2014 Regional Active Transportation Plan.

Bicycle Policy 2. Complete an interconnected regional network of bicycle routes and districts that is integrated with transit and nature and prioritizes seamless, safe, convenient and comfortable access to urban centers and community places, including schools and jobs for all ages and abilities.

A well-connected bicycle network does not have gaps and is comfortable and safe for people of all ages and abilities. Regional bicycle routes connect to and through urban centers increasing access to transit, businesses, schools, and other destinations. Regional trails and transit function better when they are integrated with on-street bicycle routes. Wherever possible, routes should connect to and through nature and include trees and other green elements. Designing the network for universal access will make the regional bicycle network accessible and comfortable for all ages and abilities. The Regional Transportation Functional (RTFP) plan requires local Transportation System Plans include an interconnected network of bicycle routes.

Bicycle Policy 3. Complete a green ribbon of bicycle parkways as part of the region's mobility strategy.

Regional bicycle parkways form the backbone of the regional bicycle system, connecting to 2040 activity centers, downtowns, institutions and greenspaces within the urban area while providing an opportunity for bicyclists to travel efficiently with minimal delays. In effect, the bicycle parkway concept mainstreams bicycle travel as an important part of the region's integrated mobility strategy. This concept emerged from work by the Metro Blue Ribbon Committee for Trails as part of the broader Connecting Green Initiative in 2007-09 and further developed in the Regional Active Transportation Plan adopted in 2014.

Key experiential aspects that bike parkways embody:

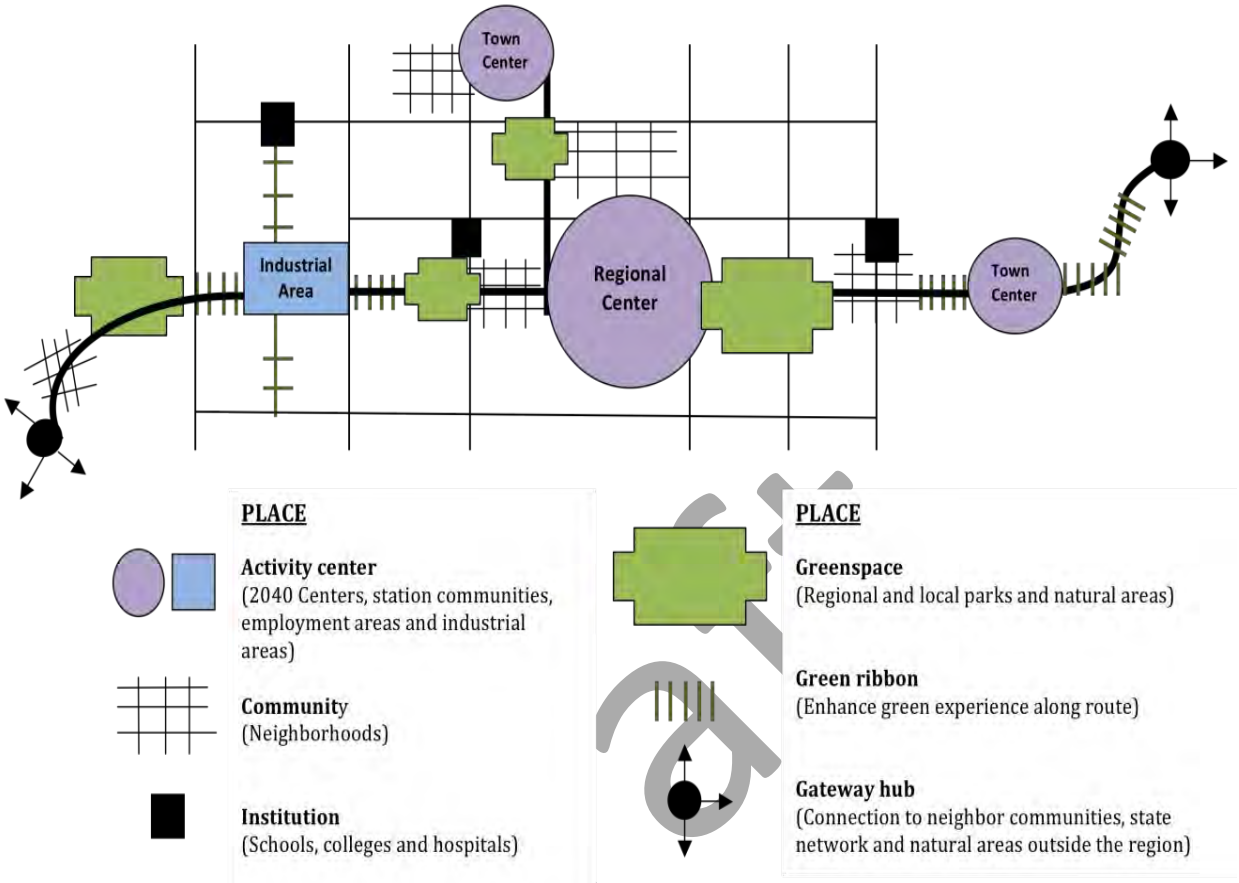
- A green environment with natural features such as trees or plantings (some will already be green, while others will be made greener as part of bike parkway development)
- Comfort and safety provided by protection from motorized traffic
- Large volumes of cyclists traveling efficiently with minimal delays

The bicycle parkway also connects the region to neighboring communities, other statewide trails and natural destinations such as Mt Hood, the Columbia River Gorge, and the Pacific Ocean.

Figure 3-34 illustrates this policy concept in the context of the regional bicycle parkway concept.

[41] 2011 Oregon Household Activity Survey.

Figure 3-34 Bicycle parkway concept



A bicycle parkway serves as a green ribbon connecting 2040 activity centers, downtowns, institutions and greenspaces within the urban area.

The experience of the cyclist will be optimized to such a high level that people will clearly know when they are riding on a bicycle parkway. The specific design of a bike parkway will vary depending on the land use context within which it passes through. The facility could be designed as an off-street trail along a stream or rail corridor, a cycle track / protected / physically separated bicycle lane along a main street or town center, or a bicycle boulevard through a residential neighborhood. Priority treatments will be given to cyclists (e.g., signal timing) using the bike parkway when they intersect other transportation facilities, and connections to/from other types of bicycle routes will be intuitive. The Regional Active Transportation Plan provides design guidance on the development of bicycle parkways.

Bicycle Policy 4. Improve bike access to transit and to community places for people of all ages and abilities.

Public transit and bicycling are complementary travel modes. Effectively linking bicycling with transit increases the reach of both modes. It allows longer trips to be made without driving and reduces the need to provide auto park-and-ride lots at transit stations.

Transit provides a fast and comfortable travel environment between regional destinations that overcomes barriers to bicycling (hills, distance, and streets without bikeways); while bicycling provides access from the front door to a transit station, is faster than walking and can sometimes eliminate the need to transfer between transit vehicles.

A key component of the bike-transit connection is bicycle parking at transit stations and stops. Bike-transit facilities provide connections between modes by creating a "bicycle park and ride." Both TriMet and SMART currently provide bicycle parking and storage at many transit stations and stops. TriMet, with input from regional stakeholders, has developed Bicycle Parking Guidelines. The guidelines consider station context and regional travel patterns and are focused on three major factors for parking: location, amount and design. The guidelines will help TriMet, and local jurisdictions determine the appropriate location, size and design of large-scale bike-parking facilities, including Bike-Transit Facilities. The Regional Transportation Functional Plan (RTFP)requires that local transportation system plans evaluate the needs for bicycle access to transit, including secure bicycle parking.

Bicycle Policy 5. Ensure that the regional bicycle network equitably serves all people.

All people in the region, regardless of race, income level, age or ability should enjoy access to complete and safe walking, bicycling and transit networks and the access they provide to essential destinations, including schools and jobs. Currently the regional active transportation network is incomplete in many areas of the region, including areas with low-income, minority and low-English proficiency populations. Transportation is the second highest household expense for the average American; providing transportation options in areas with low-income populations helps address transportation inequities. Future planning, design and construction of the networks must include consideration of the benefits and burdens of transportation investments to underserved and environmental justice populations. In addition to infrastructure, technologies such as bike sharing increase opportunities for all residents to bicycle. In Portland, the "Biketown for All"" program provides discounted memberships, free helmets and bike safety education to low-income people.

3.3.8.3 Regional bicycle network functional classifications and map

This section describes the regional bicycle network functional classifications shown on Figure 3-35, the Regional Bicycle Network. Click on 2023 for online zoomable version of map.

The regional bicycle network is composed of on street and off-street bikeways that serve the central city, regional centers, town centers, and other 2040 Target Areas, providing a continuous network that spans jurisdictional boundaries. Figure 3-35 is a functional classification map

illustrating how regional bicycle routes and districts work together to form a comprehensive network that would allow people to bike to transit, schools, employment centers, parks, natural areas and shopping.

The regional bicycle network has a functional hierarchy like that of the regional motor vehicle network. Figure 3-35 provides a vision for a future bicycle network; for a map of current bicycle facilities in the region, refer to Chapter 4.

The different functional elements of the regional bicycle network are:

- **Regional Bicycle Parkways** are spaced approximately every two miles in a spiderweb-grid pattern, and connect to and through every urban center, many regional destinations and to most employment and industrial land areas, regional parks and natural areas. Each Mobility Corridor within the urban area has an identified bicycle parkway. Bicycle parkways were identified as routes that currently serve or will serve higher volumes of bicyclists and provide important connections to destinations.
- **Regional Bikeways** provide for travel to and within the Central City, Regional Centers, and Town Centers. Regional bikeways can be any type of facility, including off-street trails/multi-use paths, separated in-street bikeways (such as buffered bicycle lanes) and bicycle boulevards. On-street Regional Bikeways located on arterial and collector streets are designed to provide separation from traffic.
- **Local Bikeways** are not identified as regional routes. However, they are very important to a fully functioning network. They are typically shorter routes with less bicycle demand and use than regional routes. They provide for door-to-door bicycle travel.
- **Bicycle Districts (and Pedestrian Districts)** include the Portland Central City, Regional and Town Centers and Station Communities. A bicycle district is an area with a concentration of transit, commercial, cultural, educational, institutional and/or recreational destinations where bicycle travel is intended to be attractive, comfortable and safe. Bicycle districts are also areas with current or planned high levels of bicycle activity. All bicycle routes within bicycle districts are considered regional and are eligible for federal funding. Bicycle facilities in bicycle districts should strive to be developed consistent with the design guidance described in Chapter 9.

Which areas are designated as bicycle districts should be considered further in future Regional Transportation Plan and ATP updates. For example, areas around bus stops with high ridership should be evaluated as potential bicycle districts (light rail station areas are currently identified as bicycle districts); some Main Streets on the regional network may be considered for expansion as bicycle districts, as well as other areas.

- **Bike-Transit Facilities** are often referred to as Bike & Rides and are generally located at transit centers and stations and provide secure, protected large-scale bike parking facilities. Some facilities may include additional features such as showers, lockers, trip planning and

bicycle repair. These facilities have been built at transit centers and MAX stations throughout the region– including in Wilsonville, Hillsboro, Beaverton, Portland and Clackamas County.

Bicycle Parkways and Regional Bikeways typically follow arterial streets but may also be located on collector and low-volume streets. On-street bikeways should be designed using a flexible "toolbox" of bikeway designs, including bike lanes, cycle tracks /protected/physically separated bicycle lanes, shoulder bikeways, shared roadway/wide outside lanes and bicycle priority treatments (e.g., bicycle boulevards).

Figure 3-35 Regional bicycle network map

Regional Bike Network

- Bicycle Parkway
- Planned Bicycle Parkway
- Regional Bikeway
- Planned Regional Bikeway
- Employment/Industrial
- Central city; Regional center; Town center
- County boundary
- Urban growth boundary
- Metropolitan Planning Area

See inset map

Inset map

Metro Data Resource Center
oregonmetro.gov

0 Mile 1

0 5 10 Miles

Source: Metro

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2/13/2023

3.3.9 Regional pedestrian network concept and policies

Walking contributes to a healthy lifestyle and supports vibrant local economies. Every trip begins or ends with at least a short walk. Transit in particular is integrated with walking. However, while everyone walks, walking is not a safe or convenient option for everyone in the region. Traffic crashes involving people walking often end in a death or severe injury and pedestrian deaths are rising.

Many streets are not ADA-compliant, sidewalk gaps remain on busy arterial roadways and along bus routes, safe places to cross the street can be few and far between, and lack of street lighting and other gaps make it dangerous and difficult to walk, especially for older adults, children and people with disabilities. In marginalized communities, lack of safe walking routes can be worse.

In the Regional Pedestrian Network Vision, walking is safe and convenient. Section 3.08.130 of the Regional Transportation Functional Plan (RTFP) requires that local jurisdictions include a pedestrian plan to achieve the following:

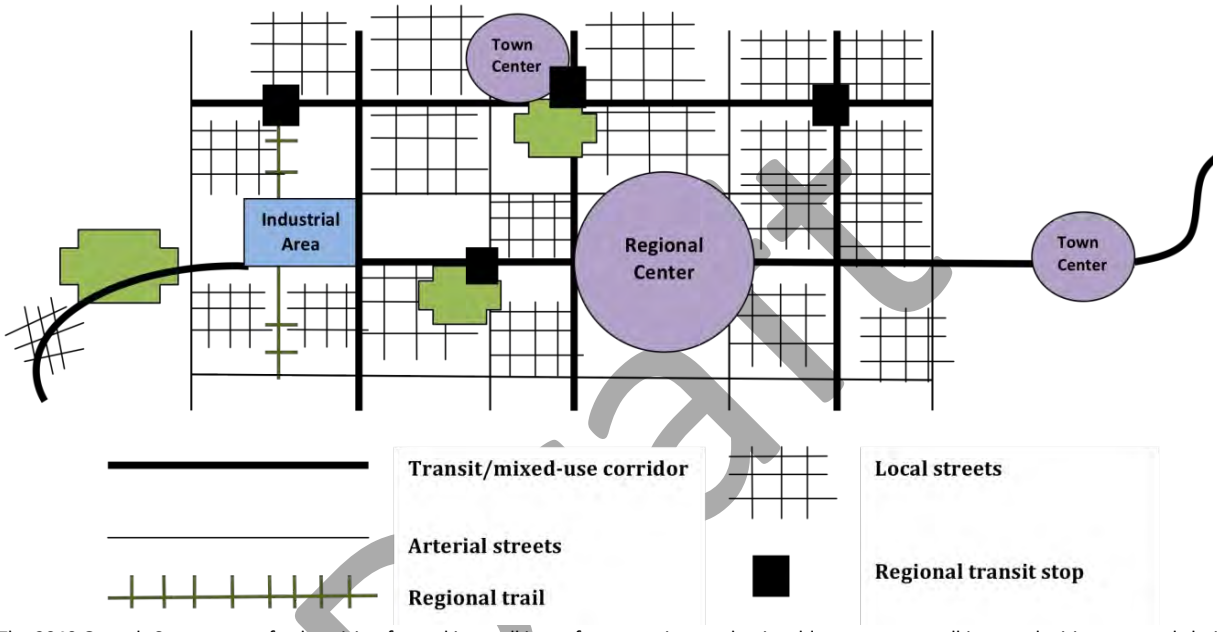
- Sidewalks along all arterials, collectors and most local streets.
- Direct and safe pedestrian routes to transit and other essential destinations.
- Provision of safe crossings of streets and controlled pedestrian crossings on major arterials.
- Safe, direct and logical pedestrian crossings at all transit stops where practicable.
- Crossings over barriers such as throughways, active rail-lines and rivers provided at regular intervals following regional connectivity standards.
- Regional multi-use trails and walking paths are completed.

3.3.9.1 Regional pedestrian network concept

The Regional Pedestrian Network Concept describes a well-connected grid of streets and multi-use paths connecting to and intersecting through regional and town centers, employment areas, station communities, parks and natural areas and connecting to transit and essential destinations.

Figure 3-36 shows the components of the regional pedestrian network and their relationship to adjacent land uses.

Figure 3-36 Regional pedestrian network concept



The 2040 Growth Concept sets forth a vision for making walking safe, convenient and enjoyable to support walking as a legitimate travel choice for all people in the region. The Regional Transportation Plan supports this vision with a region-wide network of on-street and off-street pedestrian facilities integrated with transit and regional destinations.

3.3.9.2 Regional pedestrian network policies

Regional pedestrian policies help achieve the Regional Pedestrian Network Vision. Specific actions that Metro, in partnership with cities, counties, agencies and other stakeholders, can take to implement the policies are identified in the Regional Active Transportation Plan.

Policy 1	**Make walking the most convenient, safe and enjoyable transportation choice for short trips of less than one mile.**
Policy 2	**Complete a well-connected network of pedestrian routes and safe street crossings that is integrated with transit and nature that prioritize seamless, safe, convenient and comfortable access to urban centers and community places, including schools and jobs, for all ages and abilities.**
Policy 3	**Create walkable downtowns, centers, main streets and station communities that prioritize safe, convenient and comfortable pedestrian access for all ages and abilities.**
Policy 4	**Improve pedestrian access to transit and community places for people of all ages and abilities.**

Pedestrian Policy 1. Make walking the most convenient, safe and enjoyable transportation choice for short trips of less than one mile.

In addition to being the most basic form of transportation, walking is an important form of exercise and is the most popular recreational activity in Oregon.[42] The average length of a walking trip in the region is about half a mile. Today 15 percent of trips made in an auto are less than one mile. [43] Many of these trips could be made by walking if it were convenient, safe and enjoyable. Fully implementing regional and local plans will help make this possible.

In 2011, the Federal Transit Administration (FTA) established a formal policy on the eligibility of pedestrian and bicycle improvements for FTA funding and defined the catchment area for pedestrians and bicyclists in relation to public transportation stops and stations. The policy recognized that bicycle and pedestrian access to transit is critical and defined a three-mile catchment area for bicycle improvements and a half mile catchment area for pedestrian improvements. [44]

Ensuring all gaps and deficiencies on the regional pedestrian network have projects identified in the Regional Transportation Plan and including wayfinding, street markings, lighting and other elements that enhance connections and make the pedestrian network consistent, integrated, and easy to navigate are key elements to implementing this policy. The Regional Transportation

[42] Oregon's 2017 Statewide Outdoor Recreation Survey shows that 83 percent of Oregonians walk on local streets and sidewalks for recreation, making this the most popular recreational activity in the state.
[43] 2011 Oregon Household Activity Survey.
[44] Final Policy Statement on the Eligibility of Pedestrian and Bicycle Improvements Under Federal Transit Law

Functional Plan (RTFP) includes specific requirements in the Pedestrian and Transit System Design sections.

Actions to implement this policy can be found in Chapter 12 of the 2014 Regional Active Transportation Plan.

Pedestrian Policy 2. Complete a well-connected network of pedestrian routes, including safe street crossings, integrated with transit and nature that prioritize seamless, safe, convenient and comfortable access to urban centers and community places, including schools and jobs, for all ages and abilities.

A well-connected high-quality pedestrian environment facilitates walking trips by providing safe and convenient access to essential destinations. The Regional Pedestrian Network provides the plan for well-connected pedestrian routes and safe street crossings to provide access to transit and essential daily needs. The Regional Transportation Functional Plan (RTFP) requires that local Transportation System Plans include an interconnected network of pedestrian routes.

Section 3.08.130 of the Regional Transportation Functional Plan (RTFP) includes the requirements to provide a well-connected pedestrian system, and Oregon State statutes and administrative rules establish that pedestrian facilities are required on all collector and higher classification streets when those roads are built or reconstructed. Exceptions are provided where cost is excessively disproportionate to need or where there is an absence of need due to sparse population or other factors.

Priority should be given to filling gaps and providing safe crossings of the busiest streets with transit and other essential destinations. Deficient facilities in areas of high walking demand are considered gaps.

Pedestrian Policy 3. Create walkable downtowns, centers, main streets and station communities that prioritize safe, convenient and comfortable pedestrian access for all ages and abilities.

All centers and station areas are Regional Pedestrian Districts. The central city, regional and town centers, main streets and light rail station communities are areas where high levels of pedestrian activity are prioritized. In these areas, sidewalks, plazas and other public spaces are integrated with civic, commercial and residential development. They are often characterized by compact mixed-use development served by transit. These areas are defined as pedestrian districts in the RTP.

Walkable areas should be designed to reflect an urban development and design pattern where walking is safe, convenient and enjoyable. These areas are characterized by buildings oriented to the street and boulevard-type street design features, such as wide sidewalks with buffering from adjacent motor vehicle traffic, marked street crossings at all intersections with special crossing amenities at some locations, special lighting, benches, bus shelters, awnings and street trees. All streets within these areas are important pedestrian connections. Sections 3.08.120 (B) (2) and 3.08.130 (B) list requirements for pedestrian districts and new development near transit.

Pedestrian Policy 4. Improve pedestrian access to transit and community places for people of all ages and abilities.

Public transportation use is fully realized only with safe and convenient pedestrian and bicycle connections, especially safe crossings and facilities that connect stations or bus stops to surrounding areas or that provide safe and attractive waiting areas. Improving walkway connections between office and commercial districts and surrounding neighborhoods provides opportunities for residents to walk to work, shopping or to run personal errands. Buildings need to be oriented to the street and be well connected to sidewalks. Safe routes across parking lots need to be provided. This reduces the need to bring an automobile to work and enhances public transportation and carpooling as commute options. The Regional Transportation Functional Plan (RTFP) requires that local Transportation System Plans include an evaluation of needs for pedestrian access to transit for all mobility levels, including direct, comfortable and safe pedestrian routes.

Pedestrian access along transit-mixed use corridors is improved with features such as wide sidewalks, reasonably spaced marked crossings and buffering from adjacent motor vehicle traffic.

Pedestrian Policy 5. Ensure that the regional pedestrian network equitably serves all people.

All people in the region, regardless of race, income level, age or ability should enjoy access to the region's walking and transit networks and the access they provide to essential destinations, including schools and jobs. Currently the regional pedestrian network is incomplete in many areas of the region, including areas where people with low-incomes, people of color and people with language isolation live. Transportation is the second highest household expense for the average American; providing transportation options in areas with low-income populations helps address transportation inequities.

Section 3.08.120[C] of the Regional Transportation Functional Plan (RTFP) specifies that the needs of youth, seniors, people with disabilities and environmental justice populations including people of color and people with low incomes must be considered when planning transit.

Regional and local planning, design and construction of the networks must include consideration of the benefits and burdens of transportation investments to underserved and environmental justice populations and continue to collect data and monitor performance in accordance with section 3.08.010 of the Regional Transportation Functional Plan.

Investment programs should set priorities for sidewalk improvements to and along major transit routes and communities where physically or economically disadvantaged populations live.

3.10.3 Regional pedestrian network classifications and map

This section describes the regional pedestrian network functional classifications shown on Figure 3-37, the Regional Pedestrian Network. The regional pedestrian network mirrors the regional transit network reflecting the important relationship of a complete walking network and transit. Frequent transit routes and regional arterials comprise regional pedestrian streets. Regional trails are also part of the regional pedestrian network. Centers and station areas are regional pedestrian districts and include all streets of all functional classifications and paths within their boundaries.

The regional pedestrian network has a functional hierarchy like that of the regional motor vehicle network. Figure 3-37 provides a vision for a future pedestrian network; for a map of existing pedestrian facilities in the region, refer to Chapter 4.

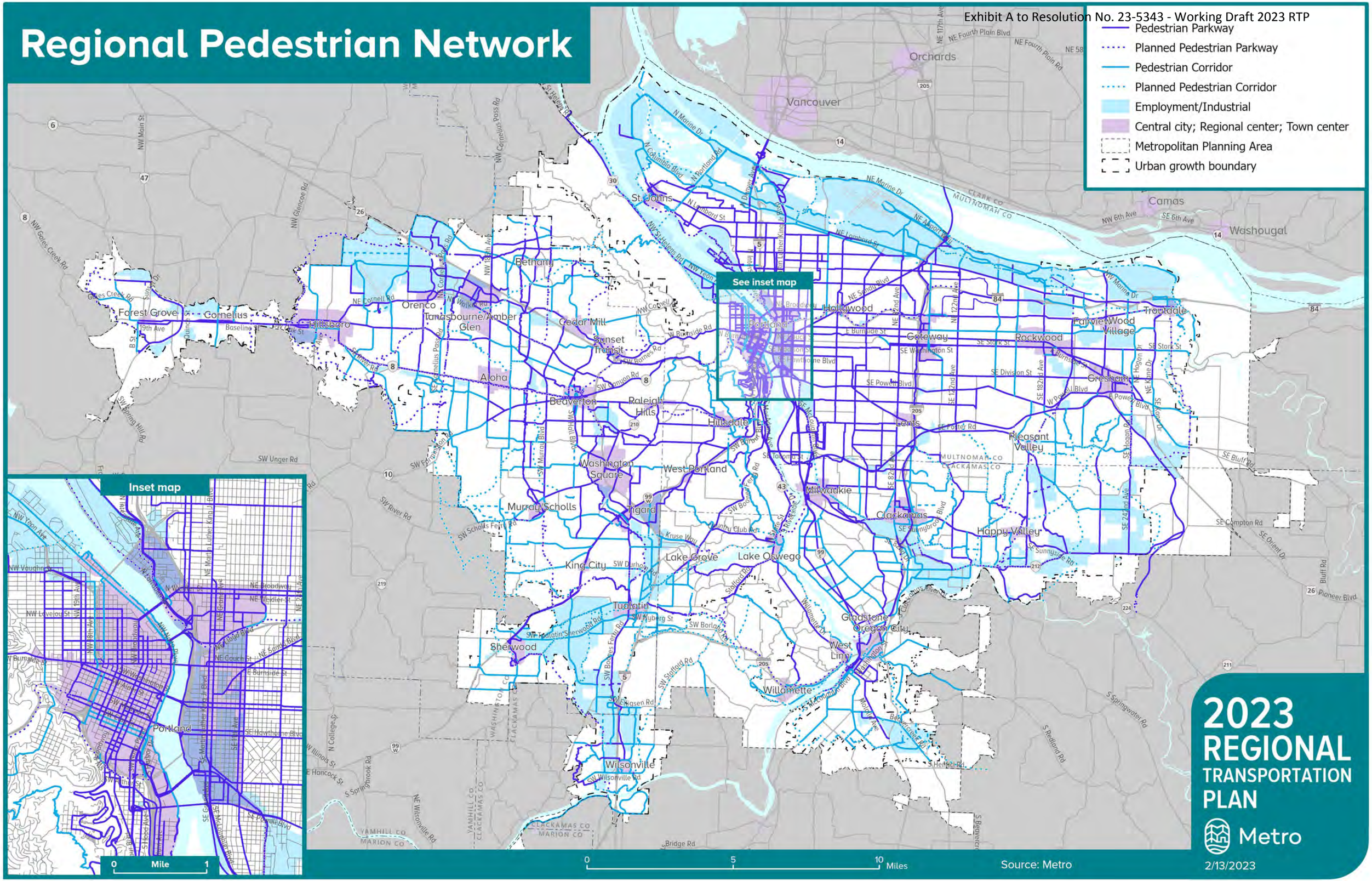
The different functional elements of the regional pedestrian network are:

- **Pedestrian Parkways** are generally major urban streets that provide frequent and almost frequent transit service (existing and planned). They can also be regional trails.
- **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 classified as Regional Pedestrian Corridors.
- **Local Pedestrian Connectors** are all streets and trails not included on the Regional Pedestrian Network.
- **Pedestrian Districts** are the Central City, Regional and Town Centers and Station Communities shown on the Regional Pedestrian Network Map. A pedestrian district is an area with a concentration of transit, commercial, cultural, institutional and/or recreational destinations where pedestrian travel is attractive, comfortable and safe. Pedestrian Districts are areas where high levels of walking exist or are planned. All streets and trails within the Pedestrian District are part of the regional system.

Figure 3-37 applies the regional pedestrian network concept on the ground, illustrating how different regional pedestrian facilities work together to form a comprehensive network that allows people to walk to transit, schools, employment centers, parks, natural areas and shopping. Click on RTP Regional Network Maps for online zoomable version of map. [LINK TO BE ADDED]

Figure 3-37 Regional pedestrian network map

Regional Pedestrian Network



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3.3.10 Transportation System Management and Operations Vision and Policies

The region's Transportation System Management and Operations (TSMO) vision, concept and policies address the management of the significant public investment in capital infrastructure. Taking a "manage first" approach addressed concerns about the social, environmental, and financial costs of large capital projects, such as building new lanes. System management can restore reliable travel and provide flexibility for travelers to use a variety of travel options. OAR 660.012, Oregon's Transportation Planning Rule (TPR), stipulates that coordinated land use and transportation plans should increase transportation choices and make more efficient use of the existing transportation system through transportation system management and demand management.

The 2021 TSMO Strategy updated the region's ten-year strategy, continuing an innovative, holistic, multimodal, and cost-effective approach to managing the transportation system. The TSMO Strategy prioritizes optimization of the existing transportation system by improving business practices and collaboration, encouraging behavior changes through transportation demand management and using technology to understand and manage how the system operates.

3.3.10.1 Transportation system management and operations vision

Regional stakeholders share a vision for TSMO: Collaborate to provide reliable, agile, and connected travel choices so that all users are free from harm, and to eliminate the disparities experienced by Black, Indigenous, people of color and people with low incomes.

This vision reflects broad participation in planning for operations. TSMO participation is multidisciplinary, and requires collaboration across several disciplines, including planners, engineers, emergency responders, demand management specialists, operators, and maintenance professionals. The region leads by aligning efforts with six TSMO Strategy goals:

1. Provide a transportation system that is reliable for all users.
2. Connect all people to the goods, services, and destinations they need through a variety of travel choices.
3. Collaborate as effective stewards for the transportation system.
4. Eliminate the disparities in the transportation system experienced by Black, Indigenous, people of color and people with low incomes.
5. Create a transportation system where all users are free from harm.
6. Manage the system to be agile in the face of growth, disruptions and changing technology.

3.3.10.2 Transportation system management and operations concept

The concept for TSMO was further refined by stakeholders to establish objectives, performance measures and actions. The 21 actions in Table 3-11 show the range of regional work that connects TSMO work to achieving outcomes aligned with the RTP.

Table 3-12 Examples of TSMO and investments in four strategic areas

Concepts, Capabilities, and Infrastructure • Inventory and manage regional signal and Intelligent Transportation System Communications Infrastructure • Manage transportation assets to secure the network • Continue freight technology and Intelligent Transportation Systems deployment • Facilitate ground truthing of emerging technologies • Establish a Regional Transit Operators TSMO Group • Unify and standardize fare subsidies for transit and Mobility on Demand • Develop an Intelligent Transportation System travel time information data collection and distribution plan for Regional Disaster Preparedness Organization regional emergency routes • Create continuous improvement process for existing and new signal systems and related performance • Deploy regional traveler information systems • Implement integrated corridor management and mainstream into corridor planning • Create a TSMO safety toolbox • Build and use a TSMO Toolbox to connect gaps in bicycle and pedestrian infrastructure •
Planning • Develop a Mobility on Demand strategy and policy • Pilot Origin-Destination data to prioritize TSMO investments • Participate in regional public outreach to assist in guiding, listening and learning through TSMO focused conversations • Update the regional ITS Architecture
Listening & Accountability • Track and prioritize TSMO investments for and with Black, Indigenous, people of color and people with low incomes • Create a community listening program • Improve TSMO data availability to aid in traveler decisions and behavior
Data Needs • Establish TSMO performance measures baseline. • Explore new TSMO data sources

3.3.10.3 Transportation system management and operations (TSMO) policies

Policy 1	**Manage the transportation system for the effective and efficient use of publicly funded transportation assets while supporting mobility, multi-modal reliability, racial equity, safety, and reductions in carbon emissions.**
Policy 2	**Take actions from the regional TSMO Strategy by supporting a program that conducts planning for operations, develops new operational concepts, assesses future needs for capabilities, identifies gaps in data and establishes a process for listening and accountability.**
Policy 3	**Optimize operations for reliability and mobility by coordinating and advancing operator capabilities with shared tools and interoperable technologies.**
Policy 4	**Provide real-time traveler information data across devices and at physical locations that is comprehensive in serving the needs of people, businesses and freight movement.**
Policy 5	**Improve incident detection and clearance times on the region's transit and motor vehicle networks to reduce the impact of crashes on the transportation system.**

TSMO Policy 1. Manage the transportation system for the effective and efficient use of publicly funded transportation assets while supporting mobility, multi-modal reliability, racial equity, safety, and reductions in carbon emissions.

Consistent with regional policy dating back to the 1990s, transportation agencies use system management to make the best use of existing infrastructure to delay or avoid large, higher-cost and potentially disruptive construction projects. This policy is applied using regional values and desired outcomes for mobility, reliability, racial equity, safety, and reduction in greenhouse gas emissions.

Transportation agencies collaborate to identify and scale up practices and technologies to a regional scale that are effective at reducing vehicle miles traveled and crashes while increasing reliability, connectivity, traveler information and investments that support racial equity. These technologies also record data from the transportation system that supports effective operations, planning and investments. Performance measures and targets for system management support the Congestion Management Process (CMP), Climate Smart Strategy and the 2021 TSMO Strategy.

Each step of implementing the strategy will use the TSMO Equity Tree (a branching diagram), working up through a series of equity-focused questions. The last step is to evaluate the plan or action for accountability. Each evaluation asks "Did the outcomes help or hurt communities of color?" and suggests next steps depending on the answer.

TSMO Policy 2. Take actions from the regional TSMO Strategy by supporting a program that conducts planning for operations, develops new operational concepts, assesses future needs for capabilities, identifies gaps in data and establishes a process for listening and accountability.

In 2010, the region completed a planning process to adopt the first ten-year strategy for implementing TSMO. This formalized a regional TSMO Program to convene stakeholders and support priorities with resources and partnerships. Metro convenes TransPort, the subcommittee of Transportation Policy Alternatives Committee (TPAC). TransPort advances the TSMO Strategy through monthly meetings for cooperative planning and deployment of technologies and related procedures. Broad TransPort participation is encouraged. This regional forum supports operators of greater Portland's roads, highways, transit, shared-use mobility services, transportation demand management, congestion pricing, parking management, freight, active transportation facilities and digital infrastructure. Metro and TransPort form additional work groups as needed.

Figure 3-38 shows where some of these actions and investments are envisioned to be applied in the region to improve mobility, safety, efficiency, and reliability of the system.

TSMO Policy 3. Optimize operations for reliability and mobility by coordinating and advancing operator capabilities with shared tools and interoperable technologies.

Transportation operators meet to share perspective on their "capability maturity" with regard to their agency performance in operations and an overall performance of regional partners working together. By reaching agreement on standards and procedures, transportation operators share and advance capabilities. The end goal is to reach optimization across multiple categories such as actively managing the transportation system, responding to incidents, participating in planning, measuring performance, building a workforce with a culture of technical understanding and leadership, and engaging in broad collaboration. In many cases, optimization requires formal agreements, such as data sharing, that stem from regional policies. In other cases, the conversations prepare for emerging technologies as well as retiring outmoded technology.

TSMO Policy 4. Provide real-time traveler information data across devices and at physical locations that is comprehensive in serving the needs of people, businesses and freight movement.

TSMO responds to the barriers that can be overcome with traveler information, aiding people to find and use the most sustainable affordable and safest option. The 2021 TSMO Strategy includes actions to ensure investments and the creation of traveler information is done with community involvement supportive of racial equity.

TSMO Policy 5. Improve incident detection and clearance times on the region's transit and motor vehicle networks to reduce the impact of crashes on the transportation system.

TSMO Strategy is aligned with the region's Safety Strategy to eliminate severe crashes (crashes with major injuries or fatalities) by 2035. Crashes on the transportation network cause non-recurring congestion, and fatal crashes result in longer clearance and recovery times with

sustained impacts. The 2021 TSMO Strategy aims to reduce harm, and reduce the non-recurring congestion created by incidents, by improving the safety of the system overall. [45]

3.11.4 Transportation system management and operations map

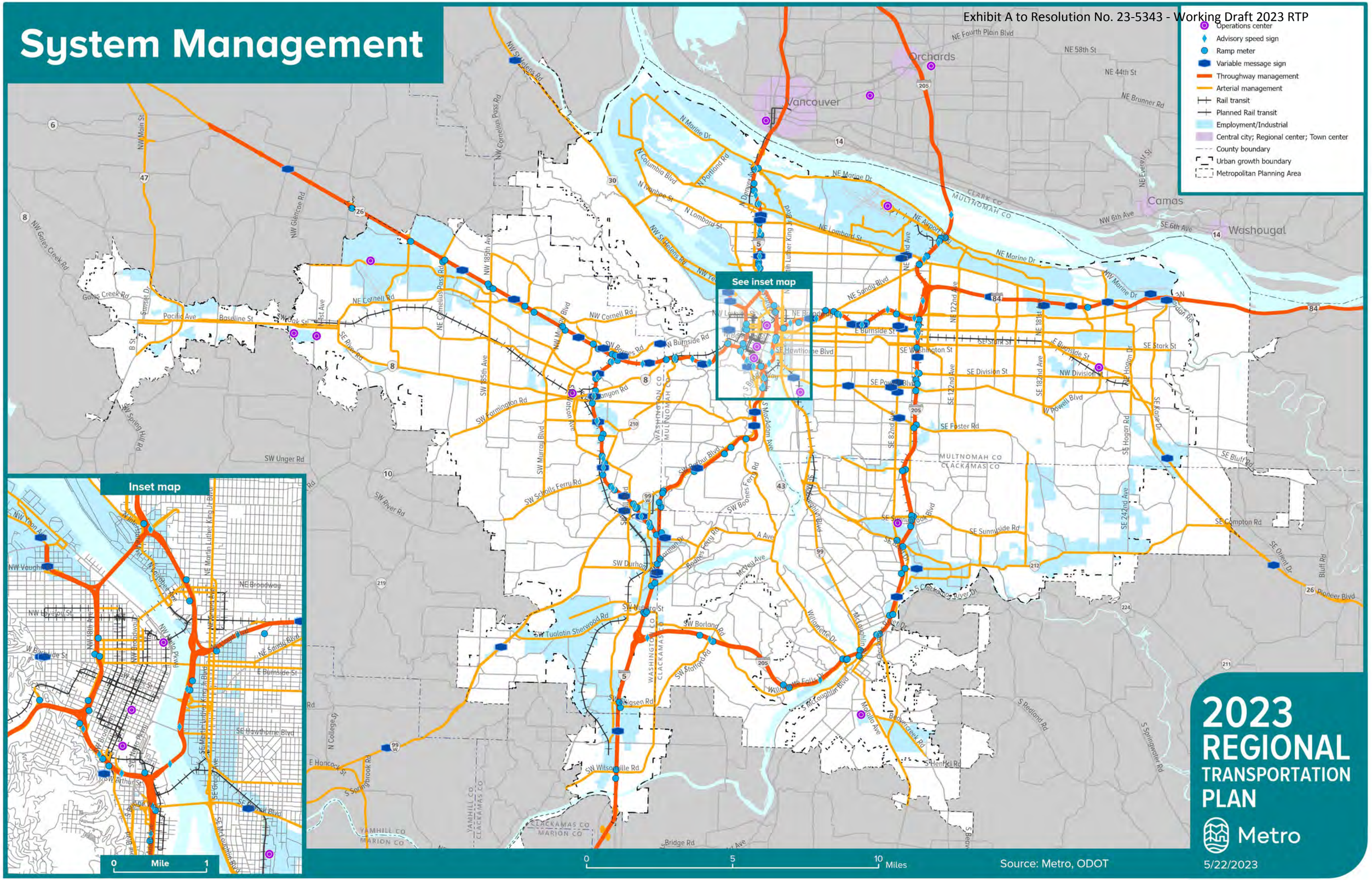
The map for regional TSMO reflects Policy 1. Actively managing the transportation system requires Intelligent Transportation Systems (ITS) equipment, such as variable message signs, along throughways and arterials to alert travelers with information or advise safe speeds. A variety of sensors help automate this process, but operators also utilize cameras to solve problems remotely or deploy responders to an incident. A digital infrastructure transmits data to and from transit and road operators who use central, shared software to improve multimodal movement and safety at intersections with traffic signals. In partnership with Portland State University, regional partners share data that can then be accessed by academic researchers, planners, consultants and the public. In partnership with Oregon DOT and the private sector, the region's operators also use crowdsourced data. Crowdsourced data helps evaluate reliability and also can inform current travel conditions and report crashes. Not all of this can fit into one map.

Another map will be created in a parallel effort with the 2023 RTP update. TSMO stakeholders will define system completeness as part of the Regional Mobility Policy. Stakeholders will map key corridors, referring to existing conditions and gaps that need to be addressed. This map will be used in Transportation System Plan updates and amendments.

Figure 3-38 Transportation system management and operations map

[45] "Ridesharing" in this context means traditional not-for-profit carpooling or vanpooling, not Transportation Network Companies such as Uber or Lyft.

System Management



Source: Metro, ODOT

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3.3.11 Transportation Demand Management Concept and Policies

The Regional Travel Options (RTO) program is led by Metro and supports TDM work in the region primarily through awarding grants to partners leading outreach and engagement programs. This methodology has led to successful program implementation in the places and instances where it has been used. But there remain significant gaps in where TDM is used in the region and limits on expanding TDM efforts.

The RTO Strategy has established a goal of expanding the number of partners and programs to support the region's goals, but clearer policy direction is needed to better define how TDM is to be implemented in the region and move TDM efforts beyond their current levels.

3.3.11.1 Transportation demand management concept

Transportation Demand Management (TDM) is a series of activities aimed at ensuring people are aware of, understand and have access to the full variety of travel options available within the region. Though the region has already done much and continues to work to improve and expand travel options through capital investments in non-auto modes, the potential exists to increase the public's use of these non-SOV modes through TDM investments.

TDM complements and enhances other RTP policy areas by helping ensure our transportation system is used in a balanced way to maximize our investments. TDM provides information, encouragement, and incentives to help people make more of their trips safely and comfortably without driving alone. TDM programs are developed and staffed by professionals trained in understanding the travel needs of various groups, such as commuters or school children, and creating methods of helping them make those trips without the need for an SOV trip.

A typical TDM program involves working with a defined group of people that have similar travel needs or live in a specific place. Trained staff discuss the transportation needs and interests of the group and provide information and incentives to encourage people to try a new travel mode. This work can take many forms, from participation in GetThereOregon.org, a statewide website provided by ODOT and dedicated to facilitating travel options use, to a localized outreach effort specific to a single housing development.

Active involvement in delivering TDM programming is needed at the state, regional and local levels. Certain programs are most effective when developed and led by local governments, school districts, Transportation Management Associations (TMA), employers or community organizations. Others are better suited to be conducted on a state or regional scale.

TDM is particularly effective when paired with other policies or capital investments. Building new or improved active transportation infrastructure provides an opportunity for TDM efforts to help people be aware of and use the new travel options available to them. Complementary TDM activities should be planned and budgeted for in capital system improvement projects to ensure

people are aware of the new travel options available to them, and to help them create new travel patterns and habits.

As the region considers roadway pricing and parking management as strategies for reducing auto trips, TDM is an important component in ensuring that people's mobility is maintained when these strategies are implemented. Making people aware of the existent options to paying a toll or fee can reduce the public's financial burden and help improve reliability and efficiency of the transportation network.

A significant portion of the region's current TDM activities are coordinated through the Regional Travel Options (RTO) program. This program, led by Metro on behalf of the entire region, currently coordinates partner activities and provides grant funds for TDM activities throughout the region. Through the RTO Strategy, the region's TDM vision, goals, objectives, and needs are defined. Roles for regional partners are defined, as is the grant funding methodology and criteria.

3.3.11.2 Transportation demand management policies

Policy 1	**Develop and refine regional and local TDM policies and implementation plans to help reach climate, mobility and modal targets.**
Policy 2	**Provide adequate TDM resources and programming to meet the public's specific mobility needs for employment, education and essential services.**
Policy 3	**Provide and deliver TDM programming at a variety of scales: state, regional and local.**
Policy 4	**Improve access to travel choices and eliminating barriers for marginalized communities, with a focus on communities of color and people with low incomes.**

TDM Policy 1. Develop and refine regional and local TDM policies and implementation plans to help reach climate, mobility and modal targets.

TDM is a component of numerous federal, state and regional plans, including:

- Climate Friendly and Equitable Communities Rules
- ODOT Transportation Options Plan
- DEQ Employee Commute Options Rule
- Metro Climate Smart Strategies
- Metro Regional Travel Options Strategy
- Metro Transportation System Management & Operations Strategy
- Congestion Management Process

These plans identify implementation of TDM programs as a part of the actions required for objectives to be met. Sufficient policy development and planning must be in place so that the roles and responsibilities of various entities are established and understood. Current local planning is insufficient in defining how TDM is to be implemented at a local level. And regional TDM planning is focused primarily on delivering grant funding through the RTO program.

Planning for TDM programs should be expanded and coordinated at the state, regional and local levels to ensure programs exist and are effective at helping people drive less. For some TDM programs, implementation at a regional scale is the most cost effective and efficient means of delivery. Other TDM programming functions best at a local, county or school district scale. A comprehensive regional TDM effort involves multiple levels of effort coordinated between government and non-government partners.

TDM Policy 2. Ensure adequate TDM resources and programming are deployed to meet the public's specific mobility needs for employment, education and essential services.

TDM programs are most effective when they are tailored to the specific travel needs of a group or community. The region has moved from a broad-based, one-size-fits all approach to TDM messaging and outreach, to implementing specific approaches for different travel needs. For example, helping commuters find other ways to get to work often involves working with employers to establish programs of information and incentives at worksites. But for Safe Routes to School programs, an entirely different approach is needed in working with parents and children to help them see the fun and benefits of being able to safely walk, bike or roll to school. The region should provide adequate funding, coordination and resources to effectively implement TDM.

Often, TDM efforts are compromised by a lack of first/last mile connections to transit, or by a lack of 24-hour transit service and vanpools. Many commuters live outside the region and have no option other than driving to work. Improvements to the regional transit system, as outlined in the transit policy section, are needed to improve TDM program effectiveness.

Regional funding for a portion of the region's TDM actions is provided through the RTO program. In its current form, the RTO program funds grants to partners conducting TDM activities. A portion of grant funds are reserved for partners with defined TDM plans and programs to ensure on-going funding is available. Other grant funds are aimed at pilot or one-time TDM projects, or to develop partner capacity to plan for and deliver TDM programs on an on-going basis.

ODOT also provides funding to the RTO program to promote and expand use of the GetThereOregon.org website.

Current funding levels are not sufficient to support an expanded TDM effort throughout the region. Additional state, regional and local funding will be needed to support these efforts.

TDM Policy 3. Provide and deliver TDM programming at a variety of scales: state, regional and local.

A thorough regional TDM effort entails a variety of programs, at different scales and targeted towards a spectrum of travel needs. Delivery of these programs is most effective when it is led by the appropriate organization or government, depending on the program and its purpose.

Creation of TDM policy and ordinances through local TSPs is a successful approach to defining how TDM programs can be tailored to fit local needs and infrastructure and be coordinated with regional-scale efforts.

Providing a robust variety of successful TDM programs around the region comes from harnessing the efforts and expertise of cities, counties, regional and state agencies, as well as non-governmental organizations (NGO).

Government partners have oversight authority and responsibilities for managing parking and roadway pricing. Their role in these initiatives put them in a position to also lead complementary TDM efforts to help the public understand the travel alternatives available and ensure pricing strategies are implemented to their fullest potential.

Non-governmental organizations (NGOs) have insights and relationships with communities that, when combined with the capabilities and responsibilities of governments, can lead to more effective and impactful TDM programming.

TDM Policy 4. Improve access to travel choices and eliminating barriers for marginalized communities, with a focus on communities of color and people with low incomes.

The negative impacts of auto-centric transportation investments in the region have fallen particularly hard on marginalized communities, especially communities of color and people with low incomes. TDM investments made through a racial equity focus begin to correct these impacts and improve multiple regional priorities by addressing known burdens on marginalized communities in accessing travel options, which includes cost, personal safety from harassment/bias, and physical access to travel options. TDM efforts should focus on working with partners to learn together how to adapt and develop programming that is inclusive of and meets the needs of marginalized communities.

Implementing meaningful TDM programming in many areas of the region is constrained by the lack of sidewalks, safe bicycling infrastructure or low levels of transit service. These same areas are often those with high percentages of Black, Indigenous, people of color and low-income residents. Continued focus and prioritization of improvements in these areas is a key part of ensuring that TDM programs can benefit everyone in the region.

3.3.12 Emerging Technology Policies

Over the past several decades, new developments in technology have begun to reshape the way that people travel. Over three-quarters of adults now own a smartphone, often including apps that provide instant access to information on travel choices. Some new services combine smartphones with social networking, online payment, and global positioning systems to connect people with

vehicles and rides. Most auto manufacturers now offer hybrid or electric vehicles, and the cost of these vehicles has been falling, giving more people access to clean transportation options. Other automakers have been working to develop vehicles that drive themselves, which could dramatically transform our relationship with cars.

The Regional Transportation Plan (RTP) uses the blanket term **emerging technology** to encompass all new developments and establishes a set of terms to describe and categorize them, including:

- Advances in vehicle technology, such as automated vehicles (AVs) that operate independently of any input from a human driver, connected vehicles (CVs) that communicate with each other or with traffic signals and other infrastructure, and electric vehicles (EVs) that use electric motors instead of or in addition to gasoline-powered motors.
- New mobility services that use smartphones and other new technologies to connect people with vehicles and rides. These services include ride hailing companies that connect passengers with drivers who provide rides in their personal vehicles; car, scooter, or bike share that allow people to rent a nearby vehicle for short trips; and microtransit services that operate vans or small buses, often tailoring schedules and routes to customers' travel needs. Traveler information and payment services that help people plan trips and compare different ways of getting around, get detailed information on their mode of choice, track and share their trips, and pay for trips.

3.3.12.1 Emerging technology principles

Unlike other aspects of the transportation system, which are largely built and operated by the public sector, many emerging technology services are currently developed and operated by private companies. Transportation agencies can work with private companies in a variety of different ways – including contracting directly with companies and creating regulations that govern how companies operate – to bring emerging technology services to their communities in a way that benefits people. This work often happens more in the realm of partnerships and pilot projects than in the realm of policy and regulation. The principles summarized in Table 3-12, guide Metro and its partners in identifying companies that share common goals when developing partnerships and pilot projects.

Table 3-13 RTP goals and corresponding emerging technology principles

RTP goal	Emerging technology principle
Economy	Emerging technology should create more efficient ways to meet the transportation needs of local businesses and workers. Emerging technology companies and users should contribute their fair share of the cost of operating, maintaining and building the transportation system.
Climate	Emerging technology should improve transit service or provide shared travel options and support transit, bicycling and walking.

Mobility	Emerging technology should promote shared trips, decrease vehicle miles traveled and minimize conflicts between modes.
Safety	Emerging technology should reduce the risk of crashes for everyone and protect users from data breaches and cyberattacks.
Equity	New mobility services should be accessible, affordable and available for all and meet the transportation needs of communities of color and marginalized communities. Companies and public agencies should collaborate and share data to help make the transportation system better for everyone.

3.3.12.2 Emerging technology policies

Policy 1	**Make emerging technology accessible, available and affordable to all, and use technology to create more equitable communities.**
Policy 2	**Use emerging technology to improve transit service, provide shared travel options throughout the region and support transit, bicycling and walking.**
Policy 3	**Use the best available data to empower travelers to make travel choices and to plan and manage the transportation system.**
Policy 4	**Advance the public interest by anticipating, learning from and adapting to new developments in technology.**

Emerging Technology Policy 1. Make emerging technology accessible, available and affordable to all, and use technology to create more equitable communities.

Metro and its partners are responsible for ensuring that the transportation system serves all people, particularly those in the greatest need. New mobility services have the potential to bring more flexible transportation options to marginalized communities, but not everyone can access these services. Communities of color face the threat of discrimination from drivers or companies, some older adults and people who speak limited English are not able to use apps, many low-income people cannot afford costly data plans or lack access to bank accounts and people in wheelchairs often struggle to find accessible shared vehicles. Removing these barriers can help to bring better transportation choices to communities of color, night shift workers, people with disabilities, people living in areas that lack frequent transit service and others.

Emerging Technology Policy 2. Use emerging technology to improve transit service, provide shared travel options throughout the region and support transit, bicycling and walking.

Emerging technology has already given people in our region new ways to get around, whether by taking car, scooter, or bike share, hailing a ride, or simply making it easier for people to learn about and pay for public transportation. However, new mobility services are often concentrated in communities where it is already easy to take transit, walk or bike, which can create more congestion and pollution by attracting people away from more efficient modes and clogging streets with vehicles looking for passengers. To make the most of emerging technology's potential to reduce congestion and pollution, the region's transportation agencies need to prioritize and invest

in the modes that move people most efficiently; improve convenience and safety for transit riders, pedestrians, and bicyclists; and direct new mobility services to provide options in places that currently lack them in addition to adding options to communities that are already rich in travel choices.

Emerging Technology Policy 3. Use the best data available to empower people to make travel choices and to plan and manage the transportation system.

In today's transportation system, data is almost as important as infrastructure. Smartphones enable people to instantly book a transit trip or find a new route when they run into traffic, and new mobility companies use real-time data to balance supply and demand. Metro and its agency partners work to ensure that high-quality information is available for all transportation options in the region, and that this information is presented in a way that allows travelers to seamlessly plan and book trips. Transportation agencies also work to collect data on how travel patterns are changing to plan the transportation system. This requires collecting data from companies that operate emerging technologies in a way that helps agencies understand trip making without risking users' privacy, it also requires agencies to improve data on transit, bicycling and walking as well as on new mobility options and create systems that allow us to share this data among public agencies.

Emerging Technology Policy 4. Advance the public interest by anticipating, learning from and adapting to new developments in technology.

Our current planning process is designed around infrastructure projects designed to last for 50 years and an unchanging set of transportation services. It can take decades to plan and build a project, and once it is built there is little room for change. This time-intensive, risk-averse approach continues to make sense for major infrastructure projects, but to effectively plan for emerging technology agencies need to test new services and approaches and learn from their experience. Agencies in the region have used approaches like pilot testing and phased implementation of regulations so that they can test new approaches to working with technology in a small-scale, low-risk manner before applying what they learn to larger-scale efforts.

Chapter 4

Our Growing and Changing Region

2023 Regional Transportation Plan

May 26, 2023 WORKING DRAFT

This draft is subject to design and copy edits, technical corrections and minor updates as it is finalized for public review.

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INTRODUCTION

Purpose

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. It also serves as a freight gateway to domestic and international markets for businesses located throughout the state of Oregon, southwest Washington, the mountain states and the Midwest.

The region did not get this way by accident. 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 in the country. Every day, the region's 2.4 million people have places to go – to work or school, to doctors and 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.

Through 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 new challenges continue to emerge. Our success in creating a livable region has attracted new residents and employers, but our housing supply hasn't kept up with population growth, and it has become prohibitively expensive for many people to afford homes, particularly in neighborhoods where it is easy to walk, bike or take transit. This may be one of the reasons why some recent investments in transit and trails haven't drawn as many users as they have in past decades. And even the best-laid plans couldn't have anticipated the impact of the COVID-19 pandemic, which dramatically reshaped how people travel and continues to affect the region even as the public health emergency recedes.

This chapter provides a snapshot of current conditions and trends within the Greater Portland region and highlights key regional transportation challenges and needs for the plan to address.

Chapter organization

The RTP Needs Assessment is organized around the five 2023 RTP goals: mobility, safety, equity, economy, and climate. Each section of this chapter is dedicated to one of these priorities, and contains research, maps and data describing transportation needs with respect to each priority. Because these goals are often aligned – for example, increasing transit service often benefits mobility, climate, and equity – some sections contain similar information, or refer to relevant information in other sections.

4.1 MOBILITY

The updated Regional Mobility Policy included in the 2023 RTP update redefines how the region defines and measures mobility throughout the plan, establishing three performance measures for transportation agencies to use in plans and projects:

- System completeness
- Vehicle miles traveled (VMT)
- Travel time reliability on the region's throughways

This section provides a general update on how travel patterns have evolved since the last RTP update in 2018 as well as baseline information on the three measures above. Key findings include:

- Travel declined during the COVID pandemic. Between October 2019 and October 2021, daily throughway trips on a sample of regional mobility corridors decreased by five percent, daily arterial trips decreased by 14 percent, and daily transit ridership decreased by 41 percent.
- Overall, the planned motor vehicle network is much more complete than the bicycle, pedestrian and transit networks.
- Active transportation networks are mostly complete near transit. However, there are plenty of small gaps that hinder people's ability to walk and bike to transit stations and other important destinations. There are larger gaps on the regional bicycle and pedestrian networks between urban centers and at the edges of the region, many of which are on the regional trail system.
- Per capita VMT in the greater Portland region has been significantly lower than the national average since 1997 and has mostly been flat or declining. In order to meet ambitious state-mandated VMT per capita reduction targets, the region will likely need to take new approaches.
- During rush hour, the average traveler can reach 43% of jobs in the region by driving, and 7% by transit. Metro and partner agencies are working to increase ridership by better connecting activity centers – potentially including many developing suburban centers – with frequent transit.

4.1.2 Evolving travel patterns

Between 2015 (the base year for the 2018 RTP update) and 2020 (the base year for the 2023 RTP update, the region grew significantly – by 135,000 people (an 8.4% increase), 57,000 households (8.9%) and 90,000 jobs (10.1%).[1] This growth is projected to continue, though not necessarily at the same rapid rate as the region saw during the previous decade. As greater Portland continues to evolve into a major metropolitan area, with increasing housing prices and a more specialized economy, commute patterns are becoming more complex. Figure 4.26 in the Thriving Economy section provides a window into this growing complexity; it shows how workers commute within

[1] Metro Regional Travel Model.

and between counties in and around the region. Over 45 percent of workers in Clackamas, Multnomah and Washington counties work in a different county than where they live.

Though the number of jobs and homes in the region is growing, the way that people commute hasn't changed much. Table 4-1 shows commute mode shares for 2010 and 2019 (the base year for the 2023 RTP update, and the last year of available data that does not reflect the impacts of the COVID-19 pandemic). The table shows both absolute change in mode shares between 2010 and 2019 (which better captures which modes are dominant in the region, but can understate change for modes other than driving because they are less widely-used to begin with) and relative change (which better captures the extent to which usage of different modes is growing or declining relative to current levels, but can also amplify small variations that are due to margins of error or other reporting issues). This data is built up from Census tract-level estimates for all tracts within the MPA boundary, weighted according to the population in each tract.

Table 4-1 Commute mode shares in the Greater Portland region, 2010-2019 (American Community Survey five-year estimates, 2006-10 and 2015-19 data)

Mode	2010 mode shares	2019 mode shares	Absolute change 2010-2019	Relative change 2010-2019
Drive alone	69.5%	67.8%	-1.7%	-2.4%
Carpool	9.9%	9.2%	-0.7%	-6.6%
Transit	7.7%	8.1%	0.4%	5.3%
Walk	3.7%	3.6%	-0.1%	-2.4%
Bike	2.3%	2.6%	0.2%	10.4%
Work from home	6.0%	7.6%	1.6%	26.4%

Between 2010 and 2019, vehicle commute shares fell slightly, the share of people biking or taking public transportation to work rose slightly, and there were very small changes in how many people walk to work. This reflects the challenges inherent in achieving the RTP's goal of supporting a shift from driving to other modes. Though the region has prioritized investments in transit and active transportation over the past several decades, the motor vehicle network is far more built-out than other networks and people's daily travel habits are deeply ingrained, so even major multimodal investments only produce incremental changes. The rising cost of housing, especially in walkable neighborhoods near transit stations, may also play a role since it makes it harder for people with lower incomes – who tend to be more likely to use modes other than driving, particularly transit – to afford a home that offers access to options.

The biggest change captured in Table 4-1 is the growth of working from home. The share of people working from home increased by a relative 25% between 2010 and 2019 – double the growth in transit, which is the next-fastest-growing mode in the region – and as of 2019 there were almost as many people in the region working from home as there were taking transit to work. Furthermore, the data shown above only captures people who work from home full time; if it accounted for people who work from home a few days per week it would show an even larger percentage of people teleworking.

It is important to note that the data shown above only capture commute trips. These trips make up less than 30 percent of all trips in the region, but since commutes are often time-sensitive, longer-distance trips they account for a significant share of congestion and vehicle miles traveled. Metro's travel surveys find that people are significantly more likely to walk and carpool and less likely to drive alone or take transit when taking non-commute trips than they are when commuting.

Impacts of the COVID-19 pandemic on travel

The data discussed above highlights how slowly transportation behavior often changes. However, major events like recessions and natural disasters can have immediate and drastic impacts on how people travel, and it can take a while for conditions to stabilize afterward. The COVID-19 pandemic that began in March 2020 was just such an event. Even though the federal government has now declared the COVID-19 public health emergency over, offices and hotels are still emptier than they were before the pandemic, and the impacts of the pandemic are still rippling through the economy and the transportation system.

The RTP is a plan for the next 20 years. Using pre-pandemic data to assess needs allows the RTP to focus on the long-term demographic and economic changes that shaped the region's growth over the past several decades, and that are likely to continue to determine how the region grows in the future. Most of the data in this chapter is from 2020 or before. 2020 is the base year for the 2023 RTP update, is often the most recent year for which data are available.

Many aspects of life and travel have already returned to their "normal" pre-pandemic state, while others are trending that way. It's possible that some of the impacts of the pandemic will be so long-lasting that they lead to a "new normal" somewhere between conditions at the peak of the pandemic and those beforehand. Considering this possibility – which begins with understanding how transportation patterns have continued to evolve since the pandemic[2] – helps the RTP be more resilient under different potential futures. Figure 4.1 below shows how travel demand changed for transit and on different types of streets during the year following the pandemic.

[2] Most data in this section comes from Metro's Emerging Transportation Trends Study, which can be found at: https://www.oregonmetro.gov/public-projects/2023-regional-transportation-plan/research

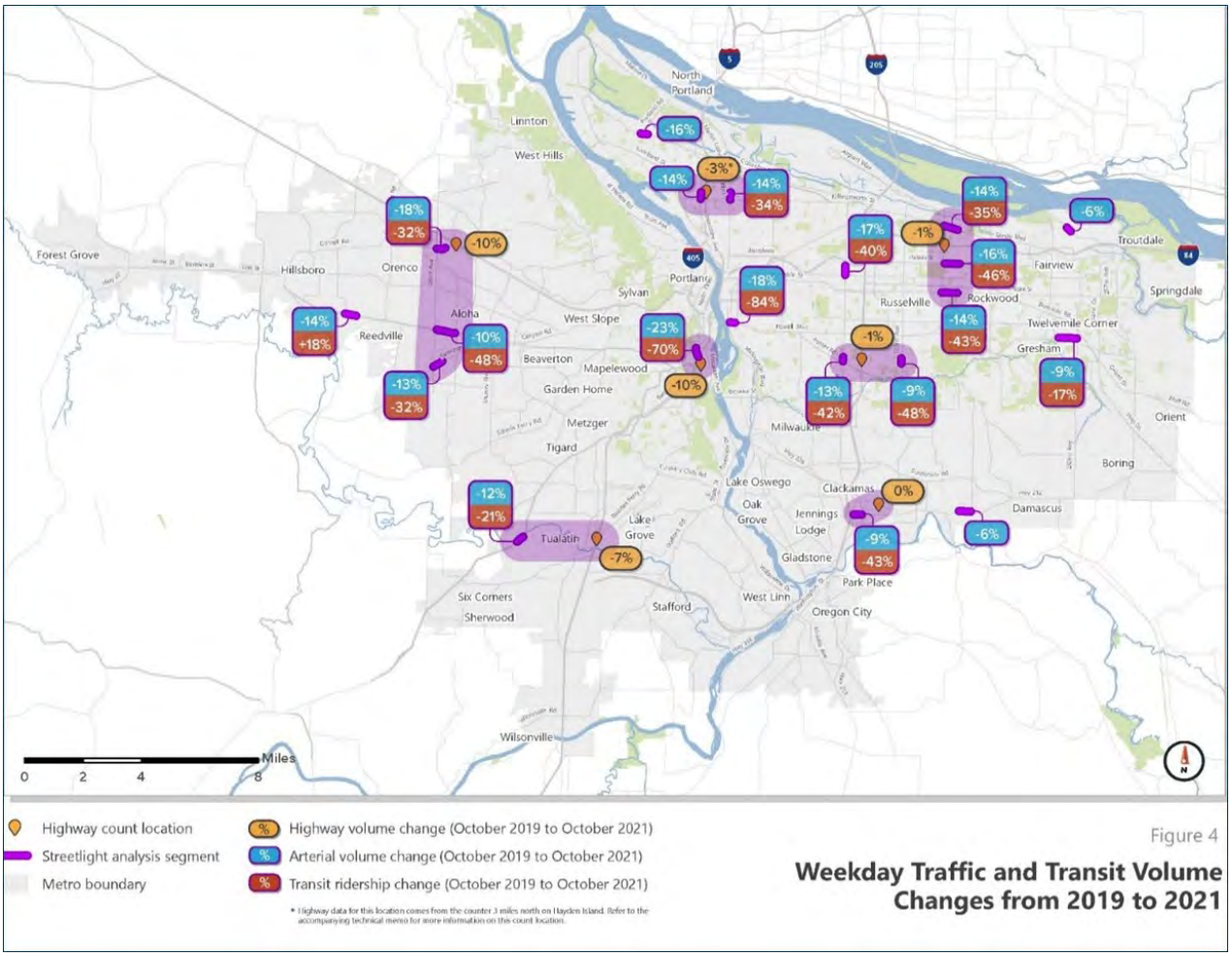
Figure 4.1 Trip volumes by mode and by facility type, indexed to February 2020 levels, February 2020-2021 (PBOT freight route and arterial count data; ODOT throughway count data; TriMet transit ridership performance reports; data were compiled in April 2021[3])

All different types of travel shown fell during the initial months of the pandemic, but some fell more steeply and/or recovered more slowly than others. Trips on freight routes fell the least and recovered most quickly, potentially because goods kept moving during the pandemic and many freight routes also connect workers to jobs that remained in-person during the pandemic. Throughway trips recovered to 80 percent of pre-pandemic levels by May 2020, and then continued to fluctuate, which could reflect normal seasonal changes in travel demand, extreme weather events, and/or the spread of new COVID variants. Arterial travel appeared to be recovering less slowly, but the data shown only covers the first half-year of the pandemic.

Metro collected data for a set of throughways, arterials and transit routes that reflect key corridors in the region. Figure 4.2 below shows the results. Changes in throughway volumes are shown in yellow, changes in arterial volumes are shown in blue, and changes in transit ridership are shown in red.

[3] This figure, as well as some of the other data in this section, reflects the underlying availability of source data at the time of compilation. Some of this data comes from limited-duration collection and reporting efforts that agencies undertook when the pandemic began to understand its impact.

Figure 4.2 Weekday vehicle and transit volume changes, October 2019-October 2021 (ODOT throughway count data; Streetlight arterial volume data; TriMet transit ridership by route data)



Average daily throughway trips across the study locations decreased by five percent between October 2019 and October 2021, while arterial trips declined by 14 percent and transit ridership fell by 41 percent. In almost every location studied, arterial volumes decreased more significantly than throughway volumes. Transit volumes fell particularly significantly in locations closer to the center of the region.

These findings are consistent with research about the pandemic's broader impacts on transportation, which has found that teleworking reduces vehicle trips and miles traveled, as well as transit ridership, particularly near job centers. Transportation agencies in the region are already responding to these dynamics – for example, TriMet's recent Forward Together concept[4] realigns transit service to focus on routes that have maintained ridership through the pandemic and that serve people with low incomes, who were more likely to continue to rely on transit over

[4] https://trimet.org/forward/

the past several years. If teleworking rates remain high, it would likely lead to slightly lower levels of VMT per capita and transit use than the region would otherwise experience, all other things being equal.

4.1.2 System completeness

Meeting Mobility goals depends on providing a variety of seamless and well-connected travel modes so that people have multiple options for making trips.

Table 4-2 below summarizes the completeness of different regional modal networks, using the planned networks developed during the 2018 RTP. These planned networks are based on extensive analyses of network conditions and deficiencies as of July 2022, as well as relevant policies and performance/design standards that apply across the region.[5] This table also reports on the completeness of the bicycle and pedestrian networks[6] near transit stations and along the arterials, which helps people make safe multimodal trips. Completing active transportation networks in EFAs is a priority under the RTP's Equity policies, and completing networks in 2040 centers and employment/industrial areas is important to supporting the Thriving Economy goal – see those sections for a discussion of bike/pedestrian network completeness in those specific communities.

Table 4-2 System completeness by modal network and location within the region (2018 RTP networks and 2022 partner agency data)

Network	Total planned miles	Number of miles completed	Percent of miles completed
Region-wide			
Transit network[7]	1,460	788	54%
Pedestrian network	1,040	597	57%
Bicycle network	1,149	626	55%
Trail network	560	245	44%
Motor vehicle network	1,171	1,146	98%
Near transit			
Pedestrian network	837	539	64%
Bicycle network	881	538	61%
Along arterials			
Pedestrian network	725	414	57%
Bicycle network	619	412	66%

[5] For further information, see the Regional Transit Strategy, the Regional Active Transportation Plan, the Regional Trail System Plan, and forthcoming updates to the Regional Mobility Policy.

[6] Metro distinguishes between on-street bicycle and pedestrian gaps in facilities like bike lanes and sidewalks and off-street bike/ped gaps in facilities like trails. On-street facilities are generally needed to provide good active transportation connections in centers, near transit, and along arterials, whereas off-street facilities provide longer-distance connections between these areas. Table 4-2 focuses on the on-street bike/ped network.

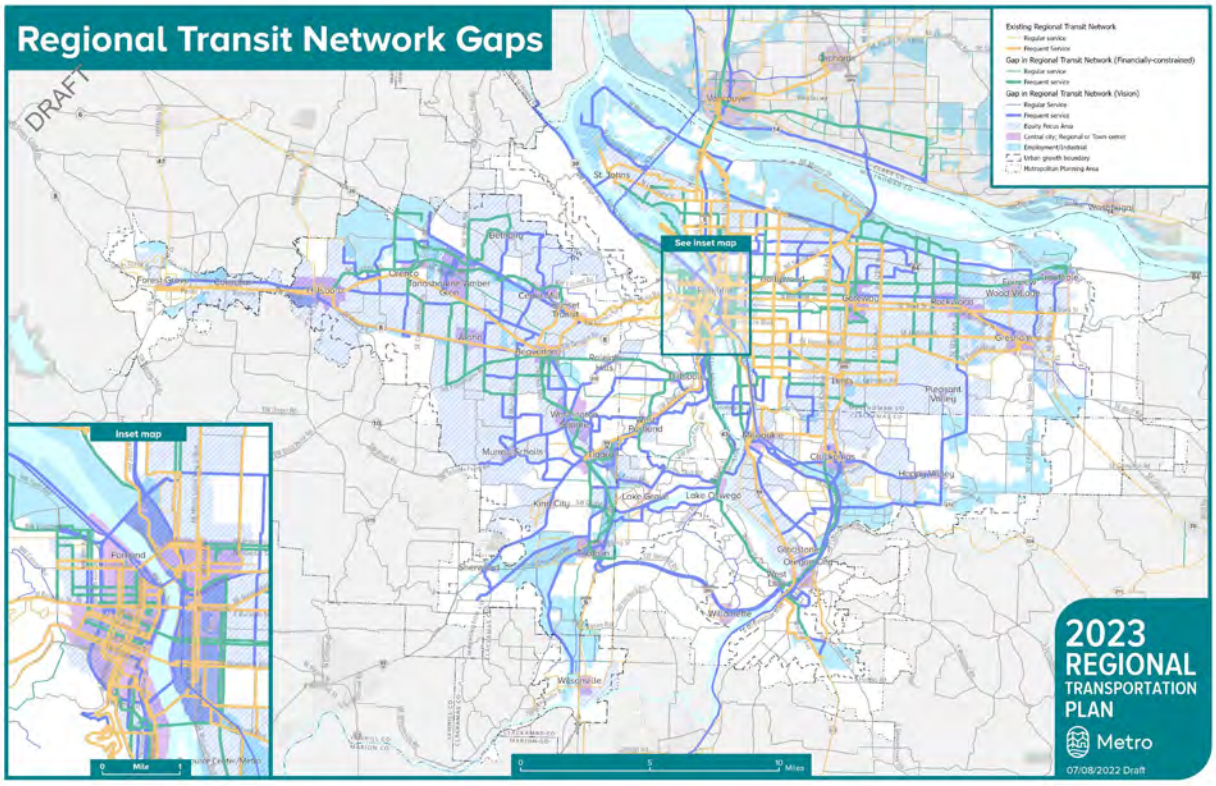
[7] Consistent with how completeness is analyzed for other modal networks, the assessment of transit system completeness is based on the financially constrained RTP, and excludes the strategic investments shown in Figure 4.3.

Overall, the planned motor vehicle network is much more complete than the other modal networks. Consistent with the 2040 Growth Concept, the active transportation networks are generally more complete near transit. However, the fact that the pedestrian network along arterials is not significantly more complete than it is in the rest of the region is a concern given that 77 percent of pedestrian crashes occur on arterials.

However, several important gaps remain in these areas. The maps below identify these gaps by comparing the regional visions (i.e., planned systems) for these networks – which are based in extensive coordination with stakeholders and analysis of transportation and land use data – to the facilities that are on the ground today in order to identify gaps in the system.

Figure 4.3 below shows gaps in the transit network where planned transit has not yet been built. The map differentiates between gaps in frequent (thick lines) and regular (thin lines) transit service, and between gaps in the financially constrained network, which the region has identified funding to complete (green), and gaps in the strategic network, which the region has not yet identified funding to complete (purple). It also shows the location of existing regular and frequent service (orange lines). All of this information is overlaid with Equity Focus Areas (violet cross-hatching) to highlight how the current and planned network serves these communities that particularly need improved transit service (see the Equity section for more details on transit-related Equity needs).

Figure 4.3 Regional transit network gaps (2018 RTP networks and 2022 partner agency data)



Filling the gaps in the frequent transit system (thick green lines) are particularly important to meeting the region's Climate goals. The 2018 RTP relied on a planned increase in frequent transit service to meet GHG reduction targets, and the thick green lines indicate routes where this transit has yet to be implemented. These gaps are distributed over most of the more populated parts of the region, and there are large concentrations of them in East Portland and the Orenco/Bethany/Aloha area.

Figure 4.4 and Figure 4.5 show gaps in the regional pedestrian and bicycle systems. Completed facilities are shown in purple or green; gaps are shown in red. The maps distinguish between gaps in on-street facilities like sidewalks and bike lanes (darker shades) and gaps in off-street facilities like trails (lighter shades). Both the pedestrian and bicycle networks are overlaid with urban centers identified in the 2040 growth concept since RTP policies direct pedestrian and bicycle investments toward centers of activity where short distances between destinations make it easy to travel on foot. Pedestrians and bicyclists are vulnerable users of the transportation system, and even a small gap in the network can make an entire trip feel unsafe and/or inconvenient.

Figure 4.4 Regional pedestrian network gaps (2018 RTP networks and 2022 partner agency data)

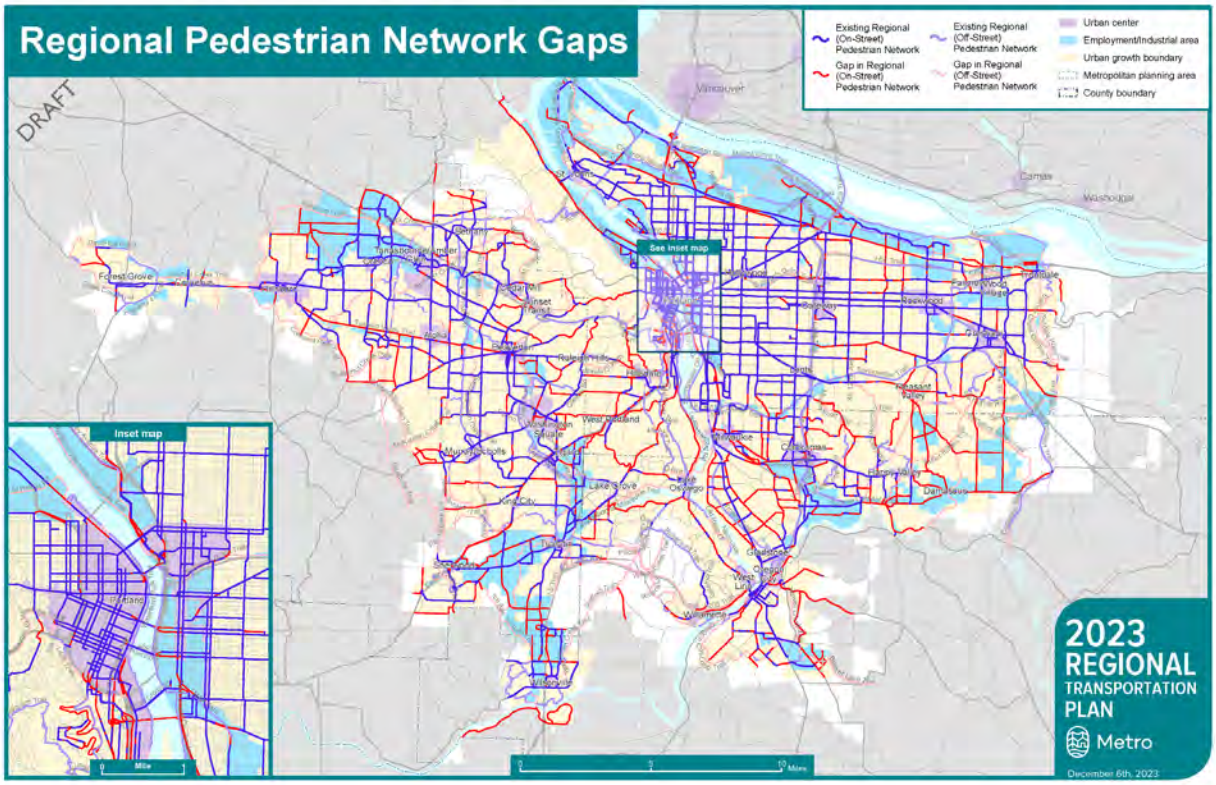
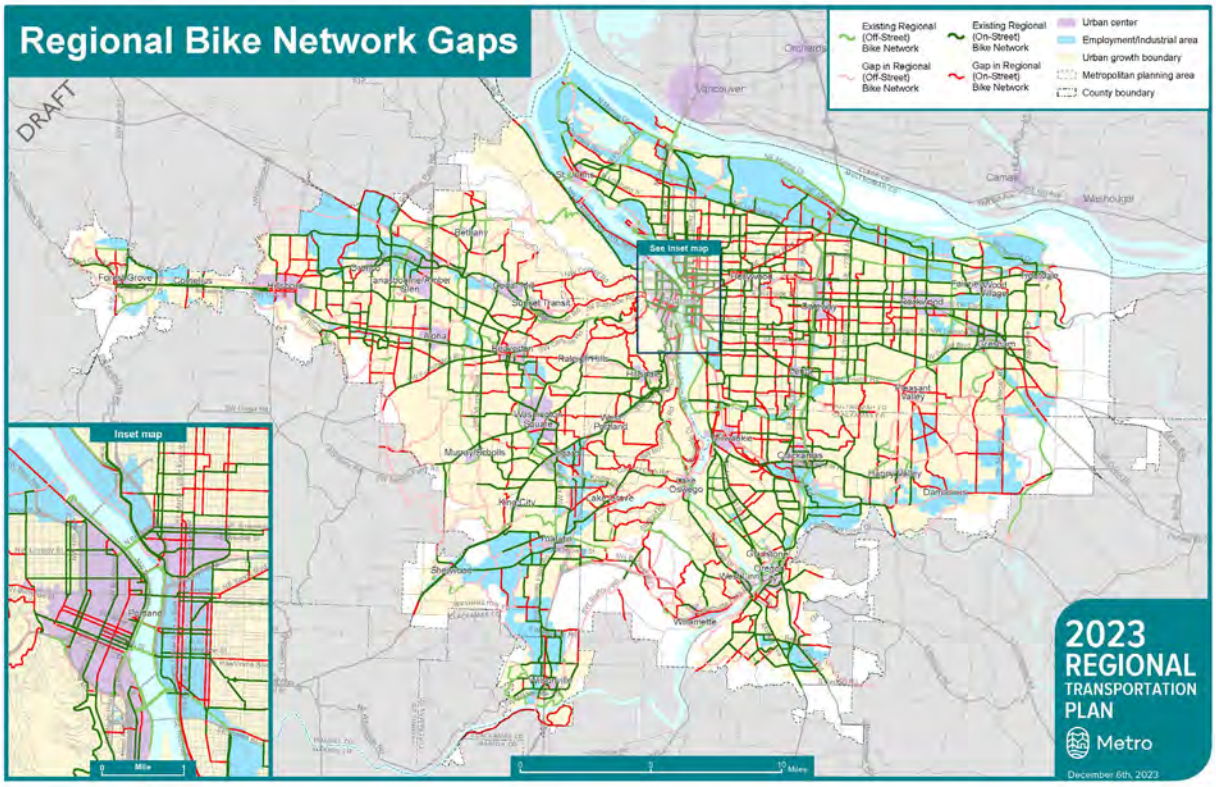


Figure 4.5 Regional bicycle network gaps (2018 RTP networks and 2022 partner agency data)



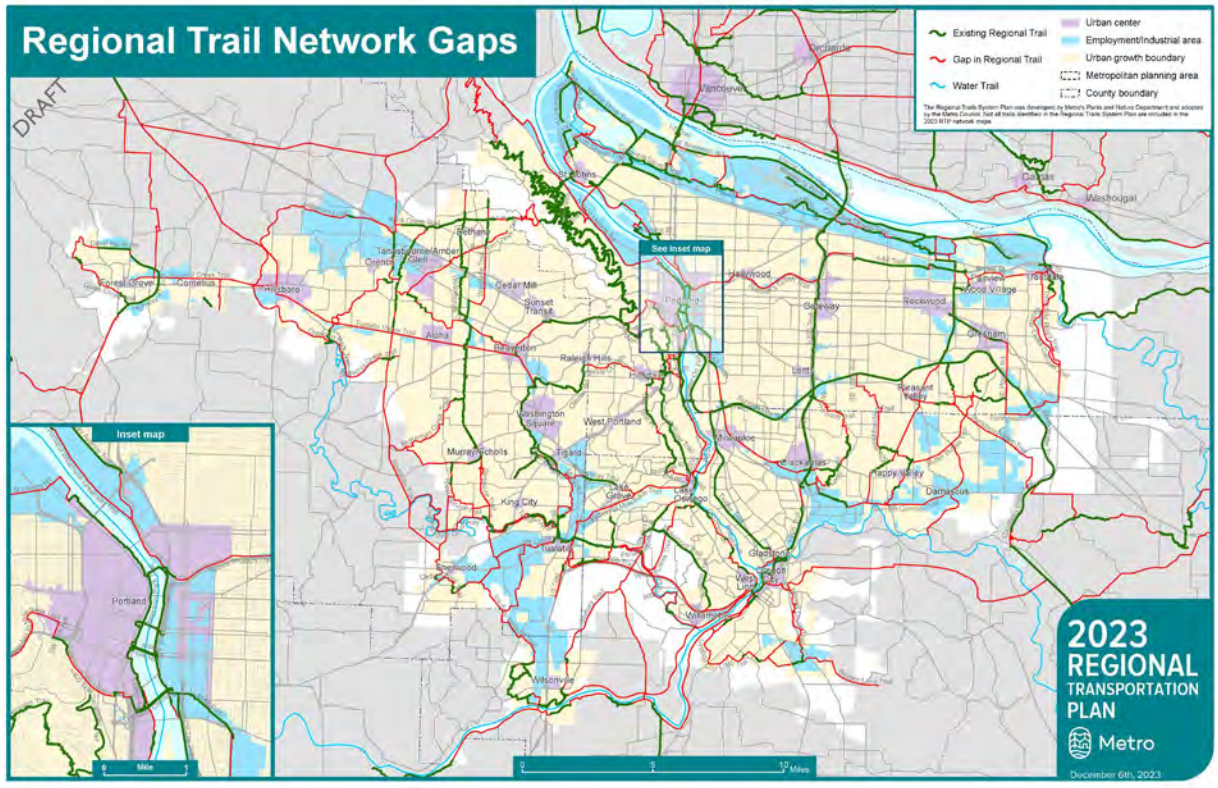
Both the bicycle and pedestrian networks are generally more complete in the region's urban centers, which is consistent with RTP policies that direct transportation investments to support implementation of the 2040 growth concept. But even within those centers there are plenty of small gaps that hinder people's ability to walk and bike – and that can also impact transit use and the economy. Walking is the most primary form of transportation. Whether an entire trip is done on foot or using a wheelchair or similar mobility device, people must walk for at least a part of every trip, even when the rest of the trip takes place on transit, in a vehicle or on a bicycle. Pedestrian activity thrives where the pedestrian facilities are well connected, safe and attractive—meaning well lit, free of debris and in good repair—and where there are frequent protected crossings. A 2022 PSU-Metro study found that pedestrian facilities also had a positive economic effect on surrounding communities.[8]

Closing the gaps shown above can be a relatively low-cost way to complete critical connections in areas that are already generally well-suited for walking and bicycling. There are larger bicycle and pedestrian gaps between urban centers and at the edges of the region, many of which are on the trail system. Closing these gaps has the potential to transform how people travel in communities where most trips are by car, especially when pedestrian projects are accompanied by complimentary investments in transit and community development.

[8] https://www.oregonmetro.gov/active-transportation-return-investment-study

Figure 4.6 below shows gaps in the regional trail network in red and completed trail segments in green, as well as the same urban centers that are included as overlays in the bicycle and pedestrian maps above. Trails are long-distance, high-quality bicycle and pedestrian facilities that provide connect regional centers, and they often pass through natural areas and/or include landscaping and natural features.

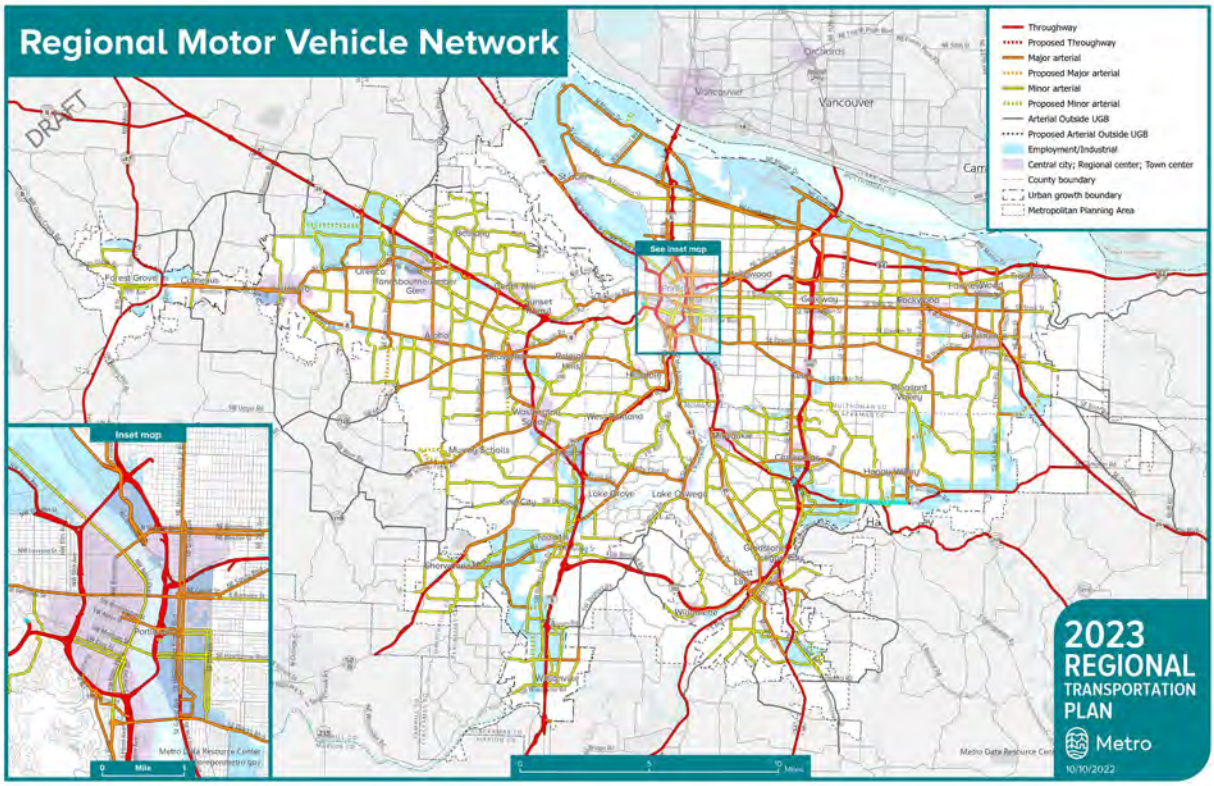
Figure 4.6 Regional trail network gaps (2018 RTP networks and 2022 partner agency data)



Trails are also part of the bicycle and pedestrian networks shown above, and this map underscores how filling many of the longer-distance gaps shown above depends upon completing the regional trail system.

Figure 4.7 shows the planned motor vehicle network by facility type, including planned facilities that have not yet been built, which are shown in dashed lines. As the map below shows, the network is largely built out.

Figure 4.7 2018 RTP regional motor vehicle network map ((2018 RTP networks and current partner agency data)



4.1.3 VMT per capita

Vehicle miles traveled (VMT) per capita measures much the average person in the Portland region drives each day. Many transportation agencies in the region use VMT per capita to measure progress toward creating vibrant communities and providing multimodal travel options. All other things being equal, VMT per capita tends to be lower in compact communities with a mix of destinations and good access to transit and other options.[9] As discussed at the beginning of this section, the Regional Mobility Policy establishes VMT per capita as a critical performance measure for Mobility, and the State has also established VMT per capita as the key metric used in determining whether the RTP meets its climate targets. See the Climate section for information on historical, current, and projected future levels of VMT in the region.

4.1.4 Transit frequency

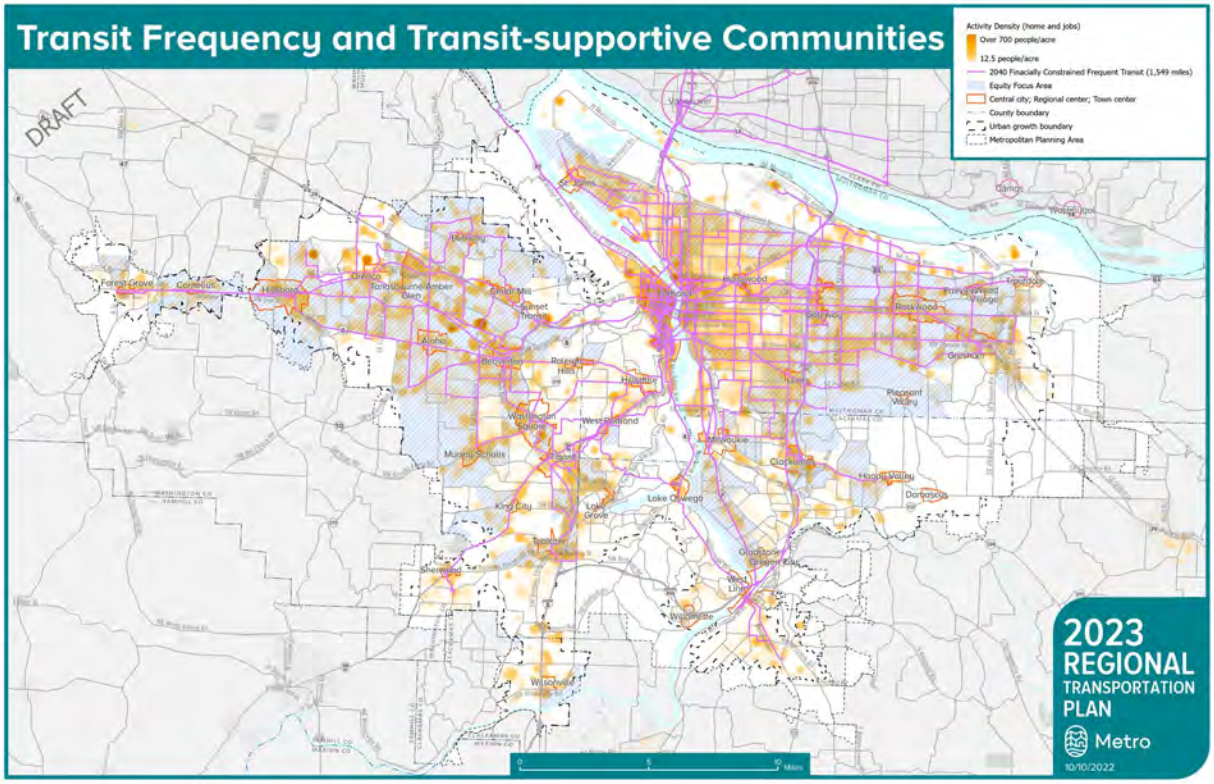
Completing a high-quality transit network is critical to meeting regional Mobility goals. Half of all trips are over three miles, and these trips account for the majority of VMT.[10] Transit is the mode that is best-suited to provide a climate-friendly and affordable alternative to driving for these

[9] https://nap.nationalacademies.org/catalog/12747/driving-and-the-built-environment-the-effects-of-compact-development

[10] https://www.bikeleague.org/content/national-household-travel-survey-short-trips-analysis

longer-distance trips. And transit is the most useful when it provides fast, convenient, and accessible transit connections between activity centers. Figure 4.8 below highlights communities that have the densities necessary to support frequent transit[11] (orange) and compares their location with current frequent transit service (i.e., lines with peak headways of 15 minutes, shown in purple). It also shows EFAs in light blue cross-hatching (see the Equity section for additional discussion of this map).

Figure 4.8 Map of high-frequency transit (headways of less than 15 minutes) and transit-supportive communities (12.5 or more people and/or jobs per acre), 2020 (Metro regional travel model and distributed growth forecast)



If transit service is well-coordinated with land use, this map should show purple lines connecting most of the orange/red clusters of high density. This is the case in much, but not all, of the region, particularly in the south and west and on north/south corridors in the east side of the region.

4.1.5 Access to destinations

Measuring how many destinations people can access via transit and automobile within a given travel time is a common way of understanding the overall utility of transit and driving. The RTP

[11] The High Capacity Transit and Regional Transit Strategies specify a threshold of 5 households or 15 jobs per acre for communities served by frequent transit. In order to map both jobs and housing at the same scale, Figure 4.8 combines jobs and housing into a single measure of activity density (jobs plus residents per acre) and uses a threshold of 12.5 jobs and/or residents per acre to identify communities that support frequent transit. The average household in the region includes 2.5 people, so 5 households per acre is equivalent to 12.5 residents per acre.

aims to increase access to destinations, particularly for transit. A truly multimodal transportation system is one in which people who travel by transit can reach the same number of jobs via transit within a given travel time as they can via automobile. Table 4-3 below compares accessibility via transit and automobile during peak hours and other times of the day. This analysis uses a 45-minute travel time to measure transit access and 30-minute travel times to measure automobile access,[12] which accounts for the time needed for people to walk between their origins/destination and their car/transit stop and transfer between different transit routes, etc.

Table 4-3 Percent of jobs accessible by driving and by transit, by community type and time of day, 2020 (Metro travel model and land use data)

	Percent of jobs accessible within…	
	… a 30-minute drive	**…a 45-minute transit trip**
During rush hour	43%	7%
Outside of rush hour	50%	6%

The good news is that driving offers good access to jobs throughout the region – the average resident can reach almost half of the region's job within a 30-minute commute. The challenge to creating a multimodal system is that driving offers much better access than taking transit does. Across all times of day, people can reach five to ten times as many destinations by auto as they can by driving.

[12] These travel times were recommended by the 2018 Transportation Equity Working Group to account for the fact that transit trips are typically longer than automobile trips.

4.2 SAFETY

The RTP establishes a Vision Zero goal for the Portland region to eliminate traffic-related deaths and severe injuries by 2035. Safety analysis for the draft needs assessment is based on the most recently available data. To track trends over time, most of the analysis uses a five-year average of crash data because of the random nature of crashes.

Key findings from the draft Safety needs assessment include:

- From 2016 through 2020, 2,814 people were killed or experienced a life-changing severe injury from a traffic crash in the greater Portland region, an average of 563 people per year.
- Traffic fatalities in the Portland region have been increasing for users of all modes, except for people bicycling. Severe injury crashes are also increasing, though not as dramatically as fatal crashes.
- Pedestrians experience a disproportionately high number of traffic deaths.
- Fatal and severe crashes are concentrated at a small number of corridors and intersections, which the RTP refers to as High Injury Corridors and High Injury Intersections.
- There is a high level of overlap between the updated 2023 High Injury Corridors and those identified in the 2018 RTP.
- About 40% of traffic fatalities occur on state owned highways.
- Black, American Indian and Alaska Native people experience a disproportionate number of traffic deaths.
- Three quarters of serious pedestrian and bicycle crashes, and 65% of all serious crashes, occur in areas identified as Equity Focus Areas.
- Safety issues are a concern for children walking and bicycling to school.

Since the 2018 RTP was adopted, city, county, regional and state partners been developing and implementing safety action plans. Metro's 2-Year Progress Report on the Regional Transportation Safety Strategy[13] highlighted this work and identified actions for the next two years, including in the update of the 2023 RTP. While it is discouraging to see traffic fatalities and severe injuries increase as agencies and community partners work to address safety, it often takes a while for the impact of Vision Zero policies to become apparent. Countries and cities that have adopted the Safe System Approach and committed to achieving zero serious crashes typically begin to see substantial results in about 10 years, reducing traffic fatalities upwards of 40-60%.[14]

[13] June 2021. https://www.oregonmetro.gov/sites/default/files/2021/08/03/RTSS-progress-report-20210603.pdf

[14] Road Safety Annual Report 2020, International Transport Forum: https://www.itf-oecd.org/sites/default/files/docs/irtad-road-safety-annual-report-2020_0.pdf

4.2.1 Historical crash analysis

The RTP includes ambitious targets to reduce fatal and serious injury crashes by 16 percent by 2020, by 50 percent by 2025, and to zero by 2035, and identifies a trajectory for the intervening years that allows the region to meet these targets. Table 4-4 summarizes regional progress toward these performance measures.

Table 4-4 Federal Safety Performance Measures for Traffic Fatalities and Serious Injuries, 2016-2020 (Oregon Department of Transportation crash data analyzed by Metro)

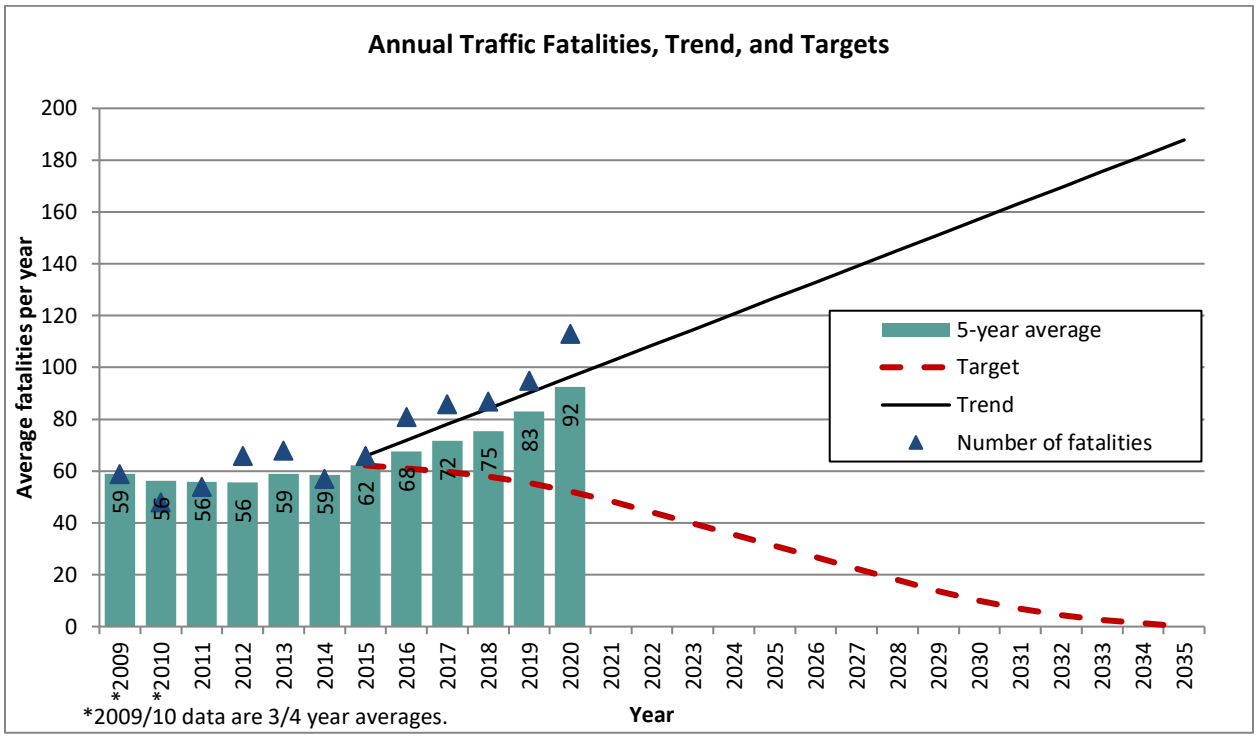
	5-year rolling averages		
Performance Measure	**2011-2015 Baseline**	**2016-2020 Target**	**2016-2020 Actual**
Number of fatalities	62	52	93
Fatalities per 100 million vehicle miles traveled	0.6	0.5	0.9
Number of serious injuries	458	384	512
Serious injuries per 100 million vehicle miles traveled	4.5	3.6	4.8
Number of non-motorized fatalities and serious injuries	113	95	129

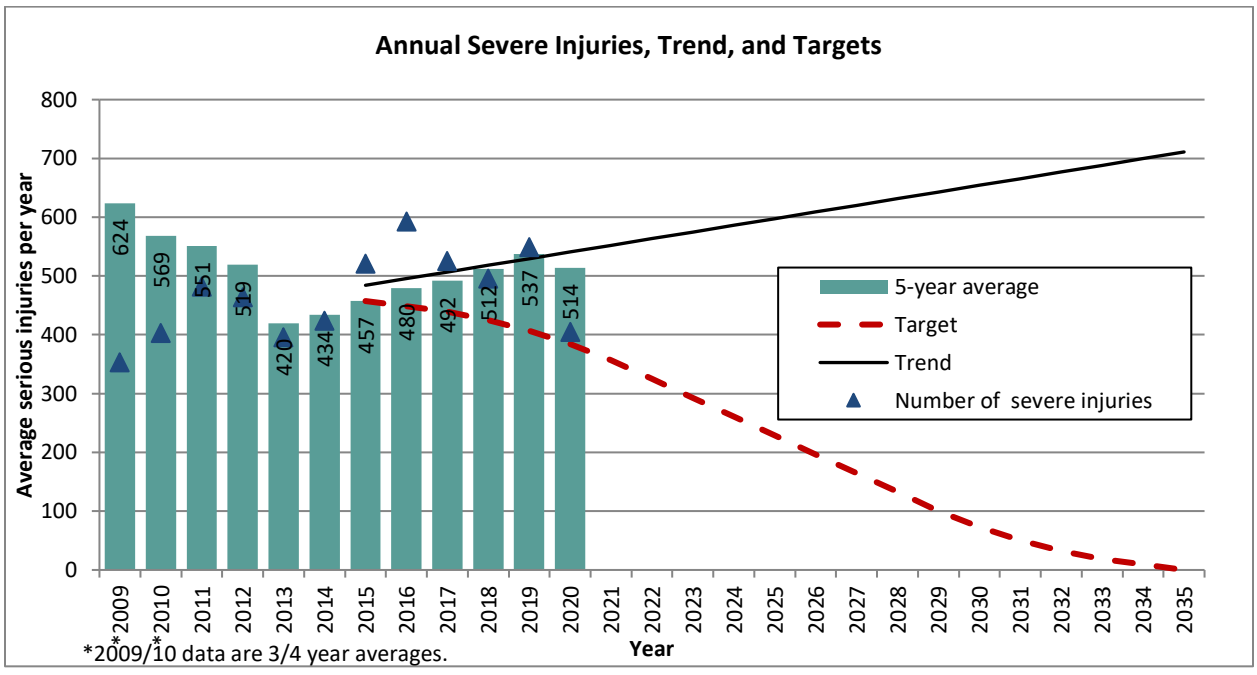
The region is not on track to meet its targets. In fact, across all the measures summarized in Table 4-4, the region's streets have gotten less safe since JPACT and the Metro Council established this goal and began collecting baseline data. These findings are consistent with an interim Safety Performance report that Metro published in 2021,[15] which was based on 2019 data.

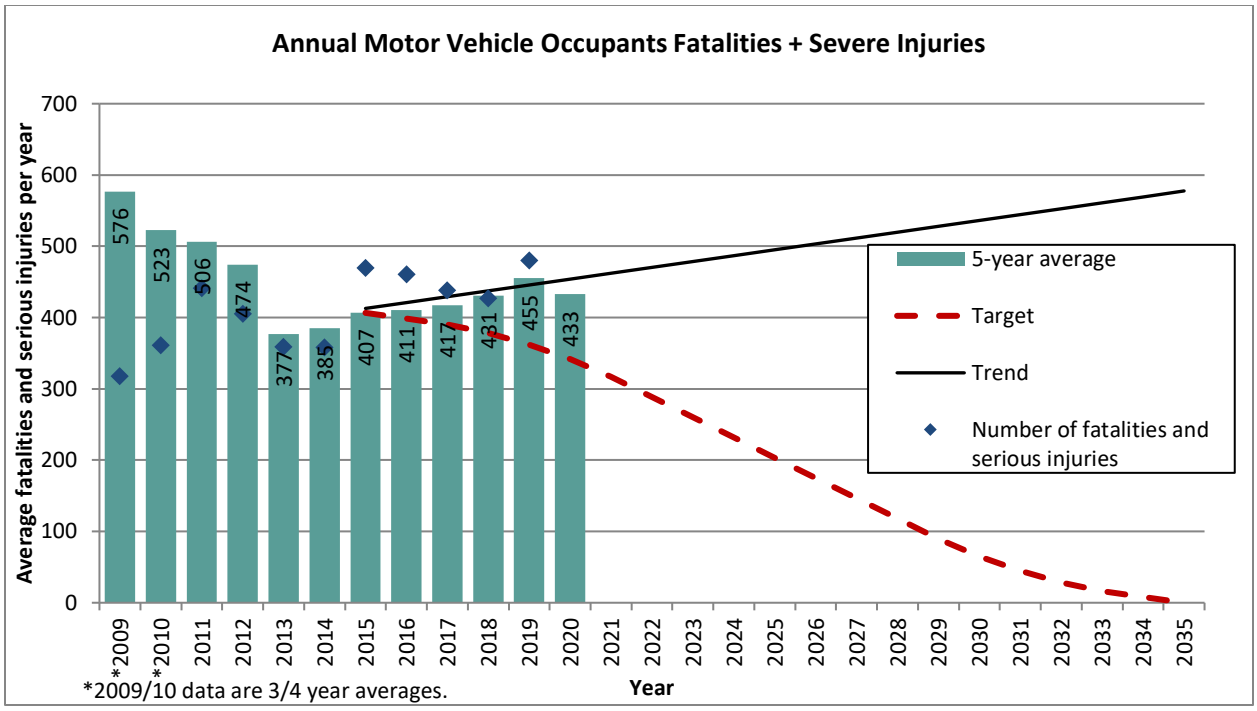
Figure 4.9 shows more detail on safety trends in the region, providing data by crash type (fatal vs. serious injury) and mode.

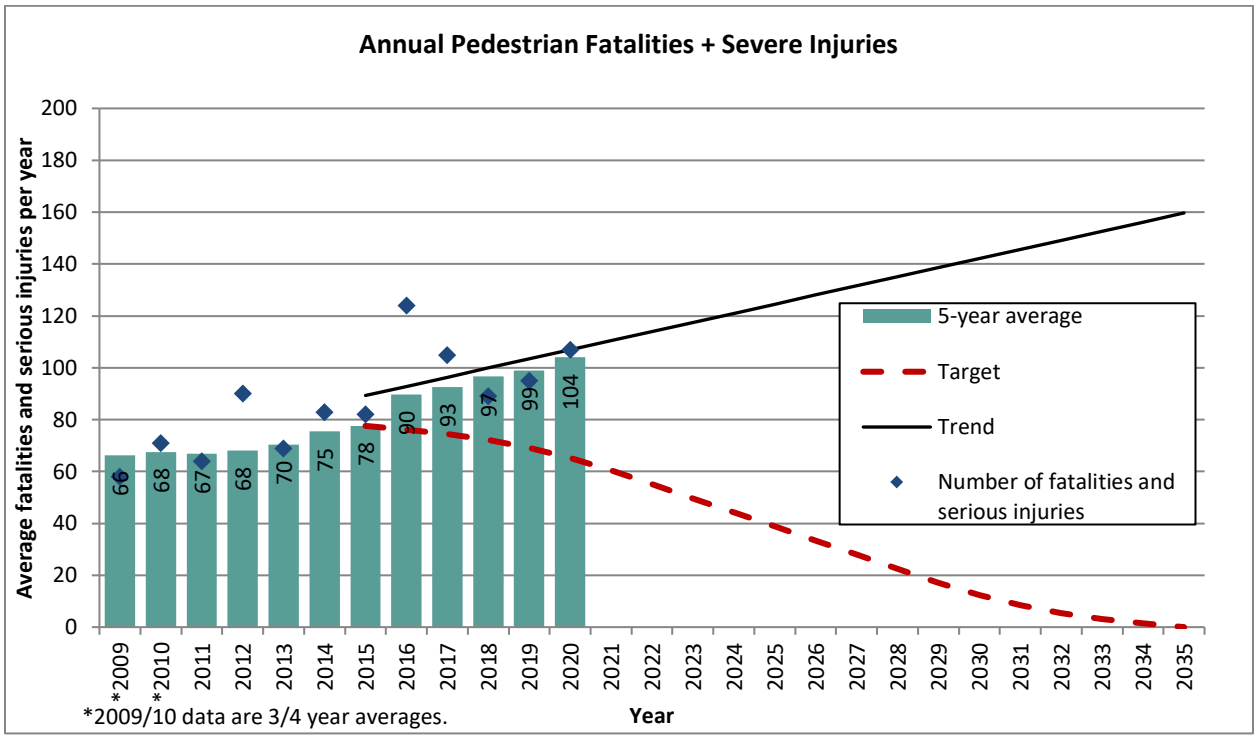
[15] https://www.oregonmetro.gov/sites/default/files/2021/03/04/Metro-safety-annual-performance-report-2015-2019.pdf

Figure 4.9 Five-year average rates of crashes by type and mode, 2007-2020, with trendlines and Vision Zero targets (ODOT crash data, analyzed by Metro staff)






Annual Motor Vehicle Occupants Fatalities + Severe Injuries
Average fatalities and serious injuries per year
700
600
500
400
300
200
100
0
576
523
506
474
377
385
407
411
417
431
455
433
5-year average
Target
Trend
Number of fatalities and serious injuries
*2009
*2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
*2009/10 data are 3/4 year averages.
Year


Annual Pedestrian Fatalities + Severe Injuries
Average fatalities and serious injuries per year
200
180
160
140
120
100
80
60
40
20
0
66
68
67
68
70
75
78
90
93
97
99
104
5-year average
Target
Trend
Number of fatalities and serious injuries
*2009
*2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
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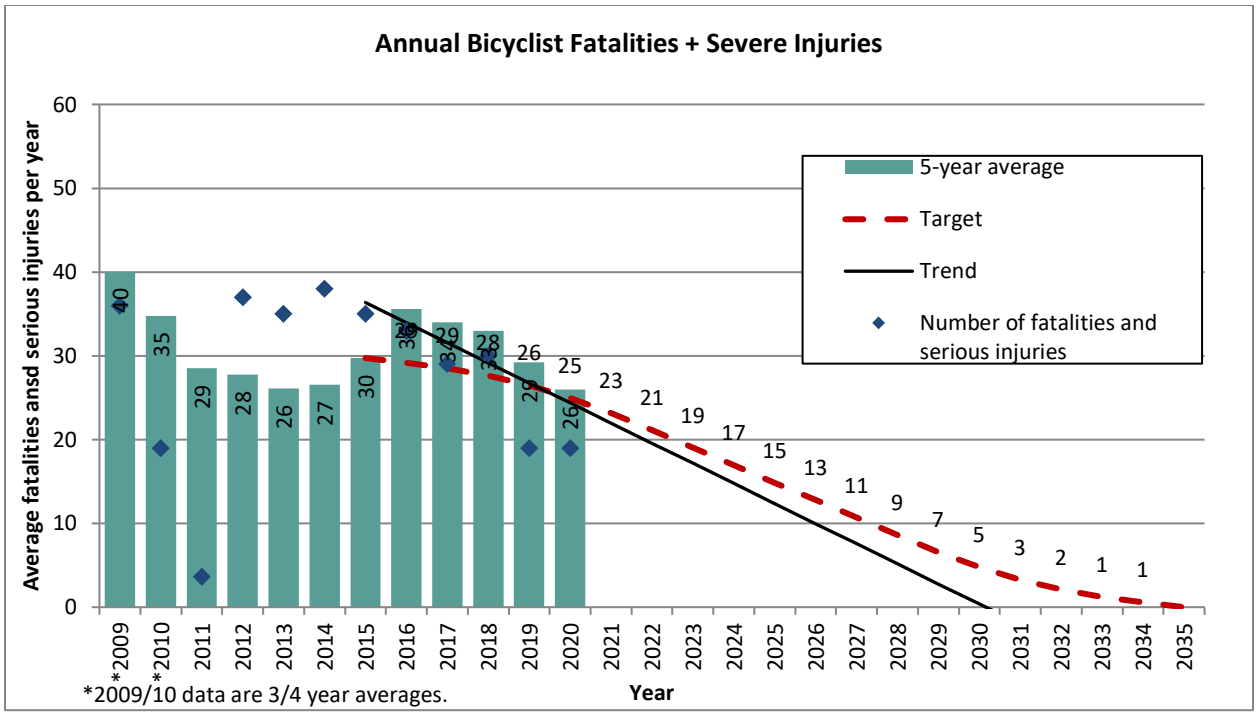
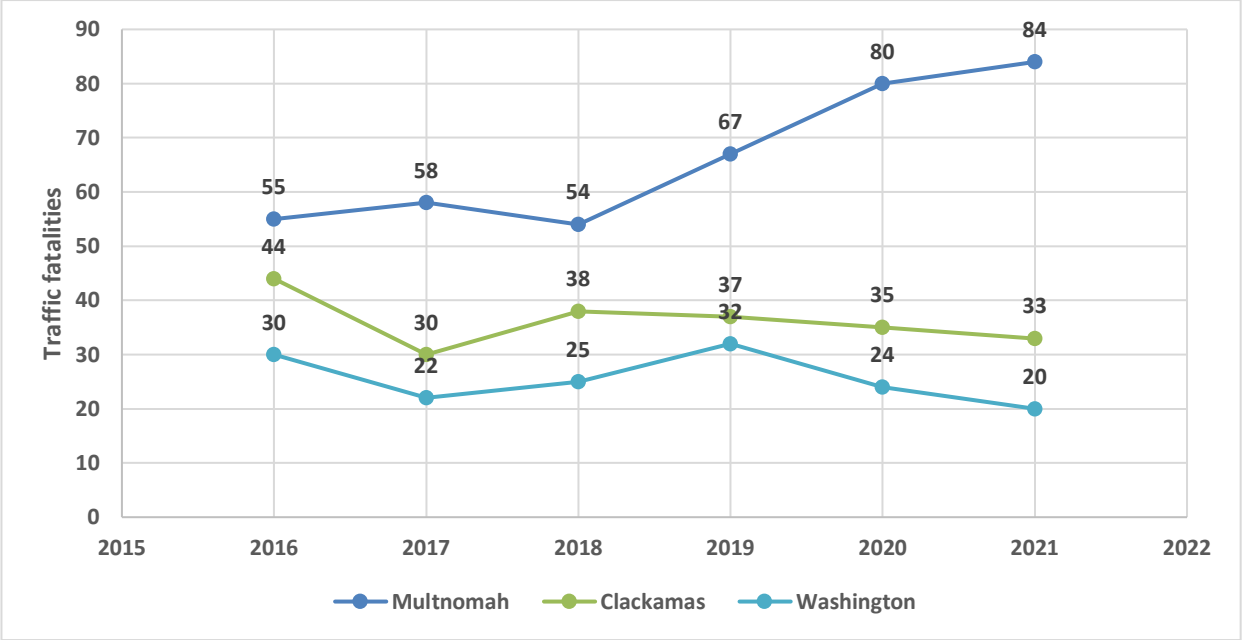
*2009/10 data are 3/4 year averages.
Year



Traffic fatalities in the Portland region have been increasing for users of all modes except for people bicycling. Severe injury crashes are also increasing, though not as dramatically as fatal crashes.

As Figure 4.10 shows, the increase in regional fatalities is driven by an increase Multnomah County. Fatal crashes have remained relatively flat in Clackamas and Washington Counties. The fact that there are more crashes in Multnomah County than in Washington and Clackamas is not surprising; half of the passenger miles traveled in the region take place in Multnomah County, and higher travel volumes mean greater exposure to crashes, all other things being equal. However, the recent increase in fatalities is concerning given that the proportion of travel occurring in Multnomah County does not appear to have increased during that same period. Local analysis is critical to understanding how local conditions, including traffic volumes, percent of people walking and bicycling, and other factors influence traffic safety.

Figure 4.10 Annual fatalities by county, 2016-2021 (ODOT preliminary fatal crash data)



Speed, alcohol, and/or drugs continue to be the most common contributing factors in severe and fatal crashes in the region. During 2016-2020, speed was involved in 35% of fatal and 16% of severe injury crashes, and alcohol or other drugs were involved in 38% of fatal and 14% of severe injury crashes. However, each crash captured in the data above is complex and involves multiple contributing factors and circumstances, including traffic exposure and built environment variables.

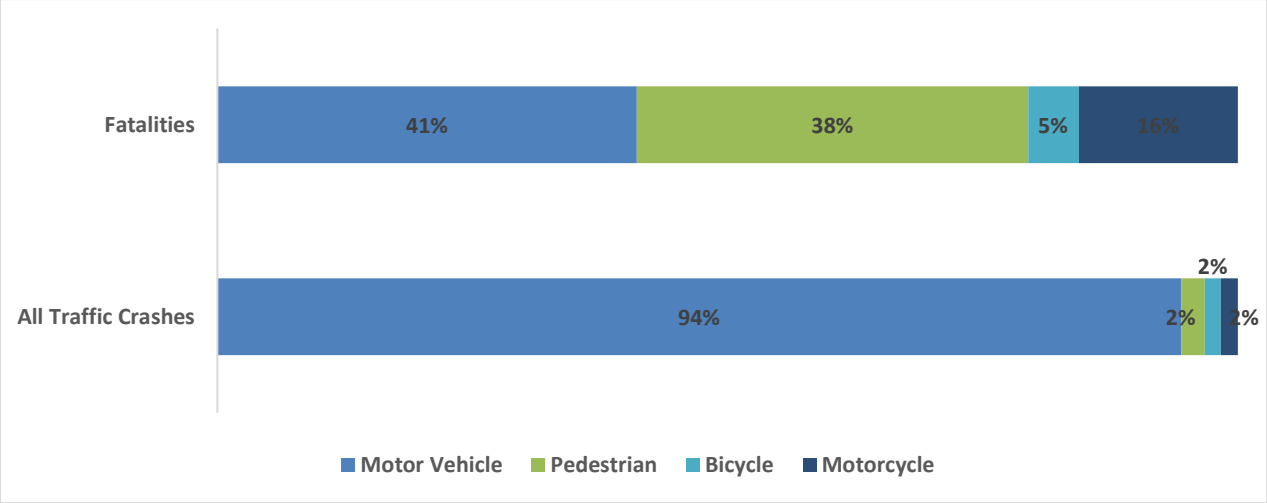
Preliminary analysis reveals many safety issues near the region's public elementary, middle and high schools. Within a mile buffer around the average school, there are 8.1 miles of dangerous streets and 38 of fatal, severe, or bicycle and pedestrian injury crashes. A quarter of the region's schools are surrounded by streets with mostly incomplete sidewalks.[16]

4.2.2 Crashes by mode

Crashes have different impacts on different users of the transportation system. In general, vehicle crashes are more frequent, because most people in the region drive for most of their trips, but crashes that involve people walking, and riding bicycles and motorcycles are more severe, because their bodies are more exposed. Figure 4.11 compares fatal crashes by mode to all crashes by mode.

[16] i.e., less than 50% of the sidewalks within one mile are complete. For the purposes of this analysis, a street with a sidewalk on either one or both sides counts as "complete."

Figure 4.11 All crashes and fatal crashes by mode, 2016-2020 (ODOT data, analyzed by Metro staff)



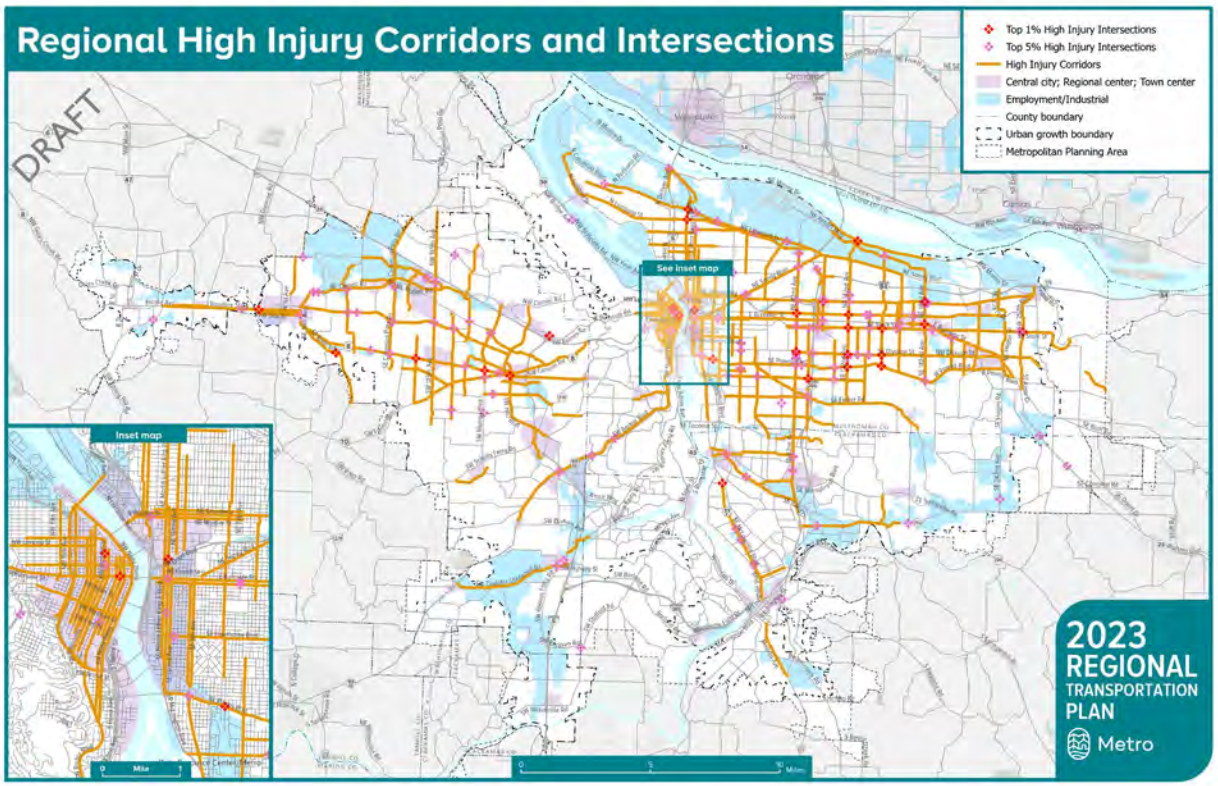
As this chart illustrates, traffic deaths disproportionately impact people who walk, bicycle and ride a motorcycle. Pedestrians experience the most disproportionate impact. Auto-only crashes comprise 94% of all crashes and 41% of all fatal crashes, whereas pedestrian crashes make up 2% of all crashes and 38% of all fatal crashes. In other words, pedestrians who are involved in a crash are much more likely to die – 26 times more likely – than non-pedestrians. Pedestrian traffic deaths are steadily increasing, are the most common type of fatal crash, and have the highest severity of any crash type. This trend is being seen across the country and is attributed in part to vehicles getting larger over the years. Designing safe streets, particularly on arterials, is critical to pedestrian safety. 77 percent of serious pedestrian crashes occur on arterials.

4.2.3 High Injury Corridors

A majority of the serious and fatal crashes in the region, as well as the crashes that involve vulnerable users, [17] consistently occur on a small number of roads. Metro focuses its analysis on High Injury Corridors, which are the corridors where 60 percent of these crashes occur, and High Injury Intersections, which are the five percent of intersections with the highest rates of these crashes. Figure 4.12 shows High Injury Corridors (orange lines) and Intersections (those that are in the top five percent for severe injury rates are marked in pink; those that are in the top one percent are marked in red).

[17] When defining High Injury Corridors and Intersections, Metro accounts for pedestrian and bicycle injuries, which are particularly likely to be severe because these travelers' bodies are exposed to traffic. Fatal and severe injury crashes are given a weight of ten and other injury crashes for pedestrians and bicyclists are given a weight of three. Pedestrian and bicycle involved crashes are less frequent, but compared to vehicular crashes, they are significantly more likely to result in death or serious injury (this is true for motorcycle crashes as well, hence the need for consideration of separating out these crashes in future analysis). This weighting factor reflects the higher degree of risk involved in bicycle and pedestrian crashes. Metro's methodology provides a high-level, planning level analysis that compares all roads in the region, appropriate for identifying and prioritizing needs at the regional scale. Supplemental local analysis, including identification of safety corridors at the county and city geography, should also be used to identify needs and priorities in the RTP.

Figure 4.12: 2023 RTP High Injury Corridors and Intersections, 2016-2020 (ODOT crash data analyzed by Metro staff)



The RTP recommends the use of proven safety countermeasures[18] to address High Injury Corridors and Intersections and locally identified safety needs. Local safety action plans describe in detail the projects that are needed to resolve safety issues at these locations and others identified by partner agencies.

[18] The Safety Division of the FHWA provides information on proven safety countermeasures at https://safety.fhwa.dot.gov/provencountermeasures/

4.3 EQUITY

RTP Equity Policy 3 directs Metro and its agency partners to "Prioritize transportation investments that eliminate transportation-related disparities and barriers for historically marginalized communities, with a focus on communities of color and people with low incomes." Through extensive outreach, Metro has heard that these communities need fast, frequent, affordable. and reliable transit connections to key destinations and safer walking and biking infrastructure. The Needs Assessment evaluates equity through that lens and finds:

- The Portland region continues to grow more racially and ethnically diverse.
- The region is aging. The share of people 65 and older is growing while all other age groups are declining. However, people under 44 will continue to be in the majority.
- The COVID-19 impact had particularly severe and long-lasting impacts on people of color and workers with low incomes.
- Regional transportation agencies can advance equity by investing in transit service and safe biking and walking infrastructure in Equity Focus Areas (EFAs), which are communities with concentrations of people of color, people with low incomes, and people with limited English proficiency.
- The region has made significant progress in improving transit service and bike/ped infrastructure in EFAs, but not enough to address deep-seated inequities. Transit still offers much less access to destinations than driving does, and serious crashes are still concentrated in EFAs.

4.3.1 History of discriminatory planning in the greater Portland region

The disparities described in this chapter are the result of specific decisions made over the years by governments, institutions, and the public to marginalize people of color and other groups. Many of these decisions had generational impacts that continue to contribute to the inequities we see today. Knowing this history is critical to fully understanding and resolving these disparities.[19]

Oregon has a unique history of passing laws that discriminate against Black people. In the 1840s and 50s, State legislative bodies passed a series of laws that made it illegal for Black people to live in Oregon, and Oregon was the only state with such laws in its constitution. These State policies, along with federal policies such as the Japanese Internment law of 1942, as well as a series of actions that the real estate industry and government agencies took to concentrate people of color in particular neighborhoods and disinvest in those neighborhoods, all contribute to the region's history of discriminatory planning. Throughout the last century, people of color and people with lower incomes have been impacted by planning decisions that targeted struggling areas for development. Major roads and freeways were often built on top of already disadvantaged communities to avoid affecting wealthy, white neighborhoods. These decisions split

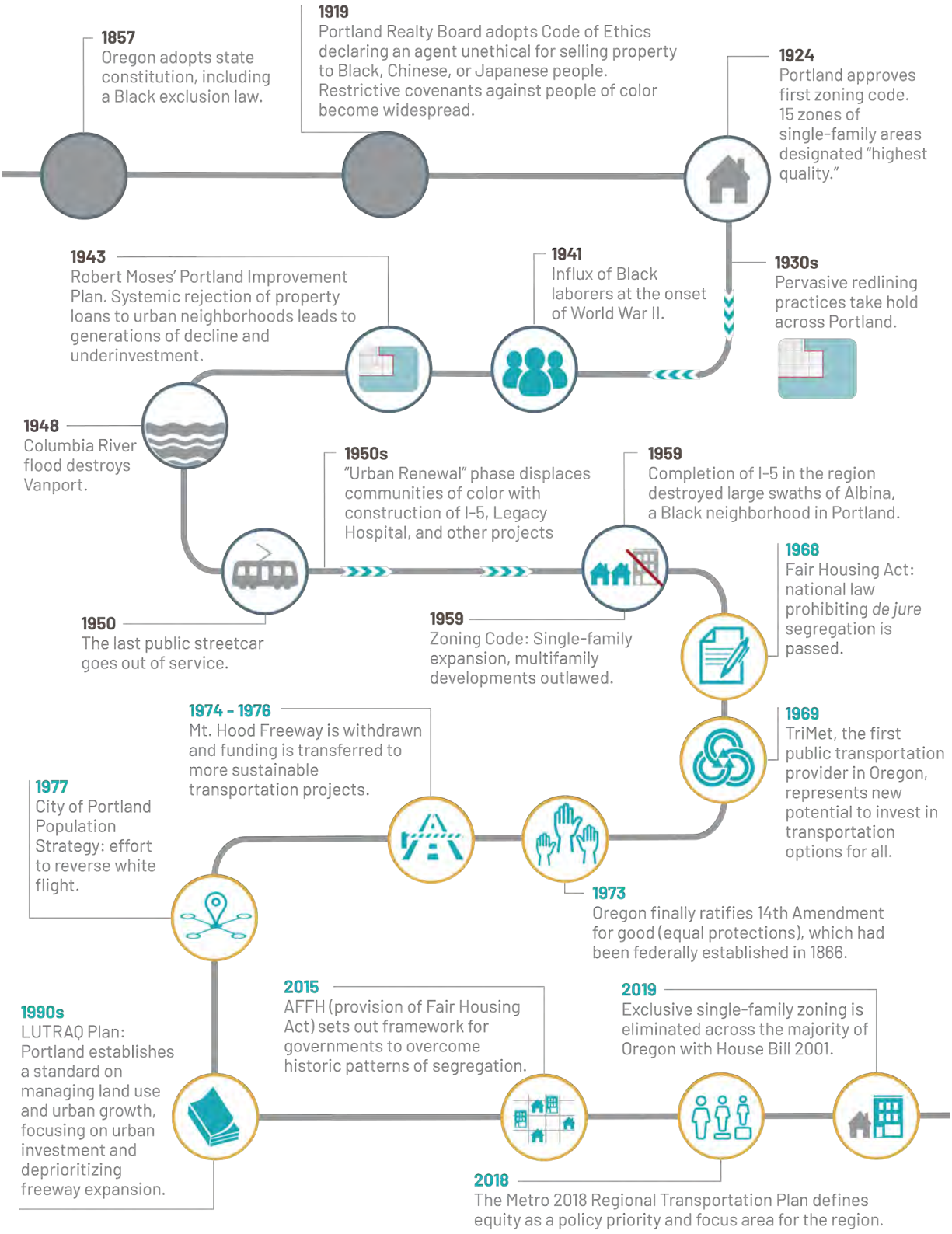
[19] The information in this section is adapted from Metro's Equitable Transportation Funding Research Report: https://www.oregonmetro.gov/sites/default/files/2022/11/16/Equitable-Transportation-Funding-Research-Report-11142022.pdf.

neighborhoods, displaced families, permanently damaged communities, and even led to higher rates of air pollution and chronic illness.[20]

Figure 4.13 provides a visual timeline of discriminatory planning in the greater Portland region from the late 19th century to the present, and also chronicles more recent efforts to restore justice. In the graphic, gold circles reflect the shift away from discrimination and the beginnings of a path towards equity.

[20] Oregon Metro. (2022). "2023 Regional Transportation Plan Update: Work Plan."

Figure 4.13 Timeline of discriminatory planning and advancements toward equity in the Greater Portland region



Beginning in the 1920s, local governments throughout the region used exclusionary zoning to prevent Black, Indigenous, and other people of color from owning property in certain neighborhoods, was common practice in the greater Portland region.[21] The real estate industry – including realtors, bankers, appraisers, and landlords – also used redlining, discriminatory lending, and restrictive covenants to steer people of color toward certain neighborhoods and exclude them from others.[22] Local governments also used single-family zoning to support these practices by forcing multi-family development into segregated neighborhoods.[23] Agencies significantly increased the amount of land zoned for single-family housing throughout the 1930s, 1940s, and 1950s. By the end of this period, multi-family zones accounted for only 5% of residentially zoned lands. These practices created concentrated people of color and people with lower incomes in neighborhoods that were vulnerable to disinvestment, industrial uses, infrastructure development, and urban renewal plans.[24]

Urban renewal, whereby government agencies razed and redeveloped 'blighted' areas in their jurisdictions, swept the United States in the mid-twentieth century. Local governments used this power to implement sweeping redevelopments in marginalized, often Black, communities without consulting residents. The new developments that were created through urban renewal took on many forms: transportation infrastructure, large-scale multi-family housing, event centers, parks, and office buildings, etc. The agencies who led these projects often systematically displaced former residents and bought out landowners for a fraction of their property's value. Portland and many other cities across the U.S. have a long and well-documented history of urban renewal projects – including some that were approved by voters, such as the development of Memorial Coliseum in the heart of Portland's black community.[25]

Portland's Albina neighborhood developed into a thriving business district after the population boom throughout World War II and became a haven and area of opportunity for Black people living in the city. This sudden population growth also led to the development of Vanport in North Portland, which was initially built to provide temporary housing for shipyard workers. Many of these workers were African American and were unable to find other suitable nearby housing. In 1948, Vanport was destroyed by a flood, taking numerous lives and forcing residents to relocate, many of whom moved to Albina. In the 1950s, federal, state and local transportation agencies built the Interstate 5 freeway through Albina, and local governments razed other parts of Albina to build Memorial Coliseum and Emanuel Hospital, destroying homes and businesses, forcing displacement, and tearing the fabric of the neighborhood apart.

Exclusionary zoning and racial segregation still influence where people live and work today. Exclusive single-family zoning was eliminated in the majority of Oregon through the passing of House Bill 2001. As of June 2022, cities with a population over 25,000 and cities in the greater

[21] https://www.oregonencyclopedia.org/articles/blacks_in_oregon/#.Y0mqhXbMJPY

[22] Department of Land Conservation and Development. (2022). "Housing Choices (House Bill 2001)."

[23] Department of Land Conservation and Development. (2022). "Housing Choices (House Bill 2001)."

[24] Hughes, Jena. (2019). "Historical Context of Racist Planning." *Bureau of Planning and Sustainability*.

[25] Killen, John. (2015). "Throwback Thursday: 60 years ago, Portland began urban renewal plan for South Auditorium district." *Oregon Live*.

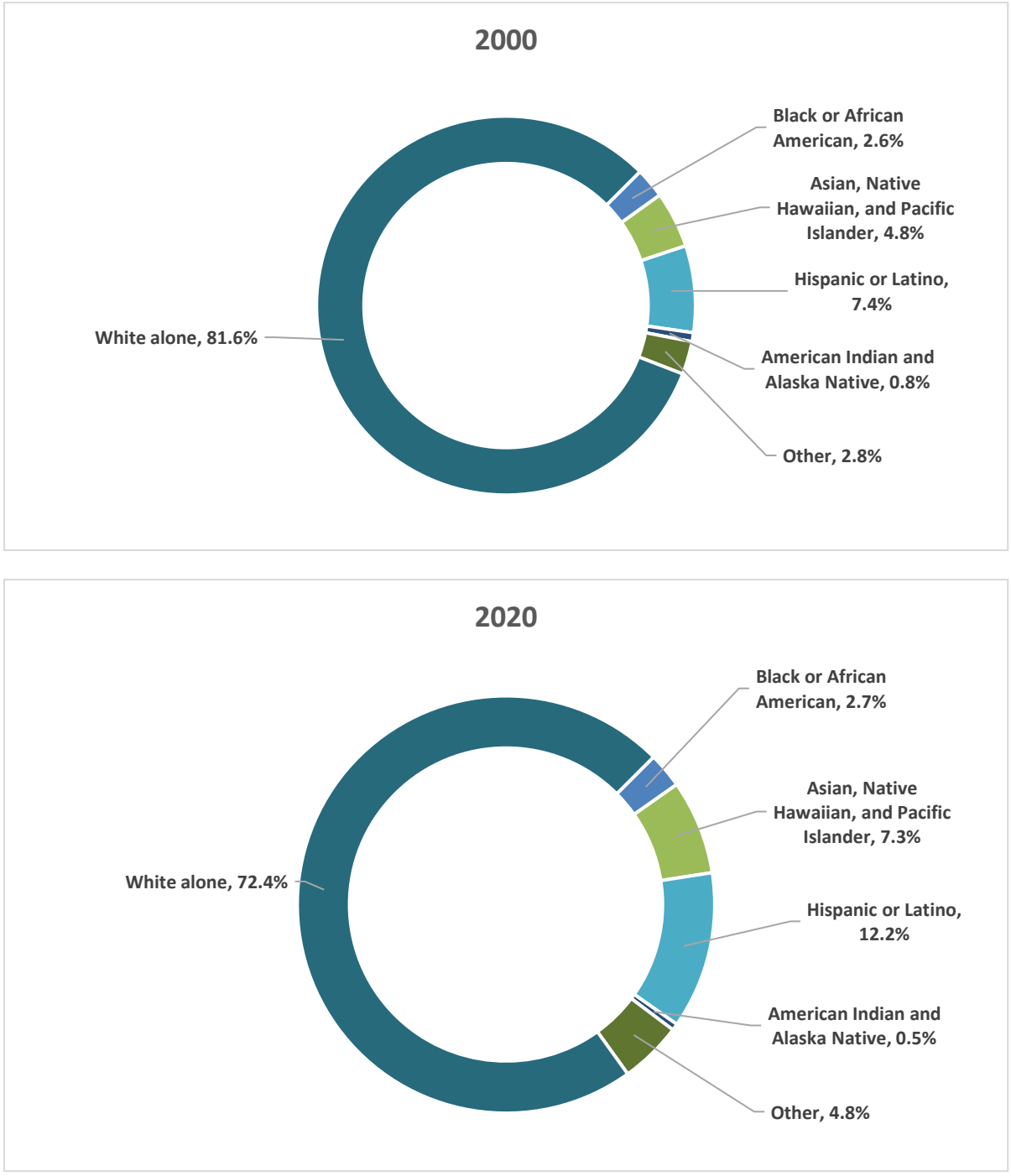
Portland region must allow duplexes, triplexes, quadplexes, cottage clusters, and townhouses in residential areas. Yet much still needs to be done to untangle the legacy of displacement and damage inflicted in years past. Even with the progress made since the late 1960s, the disproportionate impact of lack of transportation access to opportunities for people of color and people with low-income persists. Gentrification, population growth, and increasing demands on housing continue to threaten to further destabilize people of color and low-income communities. Implementing the recommendations in this report and continuing efforts to advance racial and income equity in future RTPs, plans, and programs, are critical to righting the wrongs of the past.[26]

4.3.2 Demographic and economic changes

People of color make up an increasing share of the regional population. The portion of residents who identify as people of color has been increasing steadily over the past several decades; from under one percent in 1960 to 28 percent in 2020. Figure 4.14 shows how the racial and ethnic makeup of the region's population changed between 2000 and 2020.

[26] Much of the existing academic literature and subsequent discussions are around the City of Portland, however the patterns of exclusion and discrimination are well established to have been rampant across the country, Oregon, and the greater Portland region.

Figure 4.14 Population by race and ethnicity[27] in the Portland region and surrounding counties,[28] 2000 and 2020 (U.S. Census)



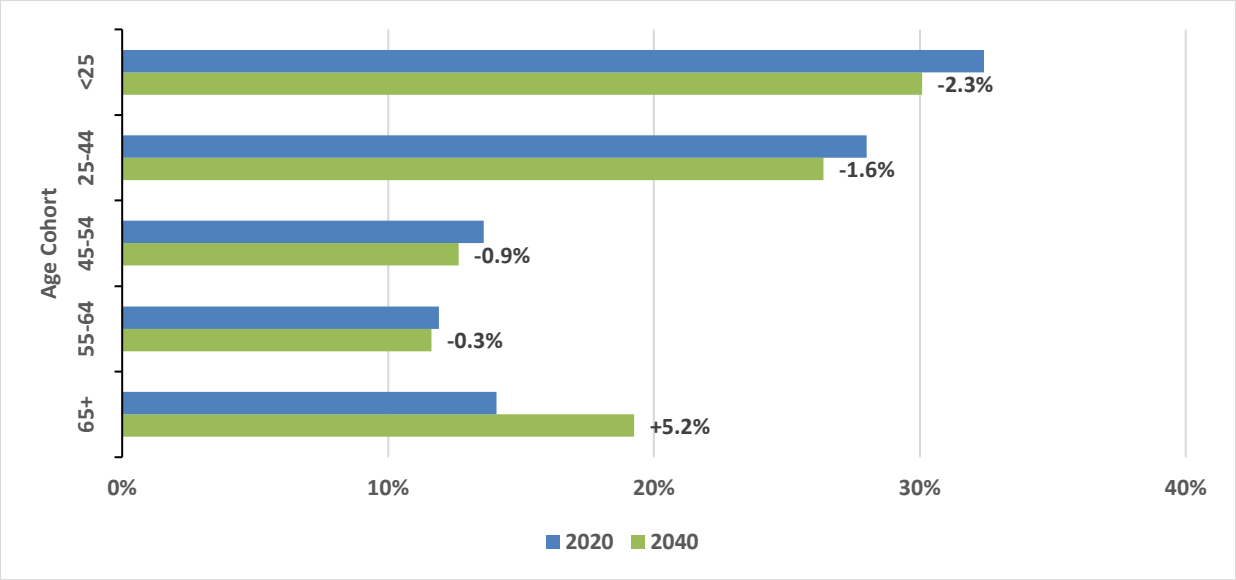
[27] The U.S. Census uses different terms for race and ethnicity than Metro does. This figure uses the Census labels to reflect the language used in the surveys that provide this data.

[28] For consistency with regional and state population forecasts, Metro uses a broader 7-county region (Clackamas, Clark, Columbia, Multnomah, Skamania, Washington, and Yamhill counties) in its demographic data.

Over the 20-year time span captured in the figure above, the share of regional residents who identify as people of color grew from 18 percent to percent. This change was driven primarily by growth among Latines, Asian Americans and Pacific Islanders, as well as an increasing number of people who identify as "other."[29]

Figure 4.15 shows Metro's forecasts for how the share of population in different age groups will change between 2020 and 2040.

Figure 4.15: Current and forecasted population by age cohort in the 7-county Greater Portland region, 2020 and 2045 (Metroscope)



Just like the national population, our region's population is aging, and the share of people over 65 is projected to grow by 5 percent, while shares of all other age groups are declining. However, the two youngest age groups – people under 25 and people 25 to 44 – are projected to remain the two largest age groups in the region. By 2040, close to 50% of the region's population will either be under 25 or over 65. Though these two groups have very different transportation needs, they also have some important similarities – lower rates of commuting by auto, high proportions of people who cannot drive due to age or disability, and lower participation in the labor force, which means that their travel patterns are less likely to be driven by commuting.[30]

[29] The Census Bureau increased the number of options for people to classify themselves as members of two or more races between 2000 and 2020. For the purpose of comparing data from 2020 with data from 2000, we use similar race/ethnicity categories as were used in 2000 – combining Asian people and Pacific Islanders in spite of the fact that the Census Bureau now differentiates between the two, and including people who identify as being part of two or more races in the "other" category.

[30] https://www.census.gov/content/dam/Census/library/publications/2020/acs/acs-45.pdf

4.3.3 Inequities in housing and employment

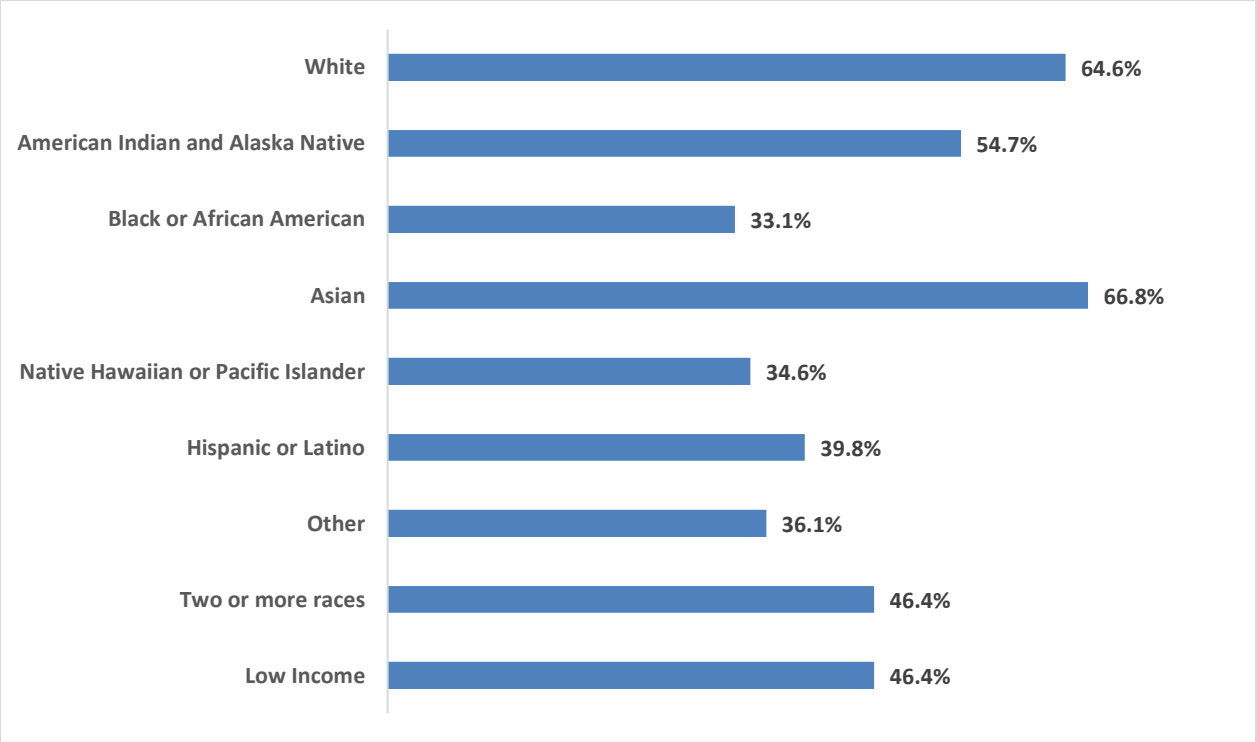
The 2018 RTP undertook a wide-ranging review of data and research on equity, both nationally and in the Portland region, and highlighted several inequities in different marginalized groups' access to housing and jobs.

- People with low incomes and most people of color (with the exception of Asian Americans) and people with low incomes are significantly less likely to own a home than white people.
- People of color are being displaced to areas of the region that lack good access to transportation options, jobs, and other important destinations.
- People of color and people with low incomes can access fewer jobs within a typical commute distance than white people.

Many of these inequities were exacerbated by the COVID-19 pandemic. The health impacts of the pandemic fell significantly upon the region's Latine population, and its economic impacts were particularly damaging for people with low incomes – both workers, who were more likely to lose their jobs, and students, who experienced greater learning loss due to the pandemic.

Significant disparities in access to jobs and housing persist. For example, Figure 4.16 shows how homeownership rates are still much lower for most non-white racial and ethnic groups and for households earning below $75,000 per year than they are for white people.

Figure 4.16 Homeownership rates by race and income for Multnomah, Washington and Clackamas Counties, 2020 (American Community Survey)

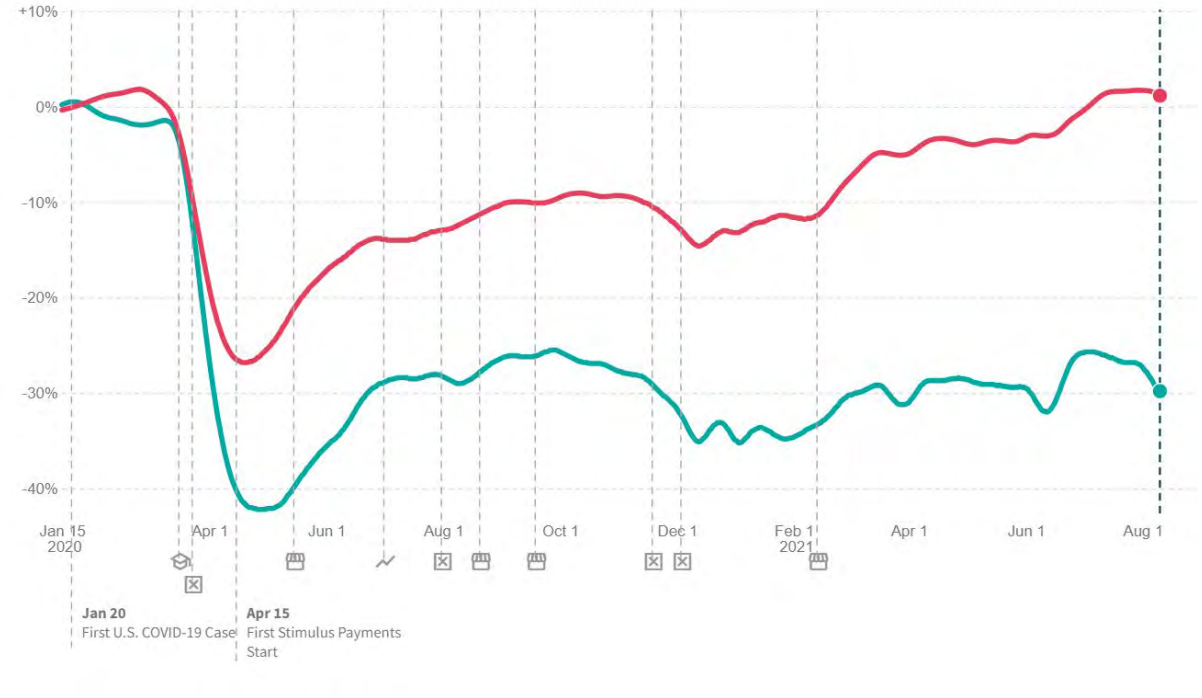


Public agencies are working to address these disparities by creating more affordable housing, supported by a regional affordable housing bond measure, which was passed by voters in 2018. The bond aims to fund the construction of 3,900 designated affordable housing units across the region, with a focus on providing homes for people of color. Though the bond measure represents significant progress in building affordable housing, it only provides a small portion of the roughly 48,000 units in the region that Metro estimates are necessary to meet the region's needs.

Homeownership rates can affect how communities respond to the transportation projects that are the focus of the RTP. Some transportation projects – in particular, new light rail lines and bicycle/pedestrian trails – can potentially increase the value of adjacent properties. This benefits homeowners who live nearby, but it can create higher housing costs and displacement risks for people who rent. This means the groups shown as having low homeownership rates in Figure 4.16 are more likely to see new transportation investments as threatening their ability to remain in their communities.

The inequities created by the COVID-19 pandemic become very visible when comparing employment patterns for lower- and higher-income workers. Overall, the U.S. experienced historically high levels of unemployment in summer 2020, immediately following the onset of the COVID-19 pandemic. By Spring 2022, the overall unemployment rate had fallen to levels that could be considered low even by pre-pandemic standards. However, this broad trend masks significant differences in the employment rate between workers with lower incomes and those with higher incomes. Figure 4.17 shows unemployment rates over the past three years for both workers who more than the median wage (approximately $30 per hour, or $60,000 per year) and workers who earn less.

Figure 4.17 Regional employment rates for workers earning above and below the median wage (indexed to January 2020) January 2020 – August 2021 (Earnin, Intuit, Kronos and Paychex data, analyzed by Cambridge Systematics for the Commodities Movement Study)



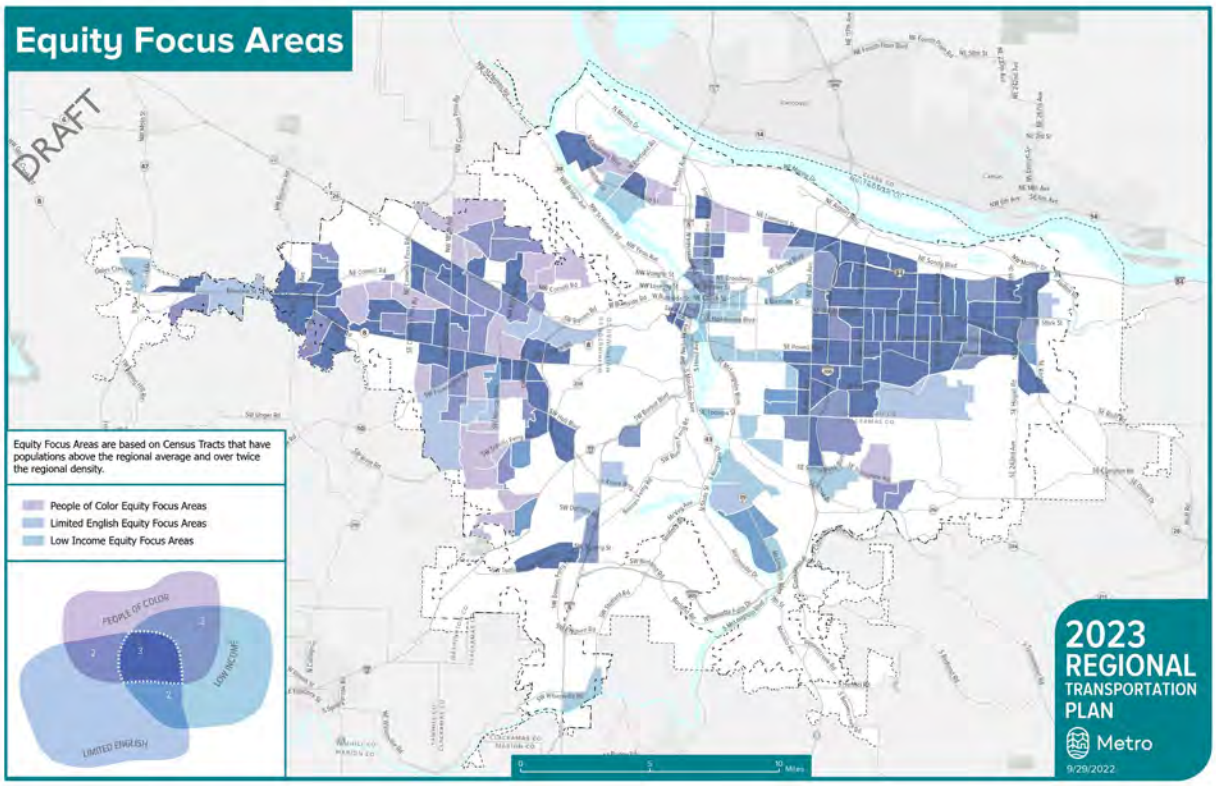
As of August 2021, the employment rate for workers in the Portland region who earned above the median wage had increased by 1.2 percent over pre-pandemic (January 2020) levels, whereas the employment rate for workers earning below the median wage fell by 29.8 percent. In other words, the pandemic opened up a 30-point employment gap between workers earning above the median and workers earning below the median wage.

4.3.4 Transportation needs in Equity Focus Areas

Equity Focus Areas were designed to guide transportation plans toward focusing on communities with the greatest needs, and to benefit as many people in need as possible, while accounting for regional growth and change. They highlight the communities in the region with the highest densities of people of color, people with low incomes, and people who speak limited English.

Figure 4.18 shows the updated Equity Focus Areas used in the 2023 RTP, including which of the three populations included in the definition of EFAs are concentrated within each EFA, and uses shading to illustrate how these different populations overlap with each other. These EFAs are based on 2016-20 American Community Survey data (for income and English proficiency) and 2020 Census data (for race). Appendix C provides more detail on the data sources and calculations used to create and update EFAs.

Figure 4.18 2023 RTP Equity Focus Areas, (Census and American Community Survey data, 2016-2020)



EFAs are located throughout the region, and there are large concentrations of all three EFA populations in East Portland and Multnomah County and along Tualatin Valley Highway in Washington County. These are largely the same areas that were highlighted during the 2018 RTP equity analysis.[31] Directing transportation investments – particularly projects designed to meet the needs of the people they serve – toward the EFAs that are highlighted above helps to meet this goal.

The equity policies adopted in the 2018 RTP direct Metro and partner agencies to both learn more about marginalized people's transportation needs[32] and also to act on what they learn.[33] Since the 2018 RTP update, Metro has conducted extensive outreach to people of color, people with low incomes, and other marginalized people to better understand their transportation needs through the development of the 2020 regional transportation funding measure, the Regional Mobility

[31] See the Needs Assessment memo that was shared with TPAC as part of the July 13 meeting packet (beginning p. 14) for further discussion of how and why Equity Focus Areas changed as they were updated.

[32] Policy 5: "Use engagement and other methods to collect and assess data to understand the transportation-related disparities, barriers, needs and priorities of communities of color, people with low income and other historically marginalized communities."

[33] Policy 3: "Prioritize transportation investments that eliminate transportation-related disparities and barriers for historically marginalized communities, with a focus on communities of color and people with low income."

Policy update, other processes, and this update to the RTP.[34] Metro has consistently heard that these communities need safer and more accessible travel options – specifically better transit service and safer streets for bicycling and walking, including:

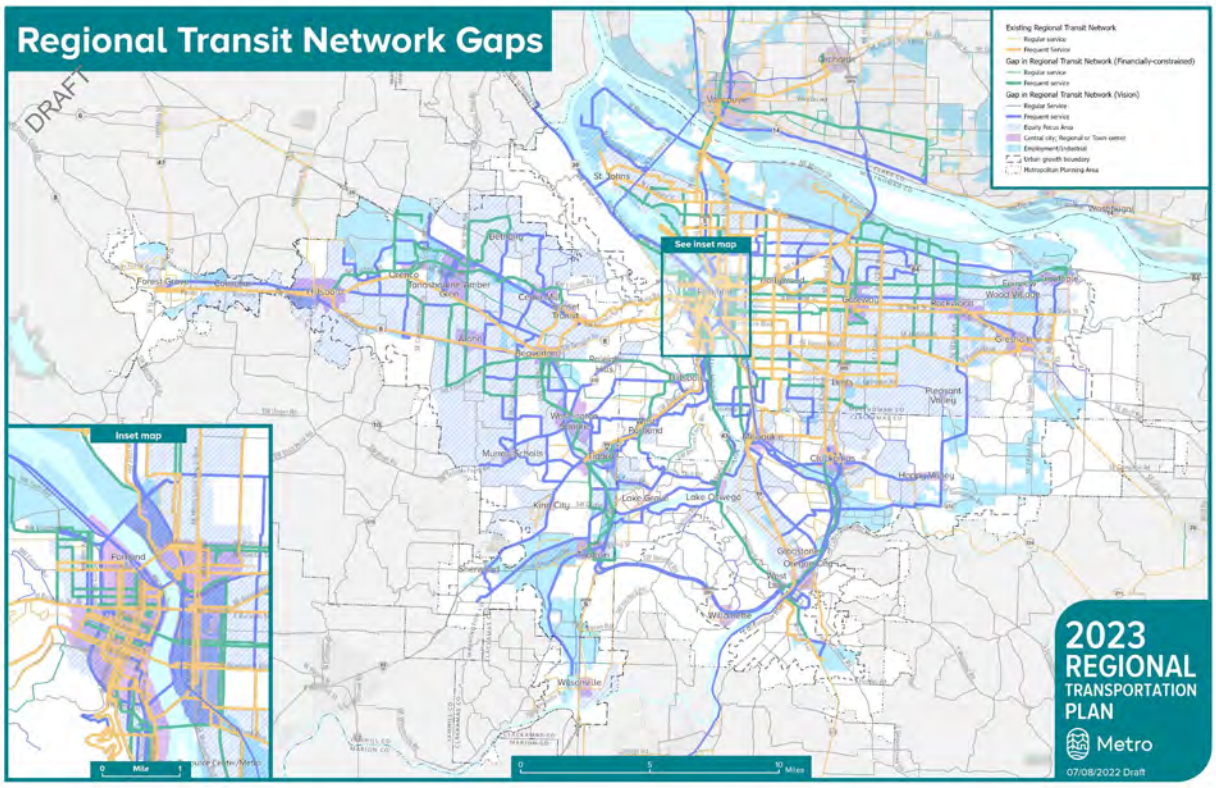
- More fast, frequent and reliable transit service for all types of trips (including at off-peak travel times)
- More affordable transit that connects people to the places and things they need to thrive.
- Better conditions for walking and biking, including adequate street lighting, protected crossings and crossing signals, particularly to improve access to transit.
- Connected and separated walking and biking infrastructure.

4.3.4.1 Access to transit and to destinations

Figure 4.19, which is discussed in more detail in the following section on Mobility, shows where gaps in the regional transit network are located. These gaps show places where planned transit has not yet been built. The map differentiates between gaps in frequent (thick lines) and regular (thin lines) transit service, and between gaps in service that are based on the financially constrained network (i.e., gaps that the region currently has identified funding to complete, shown in green) and those that are based on the network vision (i.e., gaps that the region has not yet identified funding to complete, shown in purple). It overlays these gaps with Equity Focus Areas, which are shown in violet cross-hatching.

[34] https://www.oregonmetro.gov/sites/default/files/2020/11/10/Historically-marginalized-communities-transportation-priorities-summary.pdf

Figure 4.19: Regional transit network gaps (2018 RTP networks, partner agency data)

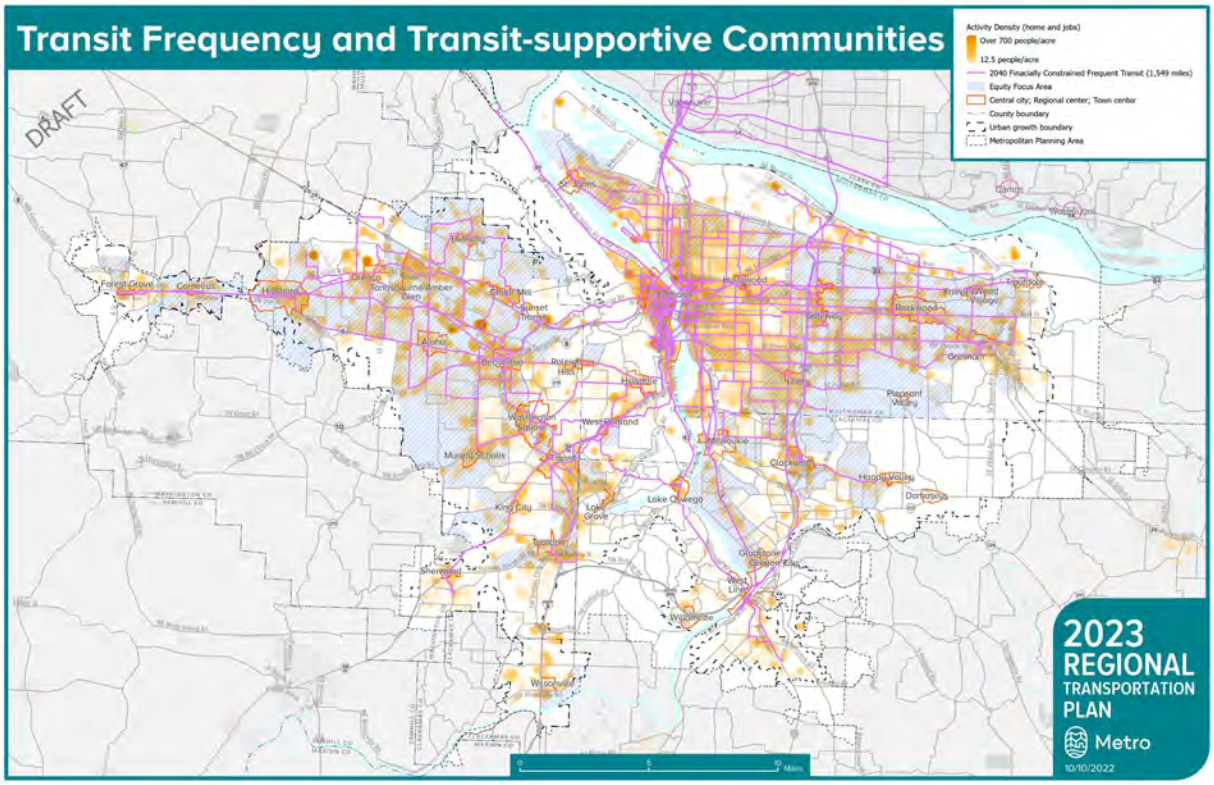


There are many places where transportation agencies have planned to deliver the frequent transit that EFA residents say they need, but where those projects are not being implemented – i.e., where the thick green and purple lines shown in the figure above overlap with the Equity Focus Areas. Completing these transit investments – particularly those shown in green, which can be built with available funds – would address pressing equity needs while also advancing mobility and climate outcomes.

Figure 4.20 below takes a different view of the transit system. Instead of using planned transit lines as a basis for identifying needs, Figure 4.20 highlights communities that have the densities necessary to support frequent transit[35] (orange) and compares their location with current frequent transit service (i.e., lines with peak headways of 15 minutes, shown in purple). It shows EFAs in light blue cross-hatching.

[35] The High Capacity Transit and Regional Transit Strategies specify a threshold of 5 households or 15 jobs per acre for communities served by frequent transit. In order to map both jobs and housing at the same scale, Figure 4.20 combines jobs and housing into a single measure of activity density (jobs plus residents per acre) and uses a threshold of 12.5 jobs and/or residents per acre to identify communities that support frequent transit. The average household in the region includes 2.5 people, so 5 households per acre is equivalent to 12.5 residents per acre.

Figure 4.20 Map of high-frequency transit (headways of less than 15 minutes) and transit-supportive communities (12.5 or more people and/or jobs per acre), 2020 (Metro travel model, 2018 RTP transit network and distributed growth forecast)



People living within EFAs have said that they need better transit connections between their communities and their destinations. If these connections were in place, the map above would likely show purple lines connecting most of the orange/red clusters of high density within the light blue EFAs. This is the case in much of the east side of the region – though there are notable gaps on several north/south corridors – but not as much in EFAs on the west side of the region. This is in part because the built environment in East Portland and Multnomah County has many transit-supportive characteristics, such as a well-connected grid of arterials and relatively high-density residential areas. There may be further opportunities in the long term to better configure the transit network to benefit current and prospective transit riders who live in EFAs.

In addition to identifying where there are needs and opportunities to provide more equitable transit service, the RTP also examines whether the transit system provides the convenient and useful connections that EFA residents have asked for. Measuring how many destinations a traveler can access within a given travel time via different modes has been established as a best practice for understanding and comparing how useful different modes are for different groups of people. This analysis can answer two questions about transit equity.

Does the transit system provide equitable service to marginalized people? If so, people living in Equity Focus Areas should be able to reach the same number of other jobs (or more) as people living in other communities.

Is transit a competitive alternative to driving? Both community feedback and research stress that people of color and people with low incomes are more likely to rely on transit. It follows that an equitable transportation system is one in which people who travel by transit are not faced with longer, less convenient trips than people who drive – in other words, that people should be able to reach the same number of jobs (or more) via transit as they should via automobile in the same travel time. This is a challenging goal to meet given how built-out the road network is, but meeting this goal would have far-reaching benefits – not just for equity, but mobility and climate.

Table 4-5 compares access to jobs between modes (transit versus auto), community types (EFAs vs. non-EFAs) and time periods (rush hour vs. non-rush-hour) for the RTP base year of 2020. Jobs are not just commute destinations – grocery stores, medical offices, and schools are also places of employment, so jobs are a proxy for many different types of destinations that draw many different types of trips.[36] Metro has tested many different measures of access to jobs by income and to community places such as grocery stores, libraries, schools, medical offices, and community services and has found the same patterns in access to these important destinations as for access to all destinations. This analysis uses a 45-minute travel time to measure transit access and 30-minute travel times to measure automobile access, which accounts for the time needed for people to walk between their origins/destination and their car/transit stop and transfer between different transit routes, etc.

[36] https://ssti.us/wp-content/uploads/sites/1303/2020/12/Measuring-Accessibility-Final.pdf

Table 4-5 Percent of jobs accessible by driving and by transit, by community type and time of day, 2020 (Metro travel model, 2018 RTP transit network, and land use data)

	Percent of jobs accessible within…	
	… a 30-minute drive	…a 45-minute transit trip
During rush hour		
Average for EFAs	42%	8%
Average for non-EFAs	42%	6%
Average for the region	43%	7%
Outside of rush hour		
Average for EFAs	52%	7%
Average for non-EFAs	50%	5%
Average for the region	50%	6%

The results above show that people living in EFAs enjoy significantly better access to destinations via transit (and to a lesser extent, via driving) than people living in other communities. This is likely because many communities of color and much of the region's naturally occurring affordable housing stock are located in regional centers that have long been key points in the transit network, but it also reflects more recent efforts by transit agencies to focus on serving marginalized communities even as these communities relocate within the region. Table 4-5 also shows the extent to which driving offers better access than taking transit does. Across all communities and all times of day, people can reach five to ten times as many destinations by auto as they can by driving. Though the Portland region has an extensive transit system relative to many other Metro areas, significant parts of the region are not served by transit and (as shown in Figure 4.20 above) do not have the land uses necessary to support frequent transit. Extending and improving transit service can help improve transit access to destinations, and land use changes that create clusters of activity that support high-quality transit can also make a big difference.

4.3.4.2 Safe conditions for walking and bicycling

Other than the need for better transit service for EFAs, the main need that people of color and people with low incomes have expressed in Metro's outreach is the need for safer and more convenient walking and biking facilities, particularly near transit stations. Bicycle and pedestrian gaps are mapped in the following section on Mobility and Climate, and these maps show which gaps are located in EFAs. Table 4-6 summarizes how complete the bicycle, pedestrian and transit networks are (including bicycle and pedestrian facilities near transit) in EFAs versus in other areas.

Table 4-6 Pedestrian, bicycle and trail network completion for EFAs and non-EFAs (2018 RTP networks and current partner agency data)

	Percent of the network that is complete…		
Network	**In EFAs**	**In non-EFAs**	**Total**
Pedestrian network	71%	46%	57%
Pedestrian network near transit[37]	75%	54%	64%
Bicycle network	61%	49%	55%
Bicycle network near transit[37]	65%	56%	61%
Trail network	45%	43%	44%
Trail network near transit[37]	52%	51%	51%

The region has made more progress completing the active transportation network, and also in providing bicycle and pedestrian connections to transit, in EFAs than in other communities. However, significant portions of the network still need to be completed for everyone in the region to benefit from high-quality walking and biking connections. The results above also reflect slow but steady progress in building out the region's active transportation network. The pedestrian and bicycle networks, both region-wide and in EFAs, are 3% more complete than they were when Metro last conducted for 2015, and the trail network is 6% more complete.

In spite of this progress, crashes are still concentrated in Equity Focus areas, and are particularly likely to involve BIPOC people. Metro analyzed crash data from the Fatality Analysis Reporting System (FARS), which includes race and ethnicity for traffic fatalities,[38] to assess the impact of fatal crashes on different populations in Multnomah, Washington, and Clackamas counties. Normalizing by population, Black, American Indian and Alaska Native people experience double or nearly double the number of traffic fatalities that other groups experience. This finding is consistent with analysis conducted by ODOT in 2019.[39]

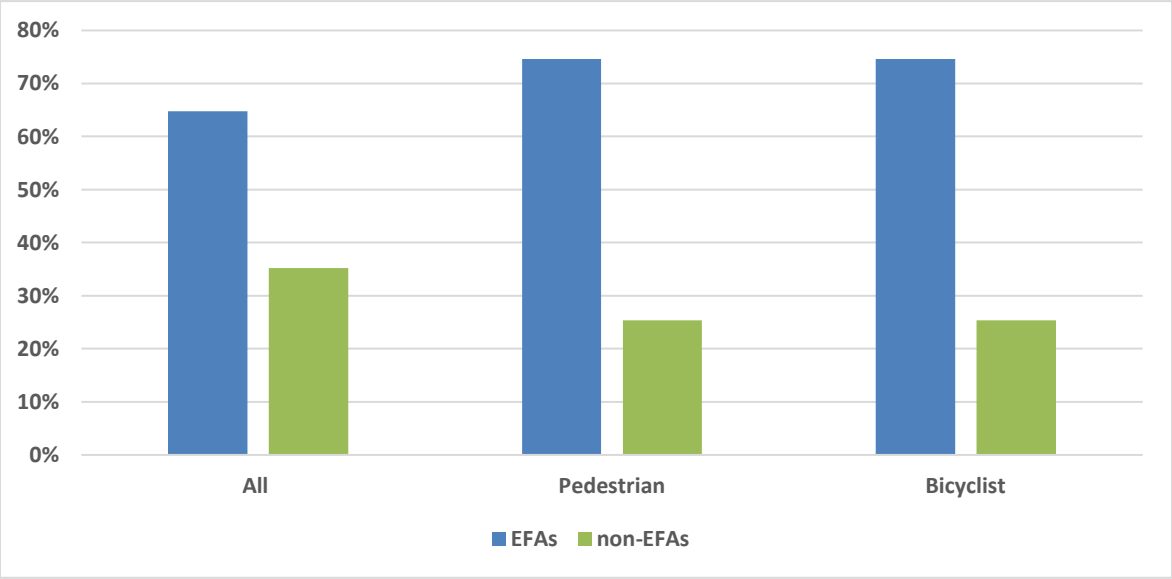
As Figure 4.21 shows, three quarters of serious pedestrian and bicycle crashes and 65% of all serious crashes occur in Equity Focus Areas (see the Equity section below for information on these areas). Addressing safety in these areas is critical to making the entire transportation system safer and more equitable.

[37] Research has shown that people are willing to travel further to access high-quality, frequent transit than they are normal bus service. The transit access analysis for the 2018 RTP used different travelsheds to examine access to different types of transit: ½ mile for light rail, 1/3 mile for streetcar, and ¼ mile for bus. This analysis uses these same travelsheds to identify bicycle and pedestrian facilities near transit.

[38] FARS is a nationwide census providing yearly data regarding fatal injuries suffered in motor vehicle traffic crashes. https://www.nhtsa.gov/research-data/fatality-analysis-reporting-system-fars

[39] Josh Roll, Nathan McNeil, Race and income disparities in pedestrian injuries: Factors influencing pedestrian safety inequity, Transportation Research Part D: Transport and Environment, Volume 107, 2022, 103294, ISSN 1361-9209, https://www.sciencedirect.com/science/article/pii/S1361920922001225. This study employs an ecological analysis to explore pedestrian safety disparities in Oregon, incorporating crash data, roadway and land use factors, and sociodemographic data. Lower median income and higher proportions of BIPOC residents are found to be associated with more pedestrian injuries. These variables may be proxies for other traffic exposure and deficient built environment variables, which may reflect a lack of historic investment in the neighborhoods where these populations are concentrated.

Figure 4.21 Percent of average annual traffic fatalities and severe injuries in Equity Focus Areas, by mode, 2016-2021 (ODOT crash data, analyzed by Metro staff)



Though bicycle and pedestrian infrastructure is generally equitably distributed – in fact, the region has a slightly better track record of completing planned infrastructure in EFAs than in other communities – a higher percent of pedestrian crashes are still occurring in EFAs. One explanation for this is that other factors besides the presence of trails, sidewalks and bicycle infrastructure helps reduce crashes for vulnerable users, but other factors, such as the design and posted speed of travel lanes, also influence the overall safety of streets.

4.4 ECONOMY

Transportation and the economy are deeply interrelated. The transportation system plays a critical role in connecting workers to jobs in allowing employers access to the talent that they need and shifts in the economy often lead to changes in how people and goods travel through the region. The RTP aims to support the region's economy by improving connections to jobs and also to respond to how transportation patterns are changing in the region.

This section examines how the region's economy is growing and changing, how workers and goods move through the region, and how well the transportation system currently serves employment centers. Key findings include:

- Over the past decade, the Portland region's economy has grown stronger relative to the rest of the U.S., and the region has experienced slightly lower-than-average unemployment.
- Trade, transportation and utilities; professional and business services; and education and health services continue to be the largest employment sectors in the region.
- The majority of the region's jobs are located in the centers and employment / industrial areas identified by the 2040 Growth Concept.
- Over 45 percent of workers work in a different county than where they live.
- The number of commuters who travel into the region from surrounding communities is growing, but the majority of commute trips in the region still begin and end within Clackamas, Multnomah, and Washington counties.
- The majority of the region's freight still moves by truck, but high-value freight is more likely to use other modes.
- Anyone who is able to commute by auto enjoys reasonably good access to jobs, but transit does not provide nearly the same level of access as driving does. People can reach five to ten times as many jobs by auto as they can by transit.
- Active transportation networks are generally more complete within regional centers and near transit.

4.4.1 Jobs and growth

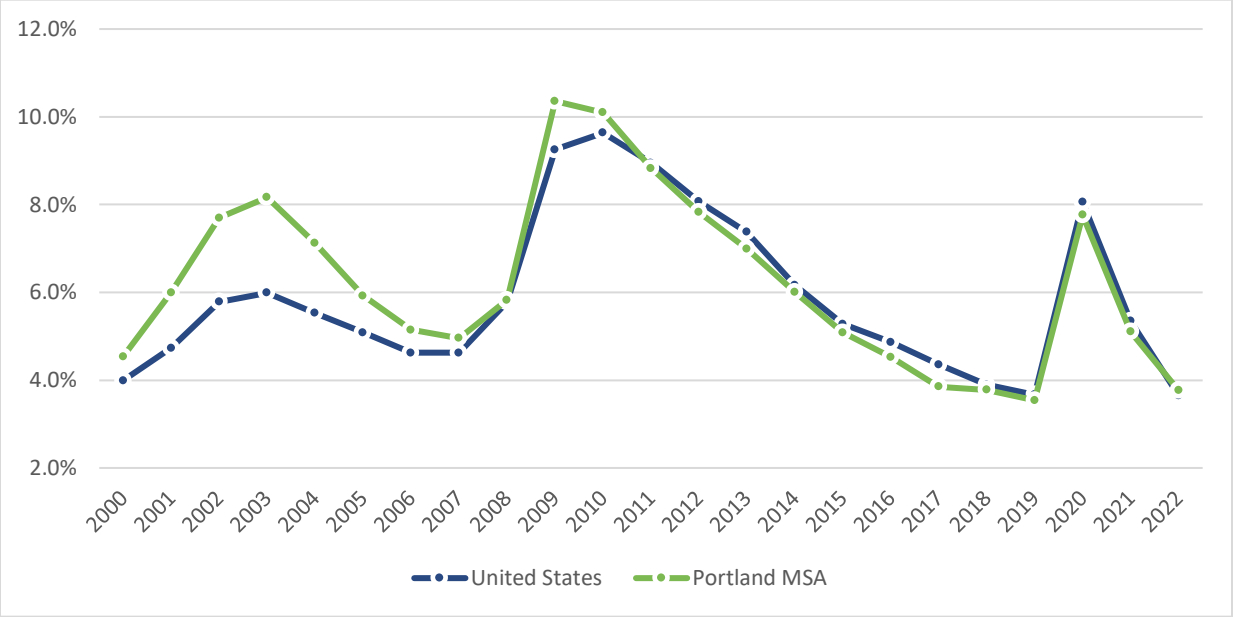
The 2018 RTP described a region that was growing rapidly into a major U.S. metropolitan area, with large numbers of people from other cities migrating to Greater Portland. It described some of the challenges associated with that growth, including growing congestion, rising housing costs, and increased displacement of people of color and people with low incomes to neighborhoods that are harder to serve with transit and other transportation options. These forces still continue to shape the region, though there are signs that growth may be slowing.

Between 2015 (the base year for the 2018 RTP update) and 2020 (the base year for the 2023 RTP update, the region grew significantly – by 135,000 people (an 8.4% increase), 57,000 households

(8.9%) and 90,000 jobs (10.1%).[40] This growth is projected to continue, though not necessarily at the same rapid rate as the region saw during the previous decade. Even prior to the pandemic, State economists and demographers predicted that population growith in Oregon and our region would be slower during the 2020s than it had been during the 2010s, and in 2022 the Census Bureau estimated that the State and region's population declined for the first time in years.[41] Generally, slower population growth also means slower economic growth, and recent State analyses find that businesses in Oregon are having a harder-than-ever time filling vacant positions.

Figure 4.22 shows historical unemployment rates for the greater Portland region, which in this and the following charts include Clackamas, Clark, Columbia, Multnomah, Skamania, Washington, and Yamhill counties – the 7-county region that is commonly used in reporting on the region's economy because it captures the full extent of potential commutes to and from our region's job centers.

Figure 4.22 Unemployment rate in the greater Portland region vs. the U.S., 2000-22



This chart highlights two important recent trends. One is that the region's economy has grown stronger relative to the rest of the U.S. Prior to 2011, the region generally experienced higher unemployment rates than the national average compared to the U.S. as a whole, particularly during recessions, but since then the region has consistently had lower unemployment rates than the rest of the country. These recent low unemployment rates are particularly remarkable since they are happening at a time when participation in the labor force is increasing, which normally causes unemployment to rise. Between 2011 and 2020, the labor force participation rate in the broader economic region grew or remained constant for every age group of workers, whereas in

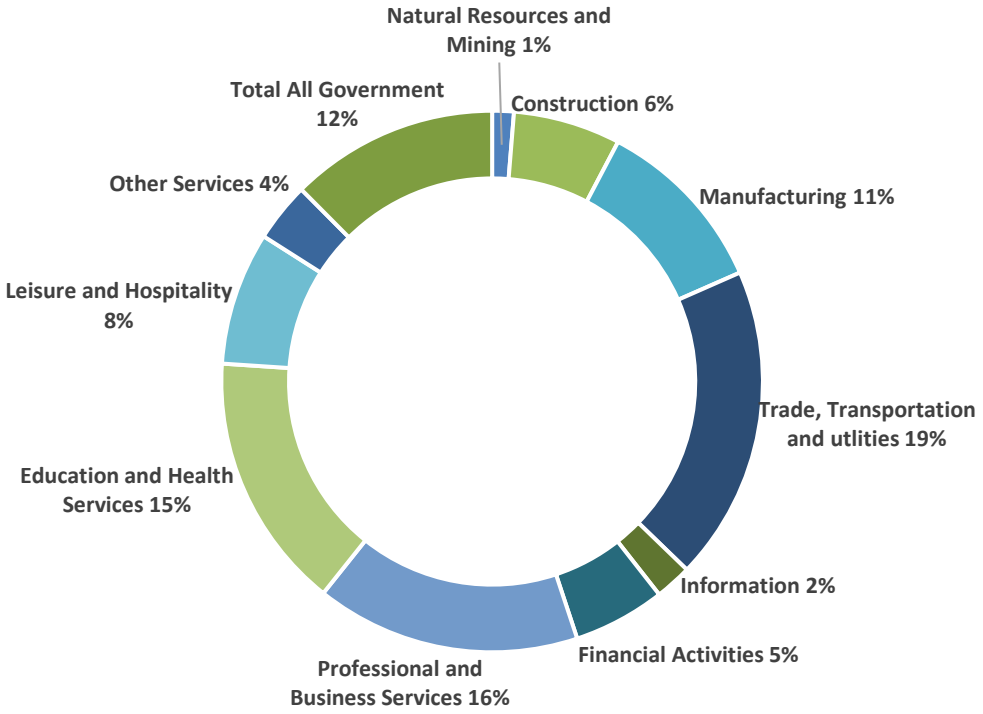
[40] Metro Regional Travel Model.

[41] https://oregoneconomicanalysis.com/2022/12/29/oregon-population-growth-2022/

the U.S. as a whole it fell for many age groups.[42] The second trend is the exceptional nature of the recent recession triggered by the COVID-19 pandemic, which receded much more quickly than prior recessions. During the prior two recessions in 2002-04 and 2009-14 both the regional and national unemployment rates remained above six percent for several years, whereas they only remained at such high rates for a single year during the most recent 2020 recession.

Figure 4.23 shows the industries in which people hold jobs within the same 7-county region discussed above.

Figure 4.23 Employment by industry in the greater Portland region



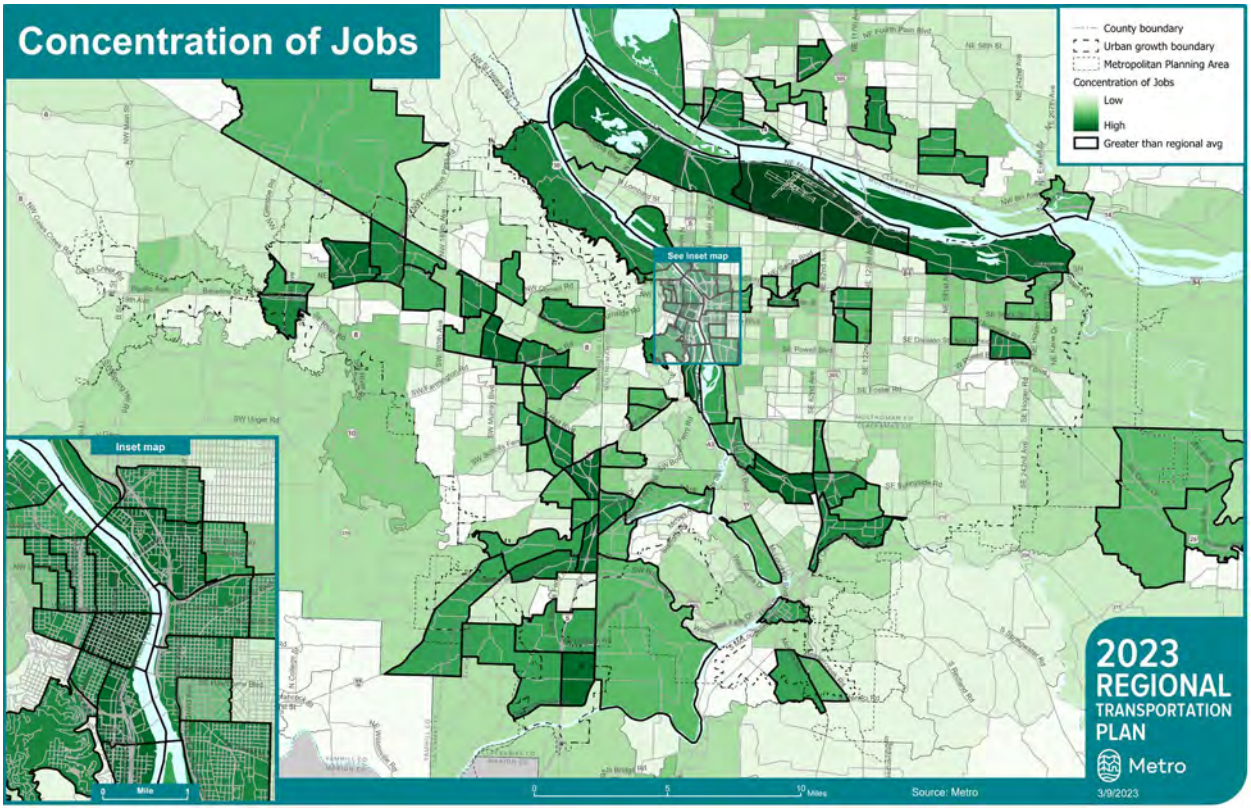
According to this data, which is from 2019, the most recent non-pandemic data was available, Transportation, Professional Services, and Education and Health are the largest employment sectors in the region, collectively accounting for half of the jobs. Those sectors also dominated the region's economy according to the 2015 data that was included in the last RTP update. Collectively those major employment sectors – along with Information, which is a fast-growing sector in the current economy – have accounted for most of the region's recent economic growth. The pandemic led to a seven percent overall decrease in regional employment in 2020, but all of the sectors shown above have recovered from their losses except the leisure and hospitality sector, which suffered nationwide losses as travel and in-person events ceased and continues to recover slowly due to low levels of tourism.

[42] Columbia Workforce

4.4.2 Where jobs are located

Figure 4.24 shows where jobs are currently located in the Portland region. Census tracts with more jobs are shaded in darker green on the map, and tracts with above average numbers of jobs are outlined in bold.

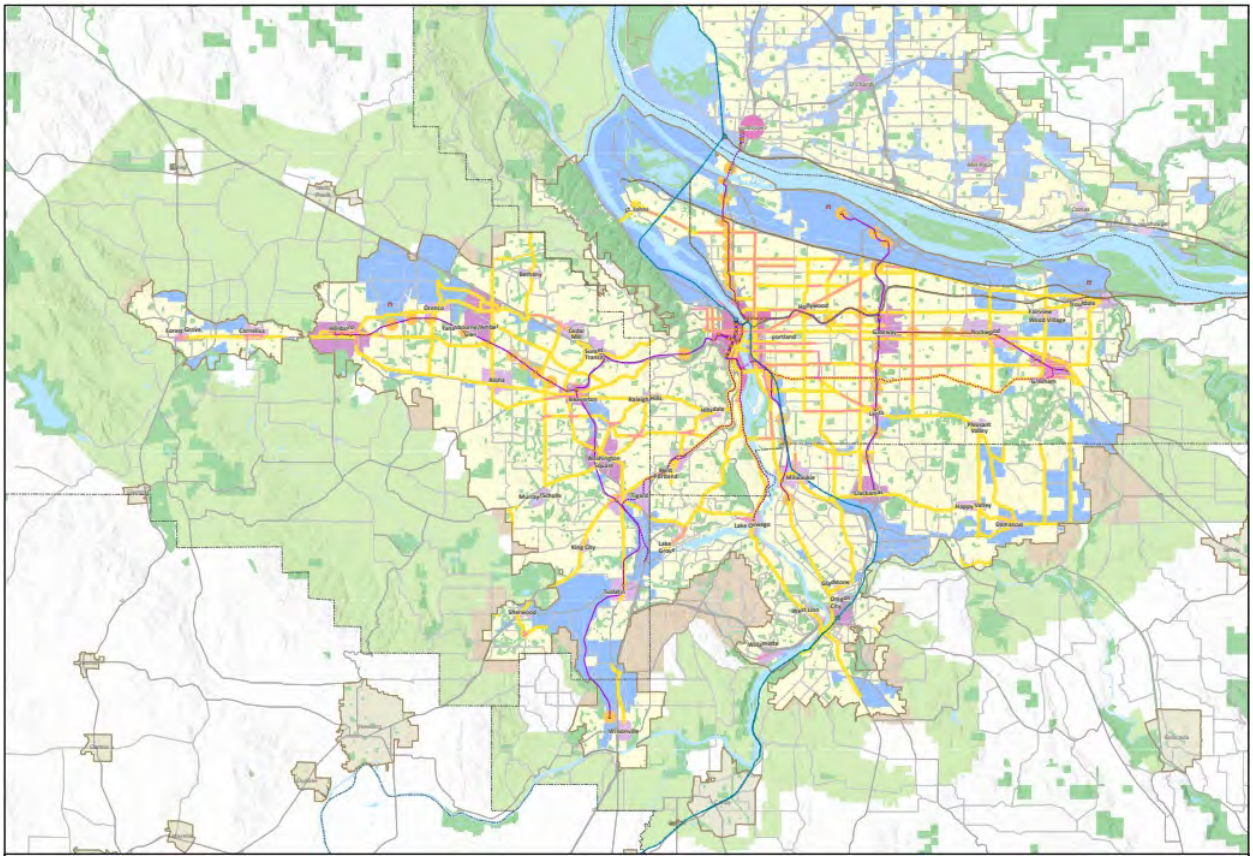
Figure 4.24 Number of jobs by Census Tract, 2021 (Economic Value Atlas: Esri/DataAxle)



Jobs are distributed throughout the region, but there are higher-than-average concentrations of jobs in the centers of larger cities in the region, including Portland, Beaverton, Gresham, Hillsboro, and Tigard; and in major employment or industrial areas such as the Columbia Corridor, the 224 Corridor, Tualatin-Sherwood, and North Hillsboro.

The 2040 Growth Concept, shown in Figure 4.25 below, designates where and how the region is planned to grow over the next several decades. It includes a network of regional and town centers (shown in pink) and employment lands (shown in blue). These centers and employment lands include the areas that are currently rich in jobs shown in Figure 4.24 above, as well as areas where the region is planning to develop space for jobs in the future.

Figure 4.25 2040 Growth Concept Map



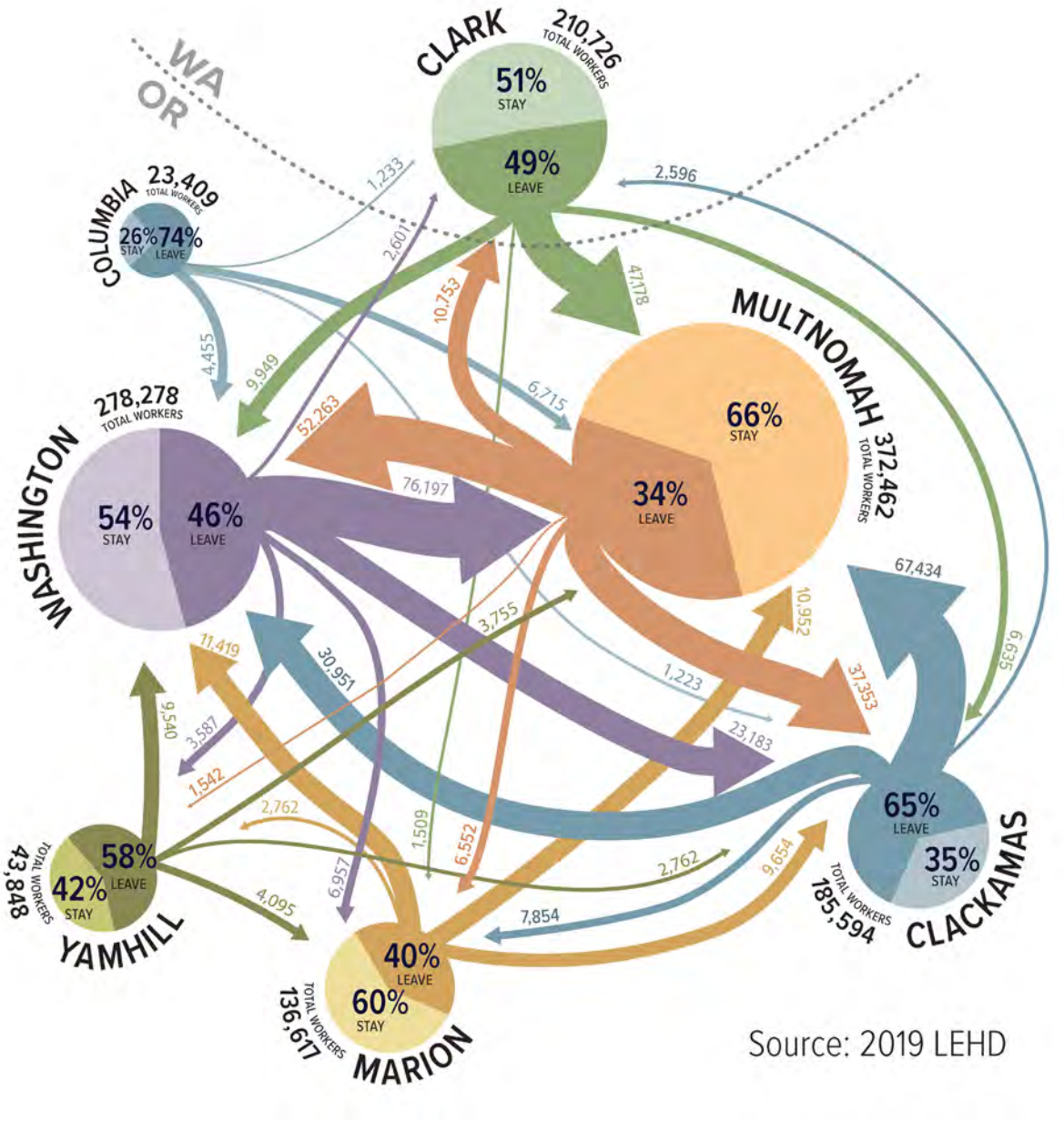
The 2040 Growth Concept helps to identify the many different job and activity centers in the region that need to be included in this web of connections. At the same time, local pedestrian, bike and transit connections are necessary in and around these centers to give people safe, affordable and healthy options for shorter trips to shops, services, and other non-work destinations.

4.4.3 How workers move through the region

Between 2015 (the base year for the 2018 RTP update) and 2020 (the base year for the 2023 RTP update, the region grew significantly – by 135,000 people (an 8.4% increase), 57,000 households (8.9%) and 90,000 jobs (10.1%).[43] This growth is projected to continue, though not necessarily at the same rapid rate as the region saw during the previous decade. As Greater Portland continues to evolve into a major metropolitan area, with increasing housing prices and a more specialized economy, commute patterns are becoming more complex. Figure 4.26 shows how workers commute within and between counties in and around the region. It includes data for counties that are outside the region that have significant amounts of workers commuting to or from the Metro region.

[43] Metro Regional Travel Model.

Figure 4.26 Where workers live and commute in the Greater Portland region and surrounding counties, 2019 (Census LEHD Origin-Destination Employment Statistics)



This figure highlights how commute patterns in the region are increasingly complex and long-distance. Over 45 percent of workers in the 3 Metro-area counties work in a different county than where they live. Travel patterns like those shown above are typical of major metropolitan areas with large populations, clusters of specialized jobs, and rising housing prices that limit many people from living close to jobs. Most of the longer-distance commute trips highlighted in Figure 4.26 are made by car; frequent and high-capacity transit routes are needed to provide affordable, congestion-free commute alternatives as the region grows.

Though commute patterns are growing more complex and the share of long-distance commutes is increasing, the majority of commute trips pass through the heart of the region – which means that investing in the transportation system in the central areas of the region continues to be critical to supporting the region's economic growth. Over 70 percent of the commutes within the 7-county economic region discussed above begin and end within the 3 Metro-area counties (Clackamas, Multnomah and Washington). Multnomah County is particularly central to the region's economy – it is the only county that experiences significant population gains during the working day. Washington County has roughly the same number of workers commuting into the county and workers commuting out of the county, and Clackamas County loses more workers than it gains during the day. These numbers help to contextualize some of the findings elsewhere in this report that show Multnomah County having more crashes, more congestion, and more transit service than other counties; these issues are due in part to the fact that Multnomah County has more people commuting to, from, and through it. This is not to dismiss the growth in long-distance commutes over the past decade; the number of workers traveling into the region from counties such as Hood River and Marion increased significantly between 2019 and 2015, when Metro last reviewed this data. However, even with this growth there are roughly 36,000 of these long-distance commutes happening every day, compared to the 800,000 daily commutes within the region's core.

4.4.4 How goods move through the region

Keeping freight moving is a critical part of regional mobility. Most of the products we buy come from someplace else, and many of the goods we produce in Oregon move on to markets in other states and countries. The global economy is expanding rapidly, and our region's ability to move products to far-flung markets depends on an efficient transportation system. With its location on Interstate 5, the West Coast artery of the Interstate Highway System, the greater Portland region is ideally situated to move freight by truck. But with Portland International Airport, two Class 1 railroads (mainline railroads Union Pacific and Burlington Northern/Santa Fe), the southern terminus of the 400-mile Olympic Pipeline, and a location at the confluence of two major rivers with ocean access and several marine terminals, the region's freight transportation system is a multimodal network.

Figure 4.27 and Figure 4.28 summarize the value and weight of the goods that move through the region by mode. High-value goods make up an increasing share of the freight that moves through the region, and they sometimes take different routes and modes than other goods in order to arrive at their destinations safely and on time. Distinguishing between value and weight helps to identify how goods of different value are moving through the transportation system.

Figure 4.27 Weight of outbound freight by mode in the Greater Portland Region, 2017 (Freight Analysis Framework data)

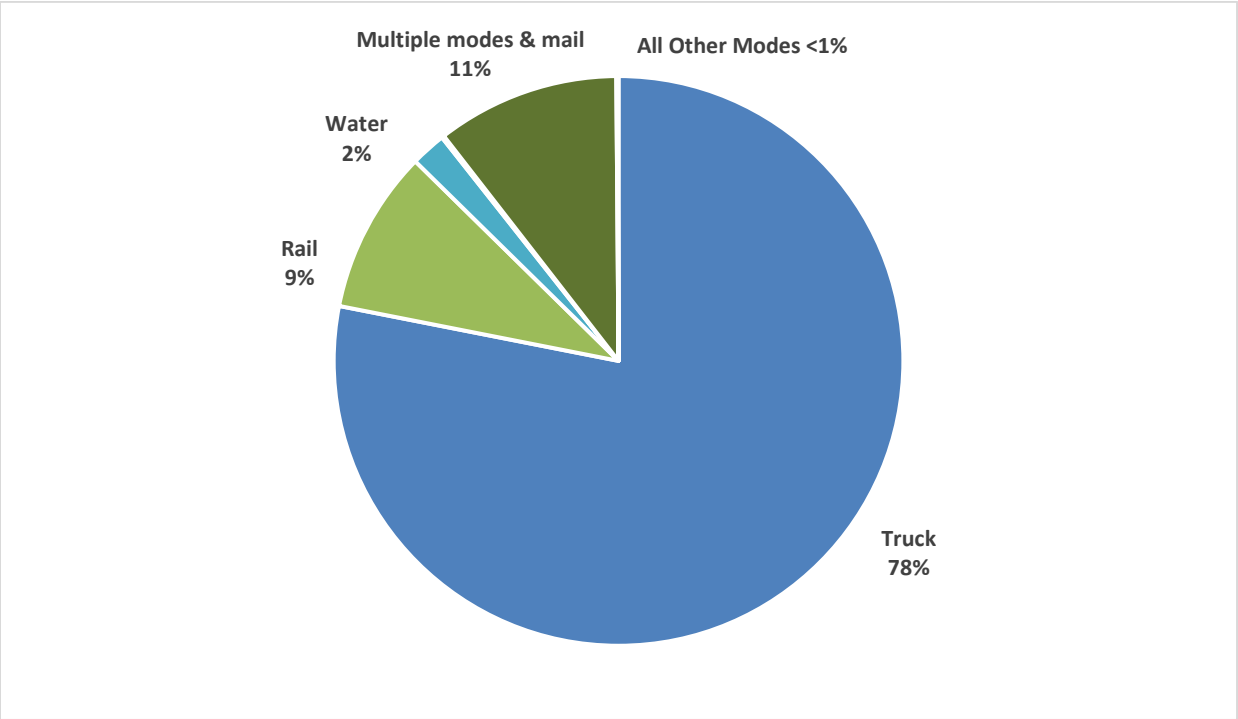
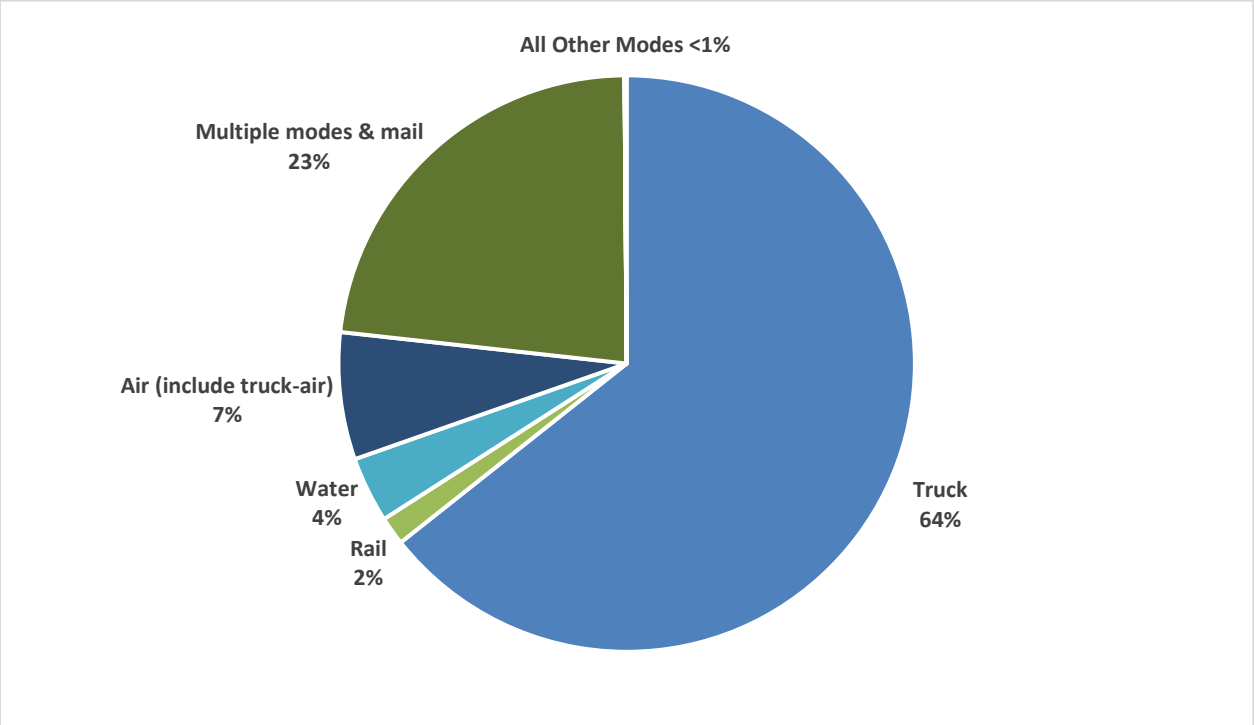


Figure 4.28 Value of outbound freight by mode in the Greater Portland Region, 2017 (Freight Analysis Framework data)



The majority of the region's freight, whether by value or weight, is moved by truck. High value freight is less likely to move by truck and rail, and more likely to use multiple modes, mail, water, and air. As Oregon's economy shifts from bulk products like farm exports and timber to lighter products like semiconductors, electronics and specialized machinery, improving freight connectivity to the airport and other intermodal facilities will help keep goods moving through the region.

4.4.5 Connecting the region's employment centers

The RTP goals envision a region where employment centers are accessible through a variety of multimodal connections. This means that the 2040 centers and employment/industrial lands shown above in Figure 4.25 should be well-connected by vehicle and transit because commutes are often the longest trip people take in a day, and these are the modes best suited for long trips. It also means that these centers need to include solid bicycle and pedestrian infrastructure and a mix of land uses so that people can get meals or run other errands without needing to drive.

This table is also included above in the Mobility section, which provides more details on the methodology and how access to destinations is related to land use patterns and the transportation system.

Table 4-7 below examines how accessible jobs are by driving and transit, comparing access to jobs via transit and automobile during peak hours and other times of the day. This table is also included above in the Mobility section, which provides more details on the methodology and how access to destinations is related to land use patterns and the transportation system.

Table 4-7 Percent of jobs accessible by driving and by transit, by community type and time of day, 2020 (Metro travel model and land use data)

	Percent of jobs accessible within…	
	… a 30-minute drive	**…a 45-minute transit trip**
During rush hour	43%	7%
Outside of rush hour	50%	6%

Anyone who is able to commute by auto enjoys reasonably good access to jobs – the average driver can reach roughly half of the region's jobs outside of rush hour. But transit does not provide nearly the same level of access as driving does; people can reach five to ten times as many jobs by auto as they can by driving. Adding high-frequency transit service that connects the neighborhoods where workers live to employment centers is critical to meeting the RTP's goal of providing multimodal connections to work.

Table 4-8 below compares how complete the bike/ped network is[44] in key 2040 geographies – centers, station communities, mixed-use communities, and employment/industrial lands – versus

[44] Metro distinguishes between on-street bicycle and pedestrian gaps in facilities like bike lanes and sidewalks and off-street bike/ped gaps in facilities like trails. On-street facilities are generally needed to provide good active transportation connections in centers, near transit, and

in the region as a whole. Meeting the economy goal in the RTP means prioritizing active transportation investments in these centers.

Table 4-8 Bike/ped system completeness by location within the region (2018 RTP networks and current partner agency data)

Network	Total planned miles	Number of miles completed	Percent of miles completed
Region-wide			
Pedestrian network	1,040	597	57%
Bicycle network	1,149	626	55%
Trail network	560	245	44%
Motor vehicle network	1,171	1,146	98%
Within 2040 centers			
Pedestrian network	181	141	78%
Bicycle network	168	112	66%
Within station communities outside above centers			
Pedestrian network	108	72	67%
Bicycle network	123	69	56%
Within mixed-use zoning outside above centers & station communities			
Pedestrian network	136	106	78%
Bicycle network	114	75	66%
Within employment and industrial areas outside above centers, station communities, and mixed-use zoning			
Pedestrian network	147	60	41%
Bicycle network	133	73	55%

Consistent with the 2040 Growth Concept, active transportation networks are generally more complete within regional centers and near transit. However, several important gaps remain in these areas, which can be seen in the "gap maps" in the Mobility section.

along arterials, whereas off-street facilities provide longer-distance connections between these areas. Table 4-8 focuses on the on-street bike/ped network.

4.5 CLIMATE

Climate change is the defining global challenge of the 21st century. And as the recent increase in climate-induced wildfires and extreme weather events has demonstrated, it is likely to have significant impacts on the greater Portland region. In 2009, the Oregon Legislature set goals to reduce greenhouse gas (GHG) emissions 10 percent below 1990 levels by 2020 and at least 75 percent below 1990 levels by 2050.45 More recently, Executive Order 20-04 set new emissions reduction goals that call for the State of Oregon to reduce its GHG emissions at least 45 percent below 1990 emissions levels by 2035 and at least 80 percent below 1990 levels by 2050.46 These updated goals are consistent with the reductions that climate scientists now believe are necessary to avoid catastrophic climate change impacts.

The transportation sector is the largest contributor to greenhouse gas emissions in Oregon. It is therefore a key focus of the state's greenhouse gas reduction efforts. And the State, recognizing the role that regional transportation plans (RTPs) play in influencing transportation policies, projects, and outcomes, has relied on RTPs to help reduce transportation emissions. The State is responsible for allocating state and federal funds to reduce GHG emissions by making vehicles and fuels cleaner; it assigns regions targets that are designed to make up the gap between those State-led reductions and State goals. Beginning in 2012, the State set GHG reduction targets for the greater Portland region to meet and has continued to update these targets since, most recently in July 2022. The Portland region's targets for the financially constrained RTP are:

- A 20 percent reduction in per capita greenhouse gas emissions by the year 2035 (the target for the Climate Smart Strategy adopted in 2014)[47]
- A 25 percent reduction by 2040 (the target for the 2018 RTP)
- A 30 percent reduction by 2045 (the target for the 2023 RTP)
- A 35 percent reduction by 2050 (the target for the 2028 RTP)
- Targets for the years 2041-2049 steadily increase from 26 to 34 percent in order to maintain progress toward the 2050 target.[48]

These targets are relative to a 2005 base year. They are based on per capita emissions in order to control for population growth and focus on the impact of transportation policies, programs and plans on GHG emissions. Regional targets only apply to certain types of emissions, and therefore only certain reduction strategies count toward the region's targets:

[45] Oregon Department of Environmental Quality, Oregon Greenhouse Gas Emissions, https://www.oregon.gov/deq/aq/programs/Pages/GHG-Oregon-Emissions.aspx

[46] https://www.oregon.gov/gov/Documents/executive_orders/eo_20-04.pdf

[47] The Climate Smart Strategy adopted in 2014 was forecasted to achieve a 29 percent reduction by 2035 if fully implemented.

[48] Oregon Administrative Rule 660-044-0020, https://secure.sos.state.or.us/oard/displayDivisionRules.action?selectedDivision=3093

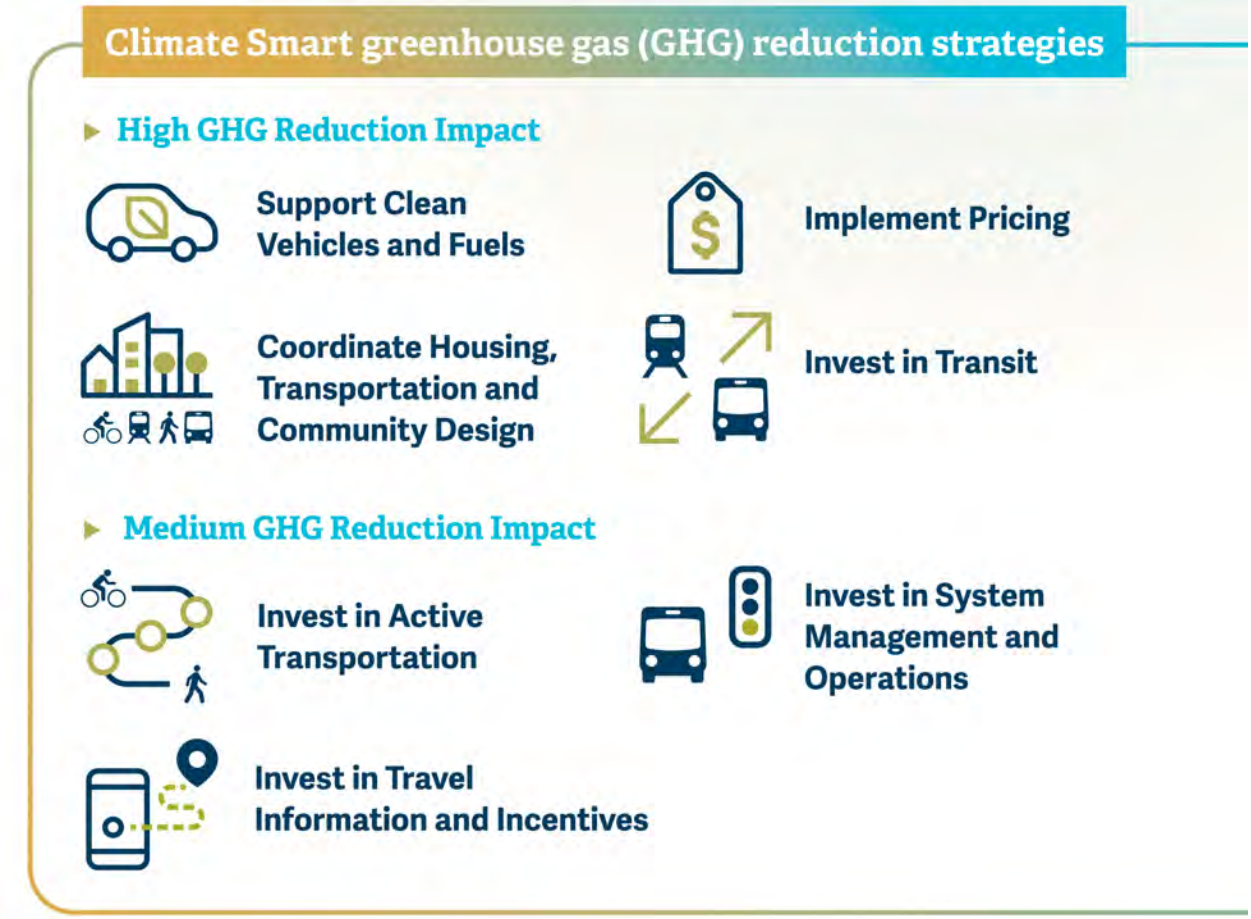
https://www.oregon.gov/lcd/LAR/Documents/2022-01_Div44.pdf

- **Strategies that reduce emissions from light vehicles**, including passenger vehicles (cars, pickup trucks and SUVs) and commercial trucks with a vehicle weight rating of 10,000 pounds or less.
- **Strategies that impact household travel,** whether physically traveled by the members of the household or by deliveries and miscellaneous commercial travel to their home.[4]
- **Strategies that benefit the climate by reducing vehicle miles traveled**. The State estimates the impact of State-level vehicle- and fuel-based reductions and then sets regional greenhouse gas targets to fill the remaining gap needed to meet Oregon's emissions goals. It would be double-counting if regions also took credit for vehicle- and fuel-based reductions, which would lead agencies to overestimate progress toward Oregon's climate goals. The state has clarified that **the targets shown above are equivalent to VMT reduction targets.**

The Climate Smart Strategy,[49] adopted in 2014, is the region's blueprint for reducing emissions. It identifies a toolkit of high- and medium-impact GHG reduction strategies, summarized in Figure 4.29 below, that the region's transportation agencies continue to rely on today.

[49] https://www.oregonmetro.gov/climate-smart-strategy

Figure 4.29 Climate Smart greenhouse gas reduction strategies



4.5.1 The 2023 RTP GHG and VMT gap

Though the region's basic toolkit for fighting climate change has remained consistent since 2010, the State last updated the region's GHG and VMT targets in 2017 and requires each RTP update to include a revised climate analysis that demonstrates the region's progress toward these targets that accounts for state clean vehicle and fuel strategies and that updates the level of implementation of different local and regional strategies to reflect the policies and investments in the RTP. If this analysis finds that the RTP is not sufficient to meet regional targets, JPACT and Metro Council can consider changes to the RTP that further reduce VMT and GHG emissions.

Prior to updating the 2023 RTP project list, Metro estimated the gap between between the region's existing emissions under the 2018 RTP and its updated GHG reduction targets. The size and nature of the gap help to understand and anticipate the extent to which the 2023 RTP may need to change in order to meet its climate targets, and what the needed changes might look like. Metro, working in partnership with ODOT, DLCD and DEQ, used VisionEval, which is the tool the state uses to set regional climate targets and is designed to allow users to evaluate and compare multiple different GHG reduction scenarios, to assess two scenarios:

The **target scenario**, which represents the Portland region's GHG/VMT reduction target. The region's emissions targets are based on a percentage reduction in 2005-level GHG emissions; the Target scenario applies these reductions to daily VMT per capita from 2005 to estimate target levels of daily VMT per capita for different milestone years.

The **STS+RTP18 scenario**, which represents the GHG/VMT reductions due to adopted State and local/regional plans. State-level reductions are based on the Statewide Transportation Strategy (STS),[50] which outlines the strategies that the State will take to reduce transportation-sector GHG emissions on variables such as the share of zero-emission vehicles, the carbon intensity of fuels, the balance of cars and trucks in the passenger fleet, vehicle turnover, and the cost of travel (accounting for the cost of various types of energy as well as state-implemented road pricing). Metro is required to use State assumptions about the carbon intensity of vehicles and fuels in its climate analysis and can choose whether to adjust some pricing assumptions provided by the state. Local/regional reductions are based on the 2018 RTP, which included significant investments in transit, active transportation, travel demand and system management, and other GHG reduction strategies. In 2020, Metro staff made minor adjustments to some of the VisionEval inputs that represent the 2018 RTP in order to capture progress in implementing these strategies.[51]

Table 4.7 and Figure 4.30 show GHG reductions under these two scenarios as well as the RTP23 gap, which is the remaining reduction in GHG/VMT that the 2023 RTP update needs to achieve in order to meet its climate targets, and which is calculated as the difference between the results of the Target Scenario and those of the STS+RTP18 Scenario. These results are shown in both absolute daily VMT per capita and in the same percentage reductions relative to the 2005 baseline that the State uses when establishing regional targets.

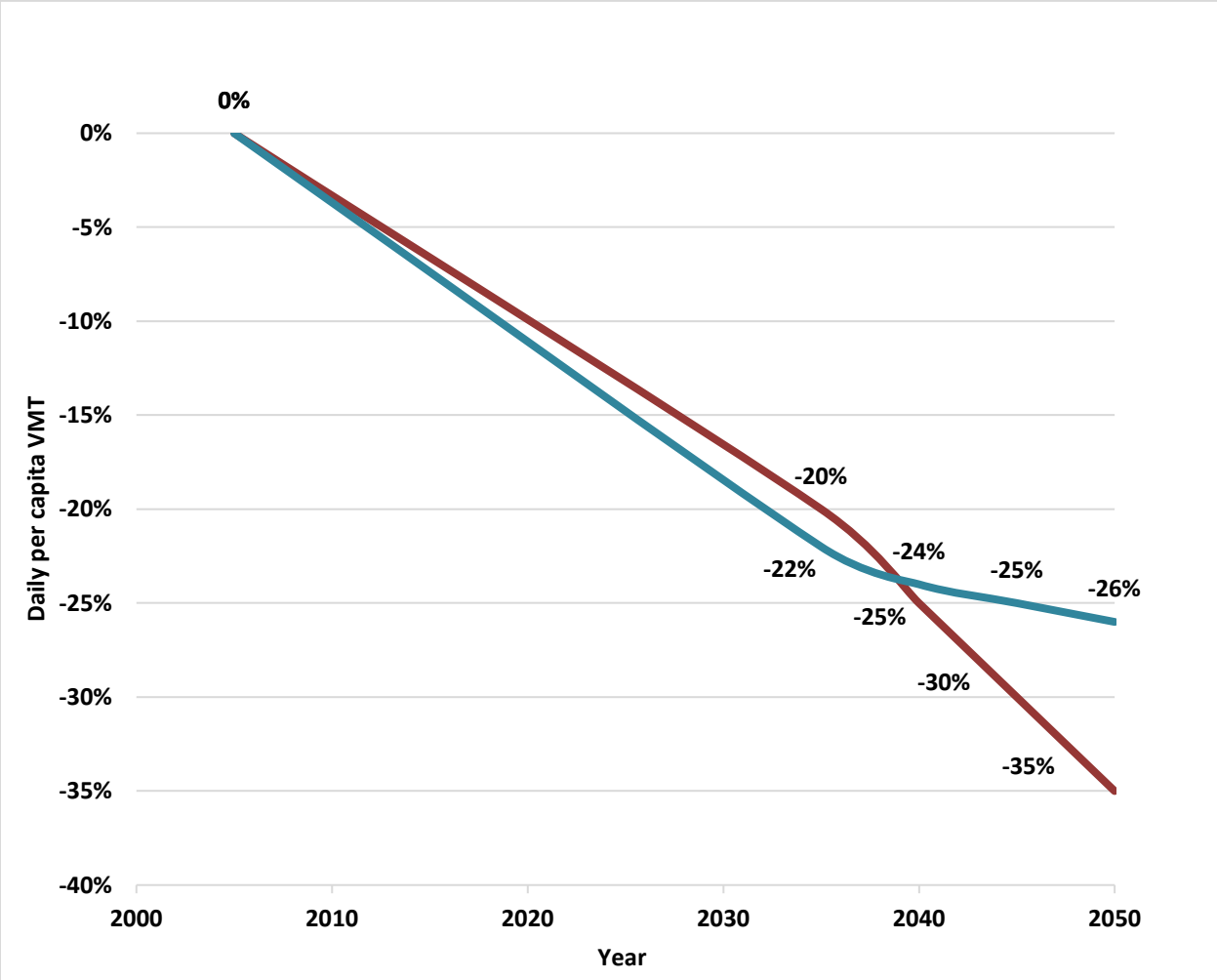
Table 4-9 Estimated absolute and percentage reductions in daily VMT per capita by scenario

Year	Target (absolute)	Target (% reduction)	STS + RTP18 (absolute)	STS + RTP18 (% reduction)	Estimated RTP23 gap (absolute)	Estimated RTP23 gap (% reduction)
2005	19.4	0%	19.4	0%	0	0%
2035	15.5	-20%	15.0	-22%	-0.4	2%
2040	14.5	-25%	14.6	-24%	0.2	-1%
2045	13.5	-30%	14.5	-25%	1.0	-5%
2050	12.5	-35%	14.3	-26%	1.8	-9%

[50] https://www.oregon.gov/odot/Planning/Pages/STS.aspx

[51] 2020 adjustments focused on adjusting assumptions regarding participation in traveler information and incentive programs based on updated evaluation data from Metro's Regional Travel Options program demonstrating that participation in these programs is often more limited than anticipated. The 2018 RTP assumed that 30% of workers and 45% of households receive regular travel options programming; Metro revised these assumptions downward to 5% and 0.5%, respectively. Other assumptions from the 2018 RTP climate analysis can be found in Appendix J of the 2018 RTP: https://www.oregonmetro.gov/sites/default/files/2019/04/02/RTP-Appendix_J_Climate_Smart_Strategy_Monitoring181206.pdf.

Figure 4.30 Estimated percentage reductions in daily VMT per capita, Target vs. STS+RTP18 Scenario



These results confirm that the 2018 RTP Climate Strategy was largely on track to meet its GHG reduction targets. The targets used in the 2018 RTP only extended through 2040, and under the STS+RTP18 Scenario is very close to Target Scenario levels through the year 2040 However, the results also highlight a growing GHG reduction gap for the years 2040-50. This is expected since the State has set targets out to 2050, whereas the GHG strategies adopted in the 2018 RTP only apply out to 2040. Nonetheless, the way that the results of the two scenarios diverge after 2040, when targets become more ambitious while local/regional GHG reductions flatten out, suggests that the region needs to focus on achieving long-term, cumulative emissions reductions to achieve its targets. This analysis estimates that the region needs to reduce 2050 daily VMT per capita by 1.8 miles below currently forecasted levels to meet its targets. This is equivalent to reducing VMT/GHG emissions by roughly a third more than what current plans are expected to achieve.

Coordinated implementation of multiple GHG reduction strategies can help to achieve the necessary reductions, particularly when it is supported by active pricing and/or management of the transportation system. The 2023 RTP update is the first to include roadway pricing policies

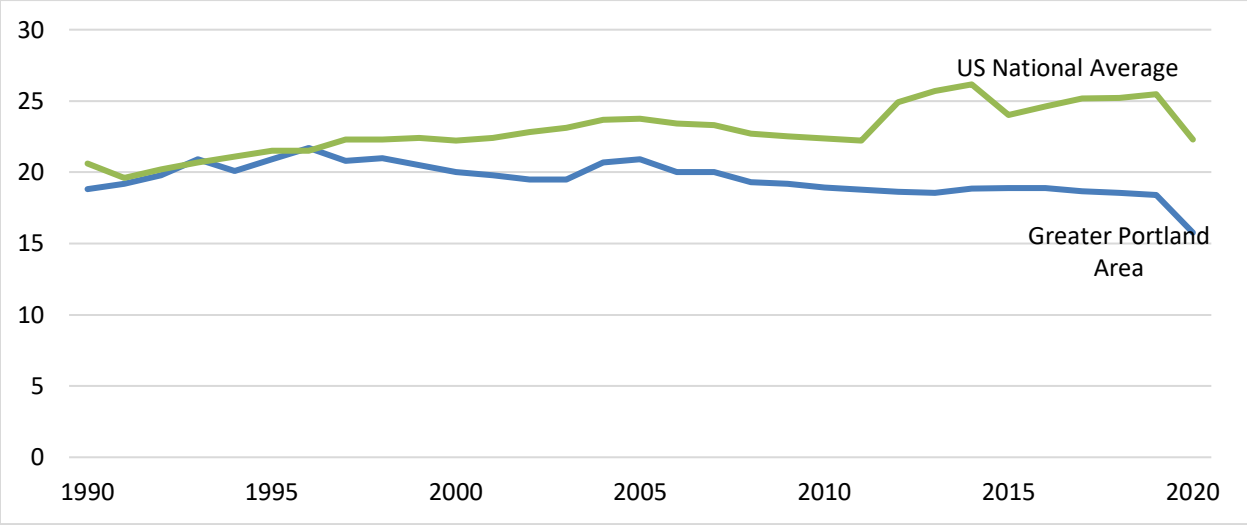
and projects, which creates a major opportunity to reduce VMT and GHG emissions. Chapter 7 updates the analysis above to evaluate the 2023 RTP update's progress toward meeting regional climate targets.

4.5.2 VMT per capita

Vehicle miles traveled (VMT) per capita measures much the average person in the Portland region drives each day. Many transportation agencies in the region use VMT per capita to measure progress toward creating vibrant communities and providing multimodal travel options. As discussed above, the region's climate targets focus on reducing VMT. Understanding current and historical VMT per capita can help identify additional opportunities to reduce emissions and close any gap remaining between emissions under the 2023 RTP update and the region's climate targets.

Figure 4.31 below shows trends in VMT per capita between 1990 and 2020 for both the U.S. and the greater Portland region.

Figure 4.31 Daily VMT per capita for the greater Portland region and the U.S, 1990-2020 (Oregon and Washington Highway Performance Monitoring System offices)



Per capita VMT in the greater Portland region has been significantly lower than the national average since 1997. There has been a general downward trend, with a few exceptions during economic booms, over the past 25 years. However, between 2010 and early 2020[52] there was little or no decline in VMT per capita. The region's past successes in transportation and land use planning appear to have had a lasting impact on people's travel choices, and even during periods of growth they may have helped to keep VMT per capita from increasing. But in order to continue

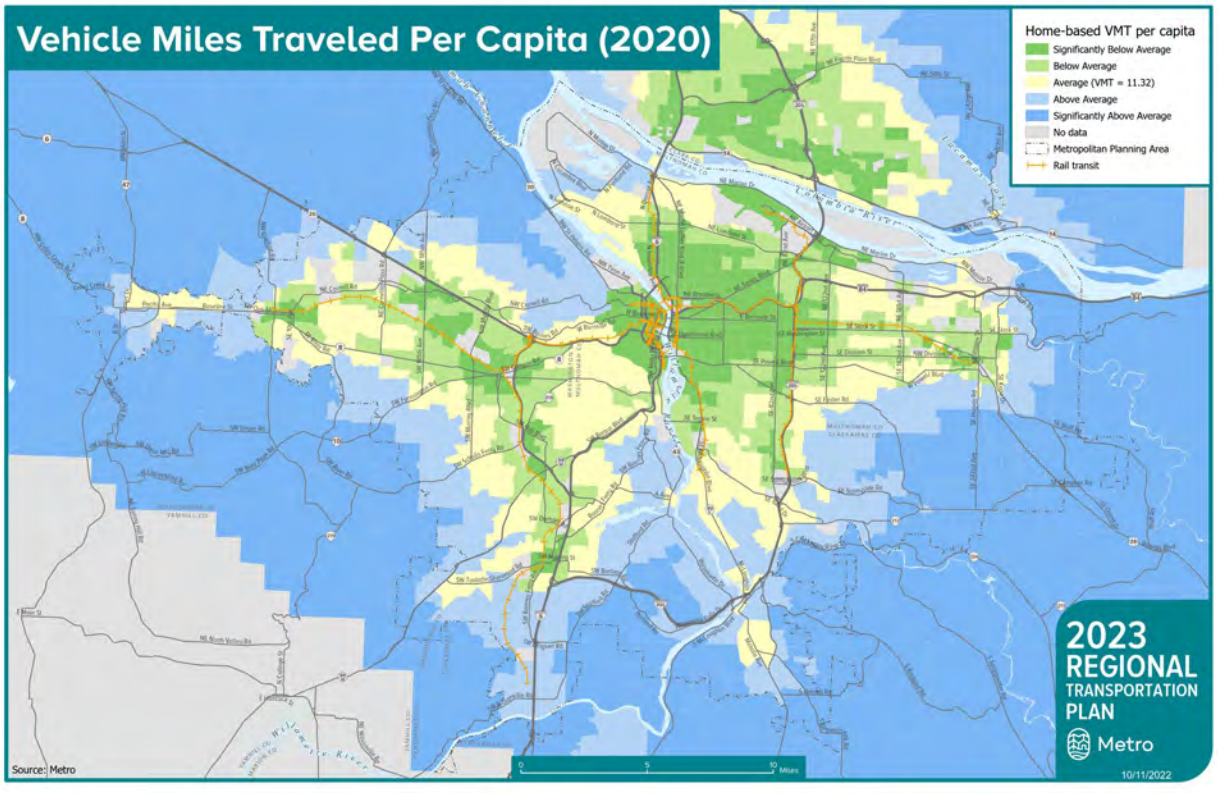
[52] Figure 4.31 also shows a steep decline in both national and regional VMT per capita in 2020. This reflects the onset of the COVID-19 pandemic, which led many people to limit their travel as stay-at-home orders were carried out and many schools and workplaces closed. Metro's Emerging Transportation Trends study (https://www.oregonmetro.gov/public-projects/2023-regional-transportation-plan/research) estimated that the persistence of teleworking and other pandemic-era behaviors could reduce 2050 VMT per capita by three to eight percent, all other things being equal.

to reduce VMT – especially in an era when high housing costs make it challenging for many people to live in neighborhoods with good access to travel options – the region will likely need to take new approaches, such as congestion pricing, or double down on high-impact strategies such as expanding frequent transit, creating affordable housing in regional centers, and managing or pricing parking.

The numbers above also help provide some context for understanding the estimated VMT reduction gap between the 2018 RTP and regional climate targets discussed in the previous section. The estimated gap of 1.8 miles per person per day is roughly the same amount that regional VMT declined between 1997 and 2002 or 2007 and 2013, which are two of the periods when VMT declined the most during the past 30 years. This suggests that closing such a gap is feasible, even during a period of economic growth such as 1997-2002 (all things being equal, VMT tends to increase as the economy grows), but it requires a deliberate and coordinated effort.

Figure 4.32 shows how estimated household-based VMT per capita from Metro's travel model varies across the region. Though these are estimates, they highlight relative differences in VMT per capita based on nearby land uses and transportation options.

Figure 4.32 Home-based VMT per capita by Metro transportation analysis zone, 2020 (Metro regional travel model)



VMT per capita is lower in regional centers, along frequent transit lines, and in many of the region's older neighborhoods. This is consistent with research finding that VMT per capita tends to be lower in compact communities with a mix of destinations and good access to transit and

other options.[53] It demonstrates the impact of sound land use planning and diverse travel options on VMT per capita.

[53] https://nap.nationalacademies.org/catalog/12747/driving-and-the-built-environment-the-effects-of-compact-development

Chapter 5

Our Transportation Funding Outlook

2023 Regional Transportation Plan

May 26, 2023 WORKING DRAFT

This chapter will be provided in the July public review draft.

Chapter 6

Regional Programs and Projects to Achieve Our Vision

2023 Regional Transportation Plan

May 26, 2023 WORKING DRAFT

This chapter will be provided in the July public review draft.

Chapter 7

System Analysis

2023 Regional Transportation Plan

May 26, 2023 WORKING DRAFT

This draft is subject to design and copy edits, technical corrections and minor updates as it is finalized for public review.

TABLE OF CONTENTS

INTRODUCTION

Purpose

This chapter presents the results of the RTP system analysis conducted on the draft financially constrained project list in Chapter 6. The analysis assesses the RTP's impact on the five RTP goal areas: mobility, safety, equity, climate and economy. The RTP uses several different performance measures to capture the region's progress in each of these goal areas and compares the results to targets described in Chapter 2. The targets that are established through the state and federal rules that govern the RTP or that are included in policies adopted by the Joint Policy Advisory Committee on Transportation (JPACT) and the Metro Council. The system analysis uses Metro's travel model and other analytical tools. The analysis accounts not only for the projects and policies in the RTP, but also for factors such as projected population and job growth.

Chapter organization

This chapter consists of five sections, each of which summarizes the RTP's performance with respect to the five RTP goals: mobility, safety, equity, economy, and climate. These sections all follow the same structure. Each begins with a table that summarizes the results for performance measures related to the goal in question. For each measure, the tables include a sentence describing the measure followed by rows with numbers showing the associated target and data on results and targets for the years 2020, 2030, and 2045. The tables use blue text to indicate where the RTP meets targets, orange text to indicate where it doesn't, and purple text to indicate mixed results. The text below the tables **highlights key findings in bold**, provides additional context to help interpret results, and discusses any performance measures or analyses that are still pending.

Metro sometimes cannot estimate results for certain years, and targets sometimes do not apply to all years for which the tables below show data. Blank cells in a table mean that a result or target is not available for a particular year for the measure in question.

The draft system analysis results are described alongside key takeaways from the high-level project list assessment completed as part of the evaluation process. The high-level project list assessment takes a simple, yes-or-no approach to reviewing whether individual projects in the draft RTP project list have certain features that support RTP goals and considers the share of the RTP spending devoted to different types of projects. The high-level project list assessment and system analysis in combination with public feedback received will inform policymakers and regional technical and policy advisory committees as they work together to finalize the draft. RTP and projects lists for adoption in Fall 2023.

7.1 OUR GROWING REGION

The system analysis focuses on how the RTP advances the region toward meeting its transportation goals. That said, other factors like regional population and employment growth and the historical development of the region's transportation system, also influence progress toward these goals. Table 7.1 summarizes how the region and its travel network are growing and changing.

Table 7.1 Forecasted changes in regional growth and the travel network, 2020-2045

	2020	2030	2045
Population and employment			
Total population	1,740,943	1,933,475	2,242,128
% change in population vs. 2020		11%	29%
Total households	693,123	794,613	950,634
% change in households vs. 2020		15%	37%
Total employment	985,260	1,050,958	1,210,997
% change in employment vs. 2020		7%	23%
Travel network			
Total road miles	3,723	3,754	3,789
% change in road miles vs. 2020		1%	2%
Total arterial miles	3,491	3,525	3,556
% change in arterial miles vs. 2020		1%	2%
Total lane miles	5,510	5,640	5,776
% change in lane miles vs. 2020		2%	5%
Total throughway lane miles	627	645	663
% change in throughway lane miles vs. 2020		3%	6%
Total transit network miles	1,240	1,275	1,294
% change in transit network miles vs. 2020		3%	4%
Total regional pedestrian network miles	597	646	724
% change in regional pedestrian network miles vs. 2020		8%	21%
Total regional bicycle network miles	626	800	802
% change in regional bicycle network miles vs. 2020		28%	28%
Total regional trail network miles	247	273	330
% change in regional trail network miles vs. 2020		11%	34%

This information – which comes from the regional growth distribution adopted by the Metro Council for the RTP and other local and regional planning efforts, and from the project information that agency partners submit to the RTP – forms part of the background assumptions that Metro uses to analyze the impact of the RTP on regional goals. It highlights how the region is growing and changing and provides additional context for interpreting some of the results above.

The region is forecasted to grow significantly between now and 2045. During that time, the region's population is anticipated to grow by 29 percent, while employment grows by 23 percent. Though the COVID-19 pandemic slowed population and job growth in the Portland region and in many other major metro areas, this growth is expected to pick up again in the future. Population

and employment growth has a strong influence on congestion, and therefore on related performance measures such as access to jobs and corridor travel times. The region's goals are to improve access to jobs and reduce travel times on key corridors regardless of how much growth occurs, but all other things being equal these goals are harder to achieve when the region is growing more rapidly. Comparing the change in these performance measures to overall population and employment growth can help to distinguish whether growth or other issues are the driving factors behind the changes shown in the system analysis.

The motor vehicle network is much more extensive than other networks. The system analysis focuses on measuring system completion for different networks and in different communities where RTP policies prioritize investment. This is an important way of understanding the RTP's progress toward the region's vision for the transportation network, but those visions always build on the existing network, which was developed over several decades during which transportation agencies primarily focused on moving vehicles. Table 7.1 summarizes the current extent of different networks and the planned growth of those networks under the RTP. It illustrates why so many of the goals described above focus on completing the transit and active transportation networks – as of 2020, all those networks are less than a third of the size of the region's road network, and that is still the case in 2045 even with the RTP prioritizing transit and active transportation investments.

7.2 MOBILITY

Table 7.2 Summary of draft system analysis results: mobility

Measure	Base year value	Base year target	2030 result	2030 target	2045 result	2045 target
The RTP aims to triple transit, bike, and pedestrian mode shares relative to the base year.						
Transit mode share	4.1%		4.5%		5.4%	12.2%
Pedestrian mode share	7.5%		7.5%		7.8%	22.6%
Bicycle mode share	3.7%		3.8%		3.9%	11.1%
The RTP prioritizes improving access to jobs via driving and transit relative to the base year.[1]						
% of regional jobs accessible by transit	7%		8%	7%	8%	7%
% of regional jobs accessible by driving	41%		42%	41%	37%	41%
The RTP aims to provide the same level of access to jobs via transit (or greater) as via driving so that transit offers the same efficiency and convenience as driving.						
% of regional jobs accessible by transit	7%	41%	8%	42%	8%	37%
The RTP aims to complete the motor vehicle, transit, bicycle, trail and pedestrian networks by 2035.						
% of the motor vehicle network that is complete	98%	100%	99%	100%	99%	100%
% of the transit network that is complete	70%	100%	72%	100%	73%	100%
% of the pedestrian network that is complete	57%	100%	62%	100%	69%	100%
% of the bicycle network that is complete	55%	100%	60%	100%	66%	100%
% of the trail network that is complete	43%	100%	48%	100%	58%	100%
The RTP prioritizes completing the bicycle and pedestrian system near transit (relative to the regional average) in order to provide safe and convenient access to stations and stops.						
% of the pedestrian network near transit that is complete	63%	57%	68%	62%	74%	69%
% of the bicycle network near transit that is complete	60%	55%	66%	60%	71%	66%
The RTP aims to have no more than four hours in a day when average travel speeds fall below 35 miles per hour on the region's limited=access throughways and 20 miles per hour on other designated throughways so that the region's throughways are reliable.						
% of limited-access throughway miles that fall below 35 MPH for more than 4 hours per day	TBD	TBD	TBD	TBD	TBD	TBD
% of other throughway miles that fall below 20 MPH travel speeds for more than 4 hours per day	TBD	TBD	TBD	TBD	TBD	TBD
The RTP aims to increase the share of households and jobs that are located within walking distance of frequent transit service[2] *relative to the base year.*						

[1] Access to jobs analysis involves measuring the average number of jobs that are accessible via 45 minutes via transit and 30 minutes via driving during peak travel hours across all of the travel analysis zones used in Metro's travel model. See the equity section below for more detail on the type of jobs and destinations that are captured in this analysis.

[2] "Frequent transit service" refers to service with headways of 15 minutes or less. Metro uses different walking distances to analyze proximity to different types of transit service, consistent with research that shows people are willing to walk longer to reach higher-quality service. This analysis defines "walking distance" as ¼ mile for bus, 1/3-mile for streetcar, and ½ mile for rail.

Measure	Base year value	Base year target	2030 result	2030 target	2045 result	2045 target
% of households located within walking distance of a frequent transit station	54%		56%	54%	54%	54%
% of jobs located within walking distance of a frequent transit station	64%		67%	64%	67%	64%
The RTP seeks to improve mobility by filling gaps in the transportation network and by designing the transportation system for multimodal travel.						
% of the capital RTP spending invested in projects that fill gaps in the transportation network			30%		29%	
% of the capital RTP spending invested in projects that include multimodal design elements			95%		91%	
% of the capital RTP spending invested in projects that fill gaps and include multimodal design elements			30%		29%	

Since the RTP is a transportation plan, it has many different performance measures related to mobility, including three new measures to support the regional mobility policy – system completeness, throughway reliability, and vehicle miles traveled (discussed in the climate section). For some of these measures the RTP meets performance targets, whereas for other measures it falls short.

The RTP does not meet the region's targets to triple transit, walking and bicycling mode share. Metro's travel models forecast that the investments in the RTP help to increase the share of trips that people make using these modes, but only by small amounts. Transit mode share is forecast to grow by 1.3% between 2020 and 2045 – a relative increase of over 30% – which is significant, but still far short of adopted targets. Walking and bicycling mode shares increase by much smaller amounts than transit mode shares.

The RTP generally improves access to jobs. The percentage of the region's jobs that are accessible by transit increases between 2020 and 2045. Access to jobs by transit also increases between 2020 and 2030, but then it declines between 2030 and 2045. Generally, the investments in the RTP help to keep both roads and transit vehicles moving more efficiently, which increases access to jobs. Increasing congestion near some job centers appears to be contributing to declining motor vehicle access to jobs in the later years of the plan.

Driving currently offers much better access to jobs than transit does, and the RTP does not change this. The RTP improves access to jobs via transit more than it does access to jobs via driving. However, driving currently offers access to five to ten times as many destination as transit does depending on when you are traveling, where you want to go, and where within the region you are starting from, and the RTP does not change the fact that driving offers much better access than transit does. In order to give people the ability to choose from a variety of seamless and well-connected travel options and services that easily get them where they need to go, transit needs to

offer the same level of access as driving does. Providing equal access via transit and driving is an aspirational goal for the greater Portland region – and almost any other U.S. city – due to a decades-long history of auto-oriented development, but closing the gap between transit and driving access has far-reaching benefits for the region.

None of the region's transportation networks are complete, but the motor vehicle network is much closer than others. A goal of the RTP mobility policy is to complete all the planned infrastructure networks included in the plan – motor vehicle, transit, pedestrian, bicycle and trail. None of these networks are complete, but the motor vehicle network, which will be 99% complete in 2045 when other networks are only 58 to 73% complete, is much closer than the other networks. Completing all networks in the RTP is important to meeting goals, but the fact that the motor vehicle network is so much more complete than others contributes to the challenge of providing a variety of seamless and connected travel choices. Additional work is being completed by Metro staff to develop approaches for defining system completeness for transportation system management and operations (TSMO) network and transportation demand management programs.

The region has historically prioritized completing pedestrian and bicycle facilities near transit, and the RTP upholds this priority. The pedestrian and bicycle networks are currently more complete near transit than in other locations in the region, and though the RTP does slightly less to complete these networks near transit than in other parts of the region, they will still be more complete in 2045.

The RTP generally improves access to frequent transit, if only slightly. In order for the transit system to be useful, stops and stations have to be located near common origins and destinations, particularly for the frequent service that gets riders where they need to go efficiently. The RTP slightly increases the share of jobs that are near transit, and in the short term, the share of households that are located near transit as well. However, the share of households that are projected to be within walking distance of transit in 2045 is similar to the base year share. Though the RTP expands the transit system, this planned growth may not be keeping pace with new development.

Almost all of the RTP projects include design elements that support travel by transit, foot or bike. However, slightly under a third of the RTP spending goes toward projects that close gaps in regional transportation networks. Increasing this share could help the RTP better complete the transportation system.

7.3 SAFETY

Table 7.3 Summary of draft system analysis results: Safety

Measure	Base year value	Base year target	2030 result	2030 target	2045 result	2045 target
The RTP aims to eliminate transportation related fatalities and serious injuries for all users of the region's transportation system by 2035, and to maintain progress toward this goal in interim years.						
Number of fatalities	93	52				
Fatalities per 100 million vehicle miles traveled	0.9	0.5				
Number of serious injuries	512	384				
Serious injuries per 100 million vehicle miles traveled	4.8	3.6				
Number of non-motorized fatalities and serious injuries	129	95				
The RTP seeks to advance safety by funding projects that benefit safety in the most dangerous locations on the region's transportation network.						
% of the capital RTP spending invested in projects identified as safety projects			66%		71%	
% of the capital RTP spending invested in projects located on high injury corridors or intersections			40%		53%	
% of the capital RTP spending invested in safety projects that are located on high injury corridors or intersections			24%		43%	

The region is not on track to meet its target of reducing fatal and serious injury crashes to zero by 2035. Table 7.3 shows baseline 2020 results for several different indicators that examine different types of crashes (fatal crashes, serious injuries, and non-motorized crashes involving vulnerable users) using different indicators (both rates and absolute values) and compares them 2020 targets that represent a sixteen percent reduction in crashes compared to 2014, when the region adopted this safety targets, and a fifty percent reduction by 2025. By every **safety measure that the RTP tracks, the region's streets are getting less safe**, and the RTP is not meeting the interim 2020 targets that it established to maintain progress toward the 2035 Vision Zero goal.

The needs assessment and Urban Arterials Brief prepared in Fall 2022 contain more information on where crashes are occurring in the region and who is affected by different types of crashes that helps to explain and contextualize the results above.[3] Key findings include:

- Pedestrians experience a disproportionately high number of traffic deaths.
- Traffic fatalities are decreasing among bicyclists.
- A majority of serious crashes and bike/ped crashes occur in equity focus areas (see the Equity section for more information).

[3] https://www.oregonmetro.gov/sites/default/files/2022/11/29/2023-RTP-Needs-Assessment-fact-sheets.pdf and https://www.oregonmetro.gov/sites/default/files/2022/10/24/Safe%20and%20healthy%20urban%20arterials%20policy%20brief.pdf

- Speed, alcohol, and/or drugs continue to be the most common contributing factors in severe and fatal crashes in the region.
- Serious crashes, and particularly fatal pedestrian crashes, are increasing both in the Greater Portland region and nationally. The growing popularity of SUVs and other heavier and larger models of passenger vehicles is contributing to these trends; by 2025, light-trucks, SUVs, vans and pickups are estimated to make up 78 percent of sales. Research indicates that crashes involving SUVs and similar weight vehicles are more likely to be serious and to injure or kill pedestrians and bicyclists.[4]

More than two thirds of capital funding in the RTP goes to projects that lead agencies identified as safety projects, and roughly half of the capital budget goes toward projects that are on the high-injury network, which includes the relatively small share of roads and intersections where most of the serious crashes in the region occur.[5] However, a smaller share of the near-term (2023-30) RTP spending is devoted to these projects than of the total budget, which suggests that there may be additional opportunities to prioritize near-term investments in safety. See Chapter 3 for a map of the high injury network that is used in these safety analyses.

[4] Tyndall, Justin. "Pedestrian Deaths and Large Vehicles." Economics of Transportation, Volumes 26–27, June–September 2021. https://www.sciencedirect.com/science/article/abs/pii/S2212012221000241?via%3Dihub, and Monfort, Samuel S.; Mueller, Becky C. "Pedestrian injuries from cars and SUVs: updated crash outcomes from the Vulnerable Road User Injury Prevention Alliance (VIPA)." Traffic Injury Prevention (TIP), Insurance Institute for Highway Safety, May 2020. https://www.iihs.org/topics/bibliography/ref/2203.

[5] For a map of High Injury Corridors and intersections, see https://experience.arcgis.com/experience/6b5ae16aad814e6e81546bcc4ffdf964.

7.4 EQUITY

Table 7.4 Summary of draft system analysis results: equity

Measure	Base year value	Base year target	2030 result	2030 target	2045 result	2045 target
Safety is a critical issue in equity focus areas. The RTP aims to eliminate transportation related fatalities and serious injuries for all users of the region's transportation system, particularly in equity focus areas, which experience higher rates of serious crashes.						
Serious crashes in Equity Focus Areas (EFAs)	65%	35%				
Pedestrian- and bicyclist-involved crashes in Equity Focus Areas (EFAs)	75%	25%				
The RTP prioritizes completing the bicycle and pedestrian system in equity focus areas (relative to other communities) to provide safe streets for the most vulnerable travelers.						
% of the pedestrian network that is complete within EFAs	70%	45%	76%	49%	81%	58%
% of the pedestrian network near transit that is complete within EFAs	73%	53%	78%	56%	83%	64%
% of the bicycle network that is complete within EFAs	61%	49%	68%	53%	75%	58%
% of the bicycle network near transit that is complete within EFAs	64%	55%	72%	60%	77%	65%
The RTP prioritizes improving access to jobs within equity focus areas (relative to other communities).[6]						
% of regional jobs accessible by transit in equity focus areas	8%	5%	9%	5%	11%	5%
% of regional jobs accessible by driving in equity focus areas	42%	40%	43%	40%	40%	33%
The RTP seeks to advance equity by funding projects that benefit equity in the communities that have the greatest needs.						
% of the capital RTP spending invested in equity projects (transit or walk/bike investments)			69%		75%	
% of the capital RTP spending invested in projects located in equity focus areas			37%		36%	
% of the capital RTP spending invested in equity projects that are located in equity focus areas			27%		26%	

The RTP achieves mixed results on equity – it invests equitably, but these investments do not lead to more equitable outcomes, nor do they undo longstanding transportation inequities in safety and access to jobs. The region's bicycle and pedestrian networks are currently more complete in the Equity Focus Areas (EFAs) where people of color, low-income people and people who speak limited English are concentrated, and the RTP continues to invest in

[6] The results shown here measure access to all jobs during peak hours. Community feedback has emphasized that marginalized people particularly prioritize access to community places such as schools, grocery stores and community services and access to jobs that they are qualified for, and that marginalized people are less likely to commute during peak hours and more likely to need to travel throughout the day. Metro staff analyzed access to jobs by wage level and access to community places and access during off-peak periods. All of these analyses show the same basic patterns as the results in Table 7.2 – access to destinations via transit and auto is slightly better in equity focus areas than in other communities, and access to destinations via auto is much higher than access via transit – and this memorandum does not reproduce those results in order to conserve space. The final RTP will include complete results of the accessibility analysis.

completing those networks. However, recent data shows that these areas continue to experience three times the number of crashes that involve people walking and biking – who are particularly vulnerable to death and injury during crashes – and almost twice as many fatal and serious injury crashes as other parts of the region.

Similarly, **people living in EFAs currently enjoy significantly better access to jobs via transit and driving than people living in non-EFAs, and the RTP continues to improve access to jobs in these communities relative to others**. However, despite continued efforts to grow transit service during this and previous RTP cycles, **driving in general continues to offer much more efficient and convenient access to jobs than transit does**. Both community feedback and research emphasize that people of color and people with low incomes are more likely to rely on transit than other people are. This suggests that an equitable transportation system is one in which transit offers the same level of access to jobs as driving – and even with the investments in the RTP the region still falls short of providing equal access via driving and transit.

Over two thirds of RTP capital spending goes toward projects that invest in the transportation equity needs identified by EFA residents, and over one third goes toward projects in EFAs, with a slightly higher share of long-term funding than near-term funding devoted to these priorities. See Chapter 3 for a map of the equity focus areas used in these analyses.

7.5 ECONOMY

Table 7.5 Summary of draft system analysis results: economy

Measure	Base year value	Base year target	2030 result	2030 target	2045 result	2045 target
The RTP aims to decrease driving and transit travel times along regional mobility corridors relative to the base year.						
% change in average mid-day corridor[7] travel times vs. 2020 - driving			0.7%	0%	3.7%	0%
% change in average evening peak corridor travel times vs. 2020 - driving			1.5%	0%	3.8%	0%
% change in average off-peak corridor travel times vs. 2020 - transit			-3.4%	0%	-3.8%	0%
% change in average evening peak corridor travel times vs. 2020 - transit			-1.2%	0%	-1.6%	0%
The RTP prioritizes completing the bicycle and pedestrian system in job and activity centers (relative to the regional average) in order to provide safe and convenient options for short trips and connections to transit.						
% of the pedestrian network that is complete within centers, station communities, and mixed-use areas	74%	57%	77%	62%	80%	69%
% of the bicycle network that is complete within centers, station communities, and mixed-use areas	63%	55%	69%	60%	74%	66%
% of the pedestrian network that is complete within employment and industrial areas	39%	57%	44%	62%	52%	69%
% of the bicycle network that is complete within employment and industrial areas	55%	55%	58%	60%	64%	66%
The RTP supports the economy by prioritizing by filling gaps in the transportation network and by designing the transportation system for multimodal travel.						
% of the capital RTP spending invested in projects located in planned job centers and growth areas			89%		88%	
% of the capital RTP spending invested in projects located in areas that currently have higher-than-average concentrations of jobs			83%		80%	

The RTP achieves mixed results on regional economic goals. It reduces transit travel times along the corridors that connect the region's centers, but driving times along these corridors increase, particularly in 2045, due to increased congestion. However, travel times increase at a much slower pace than the region's population and employment grows (under 4% by 2045, compared to 29% growth in population and 23% growth in jobs), which suggests that the RTP helps traffic

[7] Metro uses mobility corridors that link different regional centers for the purposes of travel analysis (https://www.oregonmetro.gov/mobility-corridors-atlas) and forecasts driving and transit times between key destinations along each corridor using its travel model. The averages presented for this metric are based on the longest-distance route along each corridor for which forecasted both driving and transit travel times are available, and, in the case of peak-hour results, the route corresponding with the direction of peak travel.

move more efficiently along these corridors than it would otherwise given the pressure that new growth and new trips put on the transportation system.

In order to help workers take advantage of the faster and more frequent transit connections that the RTP provides, the RTP must also complete the bicycle and pedestrian networks in the communities where jobs are located. Doing so gives transit commuters safe and convenient connections from transit stations to their places of work. The bicycle and pedestrian network is already more complete than average in centers, station communities and other mixed-use areas where many of the region's office, service, and other jobs are located, and the RTP continues to prioritize investment in these areas. However, even with the investments planned in the RTP, the pedestrian and bicycle networks – particularly the former – are not nearly as complete in employment and industrial areas that are home to many of the region's manufacturing and transportation jobs as it is in the rest of the region. Many businesses in these areas need freight access and ample floor space for manufacturing or warehousing, which can pose challenges to creating convenient and safe walking and biking environments, and new transit options, particularly smaller and more flexible service that can serve routes with many dispersed stops, are needed to give people a car-free option that connects within walking or biking distance of their jobs. However, completing these networks, especially the pedestrian network, can help transit riders safely and conveniently complete the last mile of their commutes.

The RTP invests heavily in projects that are located both in planned job centers and in the places where jobs are currently concentrated, which reflects a continued emphasis on investing in transportation facilities that support current and planned growth.

7.5.1 Analyses under development

Note: The RTP uses **freight-related performance measures** to examine economic performance. The final draft of the 2023 RTP update will include versions of the travel reliability measure discussed in the Mobility section focused on examining the variations in travel times and speed on the regional freight network. Metro staff are working to update these measures through the Freight and Commodities Movement Study and will share freight performance measure results with RTP policy and technical committees as part of the Freight and Commodities Movement Study results in July 2023.

7.6 CLIMATE AND ENVIRONMENT

Note: This section will be updated in consultation with ODOT, DLCD and DEQ.

Table 7.6 Summary of draft system analysis results: climate and environment

Measure	Base year value	Base year target	2030 result	2030 target	2045 result	2045 target
*The RTP aims to reduce **greenhouse gas emissions and vehicle miles traveled** in order to meet regional climate targets set by the state which are to reduce vehicle miles traveled per person by 35% by 2050, with a 30 percent reduction by 2045 and a 25% reduction by 2040, compared to 2005.*						
% reduction in VMT per capita (relative to 2005)					22-40%	30%
% reduction in GHG emissions per capita (relative to 2005)					TBD	30%
*The RTP aims to reduce total **greenhouse gas emissions** in order to meet State goals.*						
% reduction in total GHG emissions (relative to 2005)						
*The RTP aims to keep **criteria pollutants** from mobile sources below thresholds set by the federal government.*						
Total summer carbon monoxide emissions (lbs)	261,097		111,508	261,097	77,805	261,097
Total winter carbon monoxide emissions (lbs)	206,410		85,266	206,410	71,579	206,410
Total summer volatile organic compound emissions (lbs)	11,734		2,836	11,734	2,374	11,734
Total winter particulate matter 10 exhaust (lbs)	375		125	375	62	375
Total winter particulate matter 2.5 exhaust (lbs)	336		111	336	55	336
*The RTP aims to keep **air toxics** from mobile sources below current levels.*						
To be added						
To be added						
To be added						
To be added						
To be added						
To be added						
The RTP seeks to advance climate and resilience by funding high-impact greenhouse gas reduction strategies and projects on key emergency routes.						
% of the capital RTP budget invested in high- or moderate-impact Climate Smart Strategies			32%		28%	
% of the capital RTP budget invested in projects located on Emergency Transportation / Seismic Lifeline routes			72%		71%	

The RTP meets its targets to reduce criteria pollutant emissions. These emissions are known to cause health and respiratory issues for people and damage the environment, so meeting this

goal also supports public health and the general health of the region's ecosystem. Progress toward this target is largely driven by the fact that the next generation of vehicles is expected to produce less pollution than the cars that are currently on the road. The region's success in reducing per capita VMT also helps to ensure that increases in driving don't counteract the benefits of cleaner vehicles.

The RTP meets state-mandated regional climate targets by implementing the projects and programs in the constrained RTP project list in combination with state-led actions identified in the Oregon Statewide Transportation Strategy (STS), which is Oregon's strategy to reduce transportation-sector GHG emissions. The STS includes state-led pricing actions, in addition to implementation of clean vehicle and fuel programs and regulations at the state and federal level. The fleet and technology actions cover variables such as the share of zero-emission vehicles, the carbon intensity of fuels, the balance of cars and trucks in the passenger fleet, and vehicle turnover. The state-led pricing-actions assumed in the STS assume that the state will implement extensive changes to how transportation revenues are collected in Oregon, both to replace the gas tax, which is not producing enough revenue to meet Oregon's transportation needs, and to reduce GHG emissions by managing demand for driving and encouraging the use of cleaner modes and vehicles. New revenue mechanisms in the STS include a road user charge that levies per-mile fees on drivers, carbon taxes, and additional road pricing beyond what is currently included in the 2023 RTP. These changes are not reflected in the RTP because they are not yet adopted in state policies or regulations, but the climate analysis for the RTP is allowed to include them because these state-led pricing actions are identified in STS and were assumed when the state set the region's climate targets.[8]

The RTP climate targets are designed to ensure that the region and state work together to meet Oregon's transportation-sector GHG reduction goals. The climate analysis must reflect both the transportation investments and policies in the RTP and the impact of state vehicle and fuel regulations as reflected in the Statewide Transportation Strategy (STS). More discussion of the role of state-led pricing actions in meeting the region's climate targets is recommended.

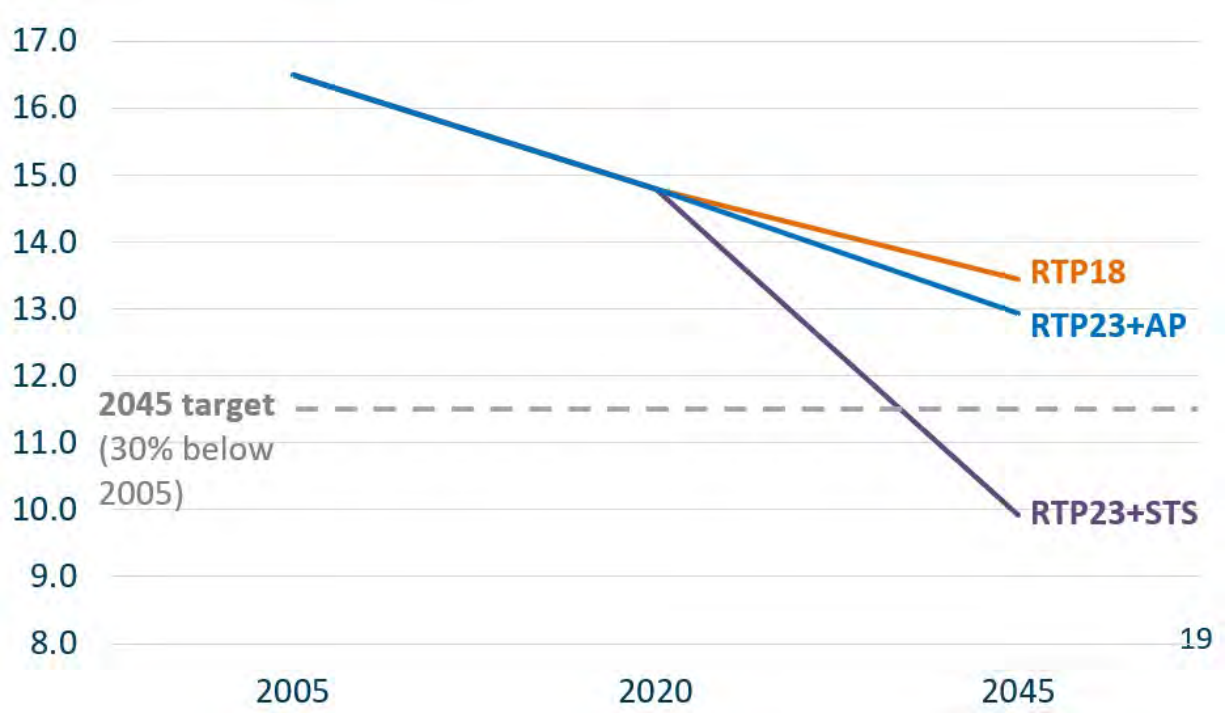
Table 7.6 shows the range of potential VMT reductions that the RTP could achieve based on two scenarios that Metro developed to represent the range of potential VMT and GHG reductions that the RTP could demonstrate through its climate analysis. Table 7.7 describes the assumptions behind these two scenarios, and Figure 7.1 illustrates the VMT reductions that each scenario achieves, and also shows emissions levels under the 2018 RTP update for comparison.

[8] OAR 660-044-0030(4)(a): https://secure.sos.state.or.us/oard/viewSingleRule.action;JSESSIONID_OARD=Pk5WeLsr40n1ZMdFGJr943D9KeHyA7LSgdLuG_bsnXZJvNrXnI8x!-286176765?ruleVrsnRsn=293065

Table 7.7 Climate scenarios and associated assumptions

	RTP23 + adopted plans (AP) scenario	RTP23 + STS scenario
Description	Includes all RTP investments, including the throughway pricing currently included in the RTP.	Includes RTP investments and throughway pricing as well as all additional pricing and revenue mechanisms included in the STS.
Throughway pricing assumptions	Includes the Regional Mobility Pricing Project and tolls on the I-5 Bridge Replacement and I-205 projects; these tolls average ~$0.13/mi. on the priced portions of I-5 and I-205	Includes STS levels of pricing on the region's entire throughway network, which average $0.30/mi.
Additional pricing and revenue mechanisms	None	Includes a combination of per-mile charges and taxes equal to roughly $0.17/mi.
VMT reductions (vs. 2005 levels)	22%	40%

Figure 7.1 Daily VMT per capita by scenario vs. regional climate target



7.6.1 Analyses under development

Note: Metro staff will continue to work with state agencies and regional partner agencies to identify a preferred scenario to use in the RTP climate analysis over Summer 2023. Metro staff will use this preferred scenario to further develop GHG performance measure results.

Chapter 8

Moving Forward Together

2023 Regional Transportation Plan

June 2023 WORKING DRAFT

This draft is subject to copy edits, technical corrections and minor updates as it finalized for public review.

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8.0 PURPOSE

Metro is the metropolitan planning organization (MPO) designated by Congress and the State of Oregon, for the Oregon portion of the Portland-Vancouver urbanized area, serving 1.7 million people living in the region's 24 cities and three counties. As the MPO, Metro formally updates the Regional Transportation Plan every five years in cooperation and coordination with the Oregon Department of Transportation and the region's cities, counties and transit agencies.

Learn more about the 2023 Regional Transportation Plan at **oregonmetro.gov/rtp**

The Regional Transportation Plan is a blueprint that guides investments for all forms of travel throughout greater Portland – driving, taking transit, biking and walking – and the movement of goods and services. The plan identifies current and future transportation needs, investments needed to meet those needs, and what funds the region expects to have available over the next 22 years to make those investments a reality.

Updates to the plan and subsequent implementation must meet federal requirements and state policies and regulations contained in Oregon's Transportation Planning Rule (which implements Statewide Planning Goal 12), and Oregon's Metropolitan Greenhouse Gas Emissions Reduction Targets Rule. The plan also implements regional policies contained in Metro's Regional Framework Plan. In combination, these requirements call for development of a multimodal transportation system plan that is integrated with and supports implementation of adopted local and regional land use plans including the 2040 Growth Concept and Climate Smart Strategy.

Chapter organization

This chapter summarizes future work to implement the RTP, consistent with federal, state and regional requirements. The chapter is organized as follows:

8.1. Introduction: This section summarizes the purpose and content of the chapter.

8.2. Planning and programs: This section summarizes local, regional and state planning and programs that advance implementation of the plan.

8.3. Projects: This section summarizes major project development activities in the region and the allocation of federal transportation funds to implement projects in the RTP.

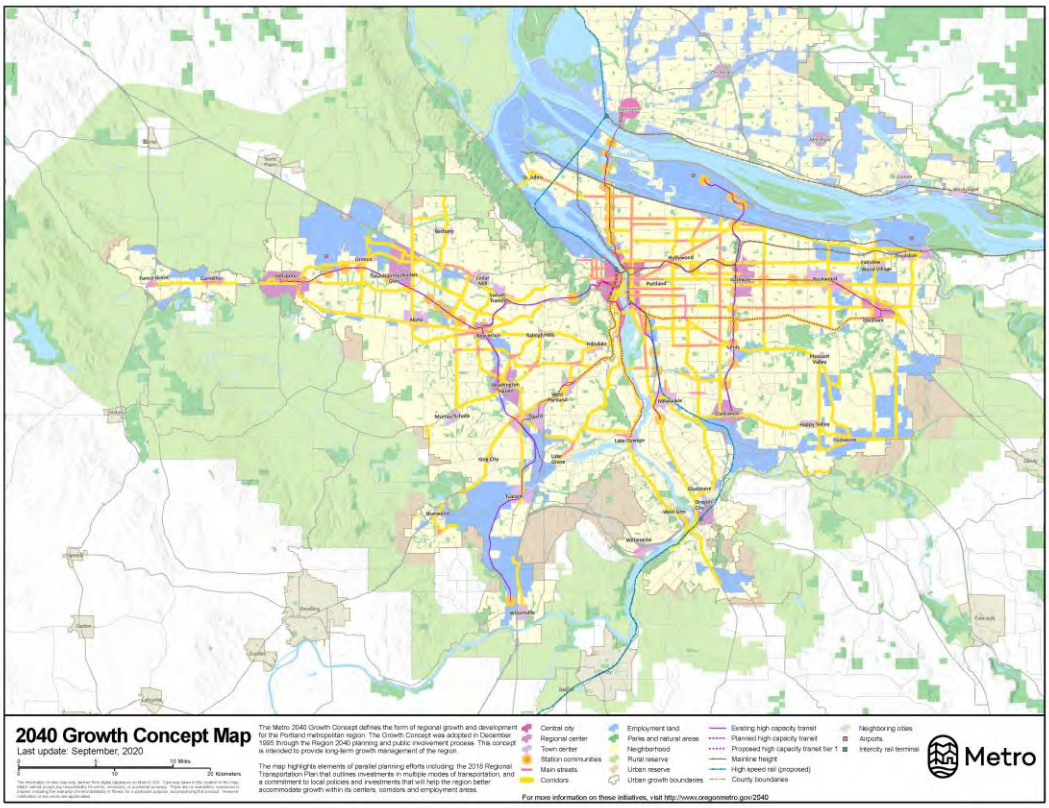
8.4. Data and tools: This section summarizes data and research activities to address existing and emerging planning and policy priorities and innovative practices in transportation planning and analysis and ensure that the region has the resources to fulfill its transportation performance measurement and reporting responsibilities.

8.1 INTRODUCTION

Connecting Our Shared Values and Vision for the Future: Setting a Course for Transportation

Metro worked with federal, state and local government partners, federally-recognized Tribal governments as well as community members, community-based organizations, and businesses to develop the 2023 Regional Transportation Plan. The result of that work is a set of regionally identified goals and policies that guide our transportation planning and investment decisions overall, strategies to help meet those goals and policies, a shared understanding about existing financial resources, and a recommended set of projects that make progress addressing the region's significant and growing transportation needs and challenges. The goals, policies, projects and strategies in this plan also address federal, state and regional planning requirements based on our shared values and the outcomes we are trying to achieve as a region, including implementation of the 2040 Growth Concept.

Figure 8.1 2040 Growth Concept (2020)



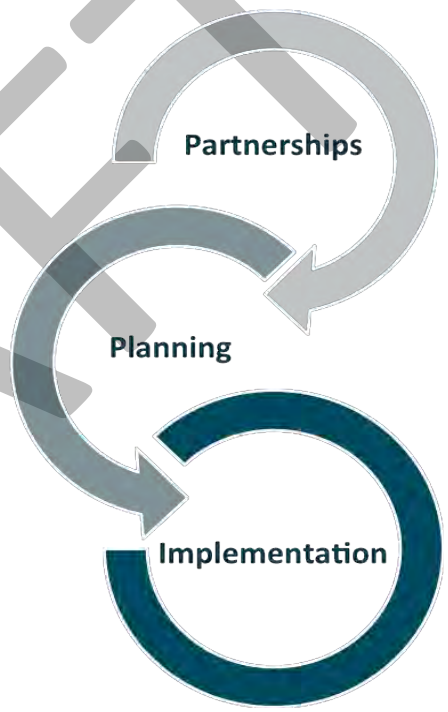
The 2023 Regional Transportation Plan is a key tool for implementing the 2040 Growth Concept and the Climate Smart Strategy– our region's foundation for climate action.

The plan sets an updated course for future transportation planning and investment decisions and continued implementation of the 2040 Growth Concept – the region's adopted land use and transportation strategy for managing growth and building climate-friendly and equitable communities and a strong economy.

Dramatic changes have unfolded since the RTP was last updated five years ago, many documented in the Emerging Transportation Trends Study[1]. As greater Portland continues to emerge from the disruptions of the pandemic and respond to other urgent trends and challenges, this update provides an opportunity for all levels of government to work together to deliver a better transportation future.

The plan takes into account the changing circumstances and challenges facing our growing region and addresses them directly, adopting new approaches for addressing mobility and prioritizing investments to advance transportation equity, climate, safety, mobility and economic goals.

Central to this plan are innovative approaches to connect community land use aspirations and transportation investments and use of regional mobility corridor strategies to comprehensively address our growing transportation needs while protecting public and environmental health. Each mobility corridor strategy is uniquely tailored by optimizing operations on existing throughways, and arterial streets that also serve as transit and freight routes, completing gaps in biking and waking connections and strategically expanding the transit and roadway system.



The plan will be implemented through a variety of policies, projects, strategies and actions at the local, regional, state and federal levels.

This RTP incorporates a new regional mobility policy focused on the policy outcomes of equity, options, safety, reliability, efficiency and access. It includes performance targets focused on reducing vehicle miles traveled per capita, building a complete and interconnected system, and reliability of throughways using travel speed.

Through its policies, projects and strategies, the RTP aims to attract jobs and diverse housing to our region's downtown centers, main streets and employment areas. It seeks to increase the use of public transit, bicycling and walking, and reduce the amount of miles that our region's residents, employers and visitors need to drive in order to get around. It also seeks to increase the safety, reliability and efficiency of the roadway and transit

[1]

systems for all travelers. When we measure our performance, we find we have some successes, but overall the RTP falls short of meeting several performance targets set forth in Chapter 7.

To make more progress toward the goals and objectives of the plan, the region must take additional steps together and individually to address a wide range of planning, programmatic and project activities that will make it easier to implement adopted policies, projects and strategies. This chapter outlines those activities.

The plan will be implemented through a variety of strategies and actions at the local, regional, state and federal levels. The various jurisdictions in the region are expected to pursue policies, projects and strategies that contribute to meeting the agreed upon goals, objectives and policies of this RTP.

Implementation of this plan will require a cooperative effort by all jurisdictions responsible for transportation planning in the region, and will involve:

- Adoption of regional policies and strategies in local plans, including functional classifications for all modes and land use and transportation needs and agreed upon solutions identified in each mobility corridor strategy.
- A concerted regional effort to secure needed funding to build planned transportation investments needed to serve our growing and changing region.
- Focusing investments and system management strategies to support implementation of the 2040 Growth Concept and preserve the function of the region's mobility corridors in order to ensure that our land use and transportation policies are mutually supportive and make it easier for people to live and move around our region.
- Ongoing monitoring for consistency of changes to local transportation system plans (TSPs) and local Comprehensive Plans and land use designations with the RTP and other agency plans, including the Oregon Department of Transportation's new Oregon Transportation Plan, planned update to the Oregon Highway Plan and four-year State Transportation Improvement Program (STIP), the Oregon Department of Land Conservation and Development's Transportation Planning Rule (TPR), the Oregon Metropolitan Greenhouse Gas Emissions Reduction Rule, the Climate-Friendly and Equity Communities (CFEC) Program and TriMet's Transit Implementation Plan (TIP).

The Regional Transportation Plan is a living document and will continue to evolve and be updated on a regular basis to address existing and emerging issues. Metro will continue to engage and collaborate with regional partners and stakeholders on all topics and provide support to ensure successful implementation of this plan.

8.2 PLANNING AND PROGRAMS

This section summarizes local, regional and state planning and programs that advance implementation of the plan and 2040 Growth Concept.

8.2.1 Local Implementation

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

Local plans and projects are developed and updated to meet local transportation needs consistent with local land use plans and to implement the RTP and Regional Transportation Functional Plan (RTFP) as well as local needs and priorities. The RTFP directs how city and county plans will implement the RTP through their respective comprehensive plans, local transportation system plans (TSPs) and land use regulations. All of the actions included in the RTFP will help the region proactively address climate change, improve access and mobility and support other desired outcomes.

The 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.** 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. ODOT will be funding TSP updates around the region to implement the Climate Friendly and Equitable Communities Rule (CFEC).

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 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, 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 identified in the Unified Planning Work Program, adopted annually by the Joint Policy Advisory Committee on Transportation (JPACT) and the Metro Council, are described below.

8.2.2.1 Civil Rights and Environmental Justice program

Metro's transportation planning policies and programs ensure compliance with Title VI of the 1964 Civil Rights Act; the Executive Order on Environmental Justice; Section 504 of the 1973 Rehabilitation Act and Title II of the 1990 Americans with Disabilities Act; Goal 1 of Oregon's Statewide Planning Goals and Guidelines; and Metro's organizational values of Respect and Public Service. The program is advancing methods on identifying potentially affected populations, engaging those populations in the development of policy and program decisions, and analyzing the effects of policies and programs for historically marginalized communities.

Metro's work to ensure compliance includes implementing outreach strategies that help marginalized populations overcome barriers to participation; demographic data collection and mapping; assessing outcomes of plans and programs on historically marginalized communities; and trainings provided to staff on Title VI compliance requirements and environmental outreach best practices.

Program work on compliance is found across many areas of transportation planning: developing the Regional Transportation Plan (RTP), the Metropolitan Transportation Improvement Program (MTIP), corridor planning projects that follow NEPA regulations and in the Regional Travel Options program, which conducts federally-funded outreach that promotes non-automobile transportation options. In 2012, Metro created a new public engagement review process designed to ensure that Metro's public involvement is effective, reaches diverse audiences and harnesses emerging best practices. One of the three criteria for selection of members of the Public Engagement Review Committee, an advisory committee to the Metro Council, is ability to represent diverse communities in the region. Other components of the public engagement review process that will contribute to more inclusive engagement and accountability include an annual public survey, meetings of public involvement staff from around the region to address best

practices, an annual community summit to gather input on priorities and engagement techniques, and an annual report.

Metro addresses compliance agency-wide as well as within transportation planning functions and program-by-program. A key way that Metro complies across the agency is with implementation of its Diversity Action Plan, updated and adopted by the Metro Council in May 2017. The plan identifies goals, strategies and actions to increase diversity and cultural competence at Metro in four key areas: internal awareness and diversity sensitivity, employee recruitment and retention, committee membership and public involvement, and procurement. Metro's Strategic Plan to Advance Racial Equity, Diversity and Inclusion was adopted by the Metro Council in June 2016 and identifies goals and actions under five goals: Metro convenes and supports regional partners to advance racial equity; Metro meaningfully engages communities of color; Metro hires, trains and promotes a racially diverse workforce; Metro creates safe and welcoming services, programs and destinations; and Metro's resource allocation advances racial equity. Through the 2017-18 fiscal year, four departments are developing racial equity plans to reach the goals of the racial equity strategy: Planning and Development, Parks and Nature, Property and Environmental Services and the Oregon Zoo.

8.2.2.2 Regional Safe Streets for All Program

Metro's regional Safe Streets for All program activities support advancing the Safe System approach to achieve regional safety goals, policies and targets, including zero serious crashes by 2035. Program activities are consistent with strategies and actions in the 2018 Regional Transportation Safety Strategy, the Regional Safe Routes to School Program, and local and state safety plans. Following adoption of the 2023 RTP, Metro will coordinate with regional partners and communities to implement the regional Safe Streets for All Federal grant. The grant supports development of the regional safety program and local Transportation Safety Action Plans. Efforts will focus on managing speeds for safety, increasing pedestrian safety, and eliminating disparities for Black, Hispanic, Native American, people with low income, and other populations disproportionately impacted by serious traffic crashes.

Program activities include periodic updates on the state of safety to the Metro Council, Metro technical and policy advisory committees and other interested parties; technical assistance and coordination with local, regional, state, and federal partners in planning and project development; support for the development and updates to local and regional safety plans and policies; updates to safety data and analysis; updates to safety plans and policies; safety data collection, maintenance, analysis and interpretation; encouraging best practices in transportation safety and roadway design with funding and programmatic support identifying legislative priorities, and collaborating on efforts to highlight safety in materials, messaging and campaigns. The program will be closely coordinated with other regional transportation programs and region-wide planning activities.

8.2.2.3 Regional Active Transportation Program

The Regional Active Transportation Program manages updates to and implementation of pedestrian, bicycle and access to transit in the Regional Transportation Plan (RTP) and the Regional Active Transportation Plan. The program provides guidance to jurisdictions in planning for safe, efficient and comfortable active transportation access and mobility on the regional transportation system (including regional trails and multi-use paths). The program is closely coordinated with other regional transportation programs and region-wide planning activities, and with Metro's Parks and Nature Department. Additionally, the program supports coordination with local, regional, state, and federal plans to ensure consistency in approach to active travel needs and issues across the region. The program ensures that prioritized regional bicycle and pedestrian projects are competitively considered within federal, state, and regional funding programs. Ongoing data collection, analysis, education, and stakeholder coordination are also key elements of Metro's active transportation program.

8.2.2.4 Regional Freight Program

The Regional Freight Program manages updates to and implementation of multimodal freight elements in the Regional Transportation Plan (RTP) and supporting Regional Freight Strategy. The program provides guidance to jurisdictions in planning for freight movement on the regional transportation system. The program supports coordination with local, regional, state, and federal plans to ensure consistency in approach to freight-related needs and issues across the region. Metro's coordination activities include ongoing participation in the Oregon Freight Advisory Committee (OFAC), and Portland Freight Committee (PFC). The program ensures that prioritized freight projects are competitively considered within federal, state, and regional funding programs. Ongoing freight data collection, analysis, education, and stakeholder coordination are also key elements of Metro's freight program. The program is closely coordinated with other regional transportation programs and region-wide planning activities.

8.2.2.5 Regional Transit Program

The Regional Transit Program conducts long-range transit planning for the Portland Metro region, managing updates to and implementation of the transit elements in the Regional Transportation Plan (RTP) and supporting Regional Transit Strategy and its components like the High-Capacity Transit Strategy. Together, these provide the roadmap for making transit investments over time in collaboration with our transit providers and local government partners in the region and ensure that prioritized transit projects are competitively considered within federal, state, and regional funding programs. Program work includes ongoing coordination with transit providers, cities and counties to ensure implementation of these strategies through plans and capital projects, periodic support for major transit planning activities in the region and coordination with state transit planning officials. Ongoing data collection, analysis, education, and stakeholder coordination are also key elements of Metro's transit program. The program is closely coordinated with other regional transportation programs and region-wide planning activities.

Additionally, Metro and TriMet will be developing a Bus Rapid Transit (BRT) Strategic Plan as part of regional transit planning efforts. The Plan will further advance work in the High-Capacity Transit Plan and will outline a vision for how Frequent Express (FX) investments can enhance existing and future frequent bus service corridors to serve our region's goals. It will identify a network of BRT routes, prioritize routes for implementation, and identify potential regional funding strategies.

8.2.2.6 Transportation System Management and Operations (TSMO) Program

With the intent of supporting broad Transportation System Management and Operations (TSMO) investment and activity in the greater Portland metropolitan region, the TSMO program encompasses regional strategy development, implementation, grant management, project management and system performance monitoring (includes support to the region's Congestion Management Process). The program facilitates a variety of approaches to reliable, equitable, accessible, safe transportation related to TSMO. These include intelligent transportation systems (ITS), Mobility on Demand (MOD) and related mobility, freight technologies and operations.

The program maintains and periodically updates the regional TSMO Strategy. Strategy updates incorporate RTP policy and develops actions and work plans for implementation. Implementation involves convening operations leaders, engineers and technical experts to share procedures and protocols such as the regional Intelligent Transportation System (ITS) Architecture. ITS Architecture is needed to comply with the FHWA rule for federally funded transportation projects and their compliance with the National ITS Architecture. The program also guides implementation of the region's ITS data communications assets and networks, representing coordination of shared digital infrastructure. The regional role for program implementation supports opportunities for inclusion, research, education, and training on TSMO.

The program manages the sub-allocation of 2021-24 and 2025-27 Regional Flexible Funding for TSMO. These projects are prioritized through criteria that is consistent with the adopted Regional TSMO Strategy. The TSMO program will provide support for regional ITS projects by helping to apply systems engineering, ITS Architecture, standards and procedures.

The program supports system performance monitoring including the federal mandates to maintain a Congestion Management Process (CMP). The program implements actions identified in the Arterial Performance Management Regional Concept of Traffic Operations (RCTO) to advance the region's performance measurement capabilities on arterial streets. CMP performance monitoring will continue in order to support development of the RTP, local Transportation System Plans and MTIP programming. The program partners with PORTAL, a regional archived data user service managed by Portland State University. PORTAL will continue to expand the collection, visualization and uses of multimodal performance data in a way that will enhance the region's ability to diagnose and address mobility and support multimodal operations consistent with the region's CMP.

The TSMO program is closely coordinated with other regional transportation programs and region-wide planning activities.

8.2.2.7 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 transportation demand management components of the RTP through three primary program areas: Commute trip reduction, Community-based travel options, and Safe Routes to School. Each RTO program area works to advance RTP goals through the following strategies:

- Regional policy development
    - The RTO program advances travel options policy through policies in the RTP and developing the Regional Travel Options Strategy; as well as supporting local and state policy development and implementation.
- Funding local program implementation
    - The RTO program provides ongoing funding to local programs and partners to deliver critical TDM services across the region and seeks out new partnerships to ensure the travel needs of all residents are prioritized.
- Technical assistance & regional program administration
    - The RTO program provides technical assistance to program providers through trainings, resource development and peer networking and learning. In addition, the RTO program administers regional programming to advance the goals of the RTP and RTO strategy in collaboration with local partners.

The program maximizes investments in the transportation system and eases traffic congestion by managing travel demand, particularly during peak commute hours. Specific RTO activities 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.

8.2.2.8 Air Quality and Climate Change Monitoring Program

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, the Oregon Transportation Planning Rule and the Metropolitan Greenhouse Gas Emissions Reduction Target Rule. The program coordinates with other air quality and climate change initiatives in the region and statewide and monitors federal and state rulemaking that address air quality and greenhouse gas emission. Metro participates in a regional collaborative to develop and implement a clean air construction strategy and standards for clean diesel equipment and vehicles on select public improvement projects.

The program also conducts planning, research and tool development to support monitoring and implementation of the region's adopted Climate Smart Strategy and the Carbon Reduction Program established by the federal Bipartisan Infrastructure Law (BIL) and administered through the Federal Highway Administration.

8.2.2.9 Designing Livable Streets and Trails Program

The Infrastructure Investment and Jobs Act (IIJA) requires that MPOs must use 2.5 percent of their overall funding to develop and adopt complete streets policies, active transportation plans, transit access plans, transit-oriented development plans, or regional intercity rail plans. Metro complies with this requirement by funding a robust complete streets program. Metro's Designing Livable Streets and Trails Program provides regional street and design guidelines and policies, regional arterial and throughway design classifications and other tools to support local jurisdictions to design streets that implement context-sensitive design solutions to advance regional and local goals.

Program activities include providing technical assistance to cities and counties as transportation projects go through project development and design; convening workshops, forums and field 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.

8.2.2.10 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.

8.2.2.11 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.

Major public infrastructure investments do not stop at city or county lines. Our transportation system connects the communities within greater Portland with the rest of the state and the rest of the world. When our region spends billions of dollars on expanding our road, transit and highway system to keep up with the continued population and employment growth, those public investments can both benefit and burden nearby communities. Over time, the region has become more strategic at linking together our transportation, housing, economic, racial equity and environmental goals, policies, and investments so that we can intentionally preserve and create great places that serve all people throughout the region, even as change and growth occurs.

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.

Metro's Investment Areas program has been connecting planning for major transportation projects with the community's broader goals and needs. While each area's conditions and needs are different, the approach of bringing together government, community, and business partners provides a framework to produce a shared plan of action to guide the investments and decisions of multiple agencies. Including a broader set of stakeholders in a collaborative decision making process allows for decisions that once seemed unclear or unfair to stakeholders to be more transparent. This approach improves our ability to involve and include those who are affected by these decisions and investments.

Investment areas can set the stage for a range of major capital investments beyond high capacity transit. Other Metro investment areas have focused on freight routes connecting major highways through small communities, redevelopment of brownfields in employment areas, and leveraging the opportunities of a regionally significant riverfront destination. The program is closely coordinated with other regional transportation programs and region-wide planning activities, including corridor refinement planning activities.

8.2.2.12 Better Bus Program

The Better Bus program is a joint Metro and TriMet endeavor that identifies transit priority and access treatments to improve the speed, reliability, and capacity of TriMet frequent service bus lines or streetcar lines, building on the previous Enhanced Transit Concepts (ETC) Program. Better Bus treatments are relatively low-cost to construct, context-sensitive, and can be implemented quickly to improve transit service in congested corridors. The program develops partnerships with local jurisdictions and transit agencies to design and implement Better Bus capital and operational investments.

8.2.2.13 Regional Congestion Pricing Program

The Regional Congestion Pricing Program ensures coordination and alignment between the RTP and state and federal pricing policies and regulations, including the Oregon Transportation Plan, the Oregon Highway Plan, the federal Value Pricing Pilot Program, Section 129 of Title 23 of the U.S. Code, and ODOT's future low-income tolling program. The program includes application of the findings and recommendations from the 2021 Metro Regional Congestion Pricing Study in the RTP and the MTIP. The program also:

- Coordinates tolling with regional planning efforts and corridor development work, including ODOT's Regional Toll Advisory Committee, Statewide Toll Rulemaking Advisory Committee, and Equity and Mobility Advisory Committee
- Tracks, participates in, and/or advises on pricing programs and projects such as ODOT's Regional Mobility Pricing Project or City of Portland's Pricing Options for Equitable Mobility Task Force
- And monitors changes in federal and state rulemaking that may impact regional or local pricing policies or programs.

8.2.3 Region-wide Planning

This section summarizes near-term planning 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 during the plan update.

Table 8.1 Overview of Region-wide Planning Activities

	Lead Agency	Proposed timing
Regional Mobility Policy Implementation Action Plan	Metro, ODOT	2024-25
Transit planning	TriMet, SMART	Annually
Cascadia Corridor Ultra-High-Speed Ground Transportation Project Planning	WSDOT	2023-28
Passenger rail study	Metro	2025
Steel Bridge Transit Bottleneck Study	Metro, TriMet	2034-45
Equitable Development Strategies	Metro	2024-28
Workforce Diversification in Regional Transportation Infrastructure Projects	Metro	2024
Funding Strategy for Regional Bridges	Counties	2024-28
Emergency Transportation Routes Project Phase 2	Metro, RPDO	2024-26
Regional Freight Rail Study	Metro, Port	2024-26
Regional Transportation Functional Plan Update	Metro	2024-25
2040 Refresh Coordination	Metro	TBD
Columbia Connects	Metro	2023-24

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).

Table 8.2 Overview of Completed Region-wide Planning (from 2018 RTP Chapter 8)

Project Name	Lead Agency
Regional Mobility Policy Update	Metro and ODOT
Regional Congestion Pricing Study	Metro
Transportation System Management & Operations Strategy Update	Metro
Jurisdictional Transfer Assessment	Metro
Enhanced Transit Concept Pilot	Metro
Emergency Transportation Routes Project – Phase 1	Metro and RDPO
Regional Freight Delay & Commodities Movement Study	Metro
Central City Transit Capacity and Steel Bridge Analysis	Metro and TriMet
Frog Ferry Passenger River Taxi Service Study	Friends of Frog Ferry

8.2.3.1 Regional Mobility Policy Implementation Action Plan

Lead agency	Partners	Proposed timing
Metro and ODOT	ODOT, cities, counties, TriMet, SMART, FHWA, SW RTC	2024-25

Note – This section will be updated pending further testing of the draft mobility policy measures that is underway and coordination with ODOT and DLCD on statewide implementation of the Climate-Friendly and Equitable Communities Program.

The Regional Mobility Policy is a policy in the RTP as well as the Oregon Highway Plan (OHP). It applies to transportation system planning and comprehensive plan amendment processes within the Portland metropolitan area. The policy is used to identify transportation needs and solutions during updates to the RTP and local transportation system plans (TSPs), and to evaluate the potential impacts of local comprehensive plan amendments and zoning changes.

An update to the regional mobility policy has been underway since 2019, through a joint effort of Metro and the Oregon Department of Transportation (ODOT). In November and December 2022, JPACT and the Metro Council accepted the new draft policies and supported further development of the draft performance measures and targets during 2023 RTP system analysis in 2023. The draft regional mobility policy for the 2023 RTP identifies three mobility performance measures:

vehicle miles traveled per capita, system completion for all modes (including TDM and TSMO) and throughway reliability using travel speed. More information about the regional mobility policy update can be found at: www.oregonmetro.gov/mobility

8.2.3.2 Transit Planning

Lead agency	Partners	Timing
TriMet and SMART	Cities, counties, Ride Connection, other transit providers	Annually

TriMet conducts annual transit service planning as part of the agency's annual budgeting process, guided by the TriMet Board. Annual service planning identifies specific service changes to be implemented within the coming fiscal year. The annual service planning process includes two rounds of public outreach as well as a formal public hearing. Service improvements are funded both through TriMet's general fund as well as the Statewide Transportation Improvement Fund.

Each year, alongside the City's annual budget, SMART staff compiles potential projects that utilize federal funding for the upcoming fiscal year (July 1 – June 30). The list of projects and associated costs is known as the Program of Projects, or POP. Members of the public have opportunities to comment on these projects directly to staff in May, or at meetings in May (Budget Committee) and June (City Council) of each year. Any changes based on those public comments will be incorporated into a final version at the budget adoption in June.

SMART recently update its Transit Master Plan, which identifies transit improvement projects that could be implemented over the next 3 to 5 years. The plan identifies: where frequency will be improved, the times of day and days of week to add service, where and how connections between routes could be made, and new routes inside Wilsonville and connecting to other cities. Next steps include working to take the plan and translate it to service and projects.

8.2.3.3 Connecting First and Last Mile: Accessing Mobility through Transit Study

Lead agency	Partners	Timing
Metro	TriMet, SMART, Cities, counties, Ride Connection, other transit providers	2024-2025

Local transit service has long used smaller vehicles that range from vans and shuttles to small buses with fixed to flexible routes to fill the gap between traditional bus and rail services, as well as local destinations. An emerging trend in these types of services is using ride-hailing and other new technologies to provide on-demand micro transit services. This study will identify service and coordination gaps specific to the Metro region, especially in suburban areas of the region, document the range of potential solutions and explore innovative ways to improve transit access and convenience for users. This work will build upon local planning efforts (e.g., Transit Development Plans, Statewide Transportation Improvement Fund Plans) and be completed in

close coordination with public transit service providers in the region. The project will make recommendations carried forward for consideration in the 2027 RTP update.

8.2.3.4 Steel Bridge Transit Bottleneck Study

Lead agency	Partners	Proposed timing
Metro and TriMet	ODOT, city of Portland, Portland Streetcar, Inc., FTA	2034-2045

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.

Metro and TriMet conducted a process to look at alternatives to improve speed, reliability and on time performance of the MAX lines crossing the Willamette River using the Steel Bridge. The study looked at a new bridge or a tunnel and concluded that the MAX tunnel was the most promising. In 2019, Metro and TriMet documented the feasibility and benefits of the tunnel in the MAX Tunnel Study, examining the feasibility of faster light rail. In 2019 they examined the feasibility of a new MAX tunnel connecting Lloyd Center to Goose Hollow stations. The study concluded a new light rail tunnel between Lloyd Center and Goose Hollow is promising.:

A new light rail 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 $3 billion to 4.5 billion dollars (construction cost range is comparable to similar tunnel project completed by Sound Transit and LA Metro, respectively).

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. As we continue to grow, we will need to look at short term investments to improve the speed, reliability and on time performance for the travel across the Willamette River.

Max Tunnel benefits Routing MAX through a tunnel under downtown Portland and the Willamette River would save people time and make MAX as fast as or faster than driving. This would lead to even greater benefits such as lower car ownership costs, less traffic, less constrained parking downtown, and reduced greenhouse gas emissions.

For the many people in the region who rely on public transit as their primary transportation, a light rail tunnel would sustain the MAX service they count on for access to school, jobs, recreation and other opportunities. Today, average on-time performance is 87%, higher than just a year ago, but still below the over 90% we can expect with a tunnel. Train delays average 2 ½ minutes, with one in eight delays lasting between 5 and 8 minutes.

Speed

The MAX tunnel can save over 12 minutes for a trip through the central city. Even people going to downtown Portland, to places like PSU or Pioneer Square, would save 5 to 6 minutes, depending on where they're coming from. While the MAX tunnel stations have yet to be determined, access to downtown destinations will be further enhanced by surface travel options like bus, streetcar, bikeshare, and a great walking environment.

Resiliency

A MAX tunnel would add a resource to the regional transportation network that would be resilient to natural disasters and other regional disruptions. A MAX tunnel would offer a critical link to help the region recover from possible future events.

Capacity

The MAX tunnel will help make sure light rail is there to accommodate growth and for people even at the busiest times of day. To fit people comfortably in trains over the next 15 years, we anticipate 60 trains crossing between the central city and Rose Quarter every day—a 50% increase in rail traffic. The MAX tunnel accommodates added service and maintains capacity on the Steel Bridge.

8.2.3.5 Cascadia Corridor Ultra-High-Speed Ground Transportation Project Planning

Lead agency	Partners	Proposed timing
WSDOT	Metro, ODOT, PSRC, BC Ministry of Transportation and Infrastructure, BC Intergovernmental Relations Secretariat, TransLink, Cascadia Innovation Corridor	2023-2028

The Cascadia Ultra-High-Speed Ground Transportation (UHSGT) Project is a proposed high-speed rail system that would connect the Portland, Seattle, and Vancouver, BC metropolitan areas with speeds up to 250 miles per hour, allowing for travel between each city in under an hour. Following planning activities (including three prior studies) conducted by Washington state and its jurisdictional partners over the past six years, the Governors of Oregon and Washington and the Premier of British Columbia signed a Memorandum of Understanding to initiate program to advance activities in 2021 to support forwarding the project. The agreement established the goal of laying the groundwork for the creation of a formal, legal entity to continue project development while seeking community engagement and input, gaining critical support from decision makers,

and positioning the corridor for future funding opportunities and an efficient environmental process. WSDOT has applied for funding for this project under both the Federal-State Partnership for Intercity Passenger Rail Program and the FRA Corridor Identification and Development Program with matching funds of $150M. Funding would support required pre-NEPA technical and advisory study planning requirements to advance the project to feasibility-level planning decisions. Metro will continue to represent greater Portland, along with the Oregon Department of Transportation, on the technical and policy committees supporting planning activities, collaborating for a process and outcomes consistent with regional goals.

8.2.3.6 Passenger Rail Study

Lead agency	Partners	Proposed timing
Metro	ODOT, transit providers, cities, counties	2025

As directed by Senate Bill 846, Metro will conduct a study of existing rail corridors within the geographic boundaries of Metro. The study will include an inventory of such rail corridors and a determination of the feasibility of using the rail corridors to carry passenger trains.

8.2.3.7 Equitable Development Strategies

Lead agency	Partners	Proposed timing
Metro	Cities, counties, ODOT, TriMet, SMART, FHWA, FTA, community organizations	Ongoing

As the Portland region has grown issues such as housing affordability, community and business displacement and inclusive growth have come to the forefront of the public's concern. Metro, in collaboration with local government and community partners, aims to address these concerns by working to create an Equitable Development Strategy (EDS) for each major transit investment corridor where Metro is leading the planning process. The purpose of the EDS process is to leverage investments in transportation improvements to support the region's community development objectives, address existing inequities, and reduce associated impacts of displacement that can accompany major investments in public infrastructure.

Each community's EDS process will be unique, but they all strive to advance measures to mitigate displacement risks and establish intentional and sustained efforts to generate equitable development that responds to key challenges in the community. Through a coalition-building planning process that occurs concurrent to corridor planning efforts, major public transportation infrastructure investments are paired with community-identified policy measures and programs with the aim of increasing community and economic resilience for residents, small businesses and community groups. Research shows that resilient communities fare better in the face of displacement pressures.

Major public investments in infrastructure need to achieve more than just transportation goals – communities deserve an investment in high-capacity transit that maintains and enhances their quality of life, allowing them to thrive in the community they have chosen to live in. Equitable development helps strengthen and build resilience within underserved communities by creating more equitable outcomes through collaborative programs and initiatives.

8.2.3.8 Workforce Diversification in Regional Transportation Infrastructure Projects

Lead agency	Partners	Proposed timing
Metro	Cities, counties, ODOT, TriMet, SMART, FHWA, SW RTC, community organizations, construction industry	2024

As the Greater Portland Region plans for needed investment in transportation projects, the region faces a shortage of skilled construction workers which will drive up construction costs Addressing this challenge presents an opportunity to deliver shared economic prosperity and advance regional equity goals by expanding access to well-paying construction jobs for all residents—including women and Black, Indigenous, and People of Color (BIPOC) workers. A comprehensive regional workforce and contractor equity strategy would support the Regional Transportation Plan's infrastructure investments by growing regional workforce supply, managing costs, creating shared economic opportunity, and ultimately building a stronger regional economy.

The workforce shortages in the construction industry are driven by two key factors. First, one in six construction workers are approaching retirement age, meaning the pool of workers will dramatically decrease over the next decade. Second, women and BIPOC workers face significant barriers in accessing jobs and building successful careers in the construction industry. Diversifying the workforce is a key strategy for addressing workforce shortages. Creating safer, more accessible job pathways will support all people in accessing the unique career and wealth building opportunities the construction industry offers.

The Construction Career Pathways Regional Framework provides a comprehensive strategy for creating career pathways for women and BIPOC workers in the construction industry. The framework aims to increase the available skilled workforce while reducing barriers to entry for historically excluded populations. Metro created the Construction Career Pathways through an inclusive process in collaboration with 16 public agencies and with buy-in from a range of stakeholders, workforce advocates, community-based organizations, contractors, labor partners, and training programs. This broad collaboration is continuing to support effective implementation across jurisdictions. The framework has been formally adopted and implemented as policy by nine government agencies including Metro, Clackamas County, Multnomah County, Washington County, TriMet, City of Portland, Prosper Portland, Portland Public Schools, and Portland

Community College.[2] Construction Career Pathways paired with strategies to support the participation and growth of BIPOC, and women owned firms, will provide the skilled labor needed for transportation infrastructure projects, while advancing regional equity goals.

Given the broad support and on-going collaboration in this effort, there is an opportunity to explore a more direct connection between Construction Career Pathways and how it can support the demand for a skilled workforce to support transportation investments.

Prior to the next Regional Transportation Plan update, Metro will work with local, regional, state partners, community organizations and the construction industry to explore a strategy for regional implementation of Construction Career Pathways in the transportation sector. Further analysis should identify the resources and capacity needs of partner agencies and industry and assess the benefits of collaboration in this effort to facilitate implementation. If adopted regionally, Construction Career Pathways has the potential to increase shared economic prosperity, reduce workforce shortages and increased construction costs, ensure timely deliveries on community projects, and support job access for historically underrepresented workers in the region.

8.2.3.9 Funding Strategy for Regional Bridges

Lead agency	Partners	Proposed timing
Counties	Cities, Metro, ODOT, TriMet	2024-28

Given the declining purchasing power of the gas tax and the rise of electric vehicle use, the region continues to struggle with a long-term funding strategy for maintaining Willamette River bridges that serve regional travel. Currently, Multnomah County has primary responsibility for five of the eleven bridges within the Metropolitan Planning Area (see table 8.3 below) with insufficient funding to pay for all expected future maintenance of these structures. Within 20 years, four of Multnomah County's five Willamette River Bridges will be 100 years old. The Burnside Bridge is anticipated to be replaced by 2030. The county's capital program for the remaining three bridges (Broadway Bridge, Hawthorne Bridge, and Morrison Bridge) is estimated to cost $790 million, yet only $332 million in federal, state and county revenues has been identified in revenue forecasting

[2] On October 24, 2019, Metro Council approved Resolution 19-5028 to approve the Construction Career Pathways Framework. On November 17, 2020, Clackamas County Board of Commissioners approved to adopt the Construction Career Pathways Framework. On December 19, 2019, the Multnomah County Board of Commissioners approved Resolution 219-106 to approve the Construction Career Pathways Framework. On November 30, 2021, the Washington County Board of Commissioners approved Resolution 21-131 to adopt the Construction Career Pathways Framework. On January 15, 2020, City Council approved Resolution 37474, authorizing the Chief Procurement Officer to sign the Construction Career Pathways Project Framework and committing the City to continue to support the regional workgroup led by Metro. On April 7, 2023, TriMet submitted a letter to Metro communicating their support and commitment to Construction Career Pathways Framework. On October 9, 2019, Prosper Portland adopted Resolution 7344 to approve the Construction Career Pathways Framework. On February 4, 2020, Portland Public Schools approved Resolution 6050 to adopt the Construction Career Pathways Framework. On August 31, 2021, Portland Community College submitted a letter to Metro outlining their commitment to adopt the Construction Career Pathways Framework.

through 2045. ODOT owns four of the bridges, including the Fremont and Marquam interstate bridges, as well as the St. Johns and Ross Island regional crossings. ODOT has identified [placeholder for estimated cost]. Union Pacific Railroad owns the Steel Bridge, which is also due for significant maintenance, with costs to be determined. TriMet owns the Tilikum Crossing structure, and while it was recently constructed, it will eventually require maintenance, as well, as the region's bridges face maintenance challenges that come from age and use.

More collaboration and work is needed to develop a financial plan for ensuring ongoing operations and maintenance and other transportation needs of Willamette River bridges, given the importance to the regional economy, emergency response and climate resilience..

**Note – all financial estimates in this section are subject to change.*

Table 8.3 Willamette River Bridges in the Metropolitan Planning Area

Bridge Name	Bridge Owner
Broadway Bridge	Multnomah County
Burnside Bridge	Multnomah County
Morrison Bridge	Multnomah County
Hawthorne Bridge	Multnomah County
Sellwood Bridge	Multnomah County
St Johns Bridge	ODOT
Fremont Bridge	ODOT
Marquam Bridge	ODOT
Ross Island Bridge	ODOT
Tilikum Crossing Bridge	TriMet
Steel Bridge	Union Pacific Railroad

8.2.3.10 Emergency Transportation Routes Project Phase 2

Lead agency	Partners	Proposed timing
Metro and Regional Disaster Preparedness Organization (RPDO)	Cities, counties, TriMet, SMART, ODOT, DOGAMI, WASHDOT, SW RTC, REMTEC	2024-26

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 Project is a collaborative effort between public, private and non-profit stakeholders, co-led by the five-county, bi-state Regional Disaster Preparedness Organization (RDPO) and Metro to improve the safety and resiliency of the region's transportation system to natural disasters, extreme weather events and climate change.

From 2019 - 2021 the RDPO and Metro partnered to complete phase 1 of the project - updating the designated Regional Emergency Transportation Routes (RETRs) for the five-county Portland-

Vancouver metropolitan region, which includes Clackamas, Columbia, Multnomah and Washington counties in Oregon and Clark County in Washington. The routes had not been updated since 2006. The updated routes are shown within the Climate Action and Resilience section in Chapter 3 of the RTP.

A second phase of follow-on work is proposed for 2024-2026 to further prioritize/tier the updated routes and develop operational guidance for route owners/operators. For more information on RETRs, please visit https://rdpo.net/emergency-transportation-routes.

8.2.3.11 Regional Freight Rail Study

Lead agency	Partners	Proposed timing
Metro	Cities, counties, ODOT, WSDOT, Port of Vancouver and Port of Portland	2024-26

Identified in the Regional Freight Strategy, this study would seek to identify and produce increases in rail capacity, safety, land use compatibility and operational efficiencies to support freight and goods movement in the region which is important to our long-term economic and environmental sustainability, and will help to maintain the region's competitive advantage in a global marketplace. The RTP and Regional Freight Strategy also note freight rail bottlenecks impacting critical access the region's ports and intermodal facilities, as well as the need for rail to efficiently carry its full share of existing and future commodities.

Potential outcomes of the study include:

- Identification of economically viable opportunities to develop short line intermodal hubs or logistics parks or other cargo-oriented development.
- A strategy to identify, develop and position top projects for confirmed and potential future federal and state funding, as appropriate, including:
    - An updated list of regional freight rail project priorities focused on improving capacity constraints and targeting industrial access to the rail networks.
    - A strategy to fund regional freight/passenger rail bottlenecks.
    - A strategy to fund needed grade separations.
    - A strategy to fund critical modernization projects on the short rail lines.

The study will address the balance between passenger and freight rail goals, and a set of viable solutions and initiatives to meet these goals; including:

- Regional guidance for public/private investment partnerships to guide investment of regional and national funding sources in identifying and developing freight rail corridors of local, regional and national significance; and
- Specific guidance for local jurisdictions as they develop their transportation system plans (TSPs), in order to avoid or minimize conflicts between freight rail and other transportation

modes and preserve or enhance the functionality of rail facilities and connected industrial land uses.

The Regional Freight Rail Study will work with Union Pacific (class 1 rail operator), ODOT, Port of Portland, Portland Bureau of Transportation (PBOT), and other local jurisdictions to determine which at-grade railroad crossings of the Union Pacific Kenton line, and other at-grade rail crossings should be grade separated.

8.2.3.12 Regional Transportation Functional Plan Update

Lead agency	Partners	Proposed timing
Metro	Cities, counties, ODOT, DLCD, TriMet, SMART	2024-25

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 objectives and policies of the RTP.

The RTFP was last updated in 2012. A comprehensive review and update is needed to:

- modernize the functional plan language to be inclusive and in plain writing;
- make miscellaneous technical corrections and clarifications, such as outdated references to maps and figures;

- ensure the functional plan language and provisions are consistent with and adequately reflect new and updated goals, objectives and policies adopted in the RTP since 2014, including safety, equity, climate, pricing, mobility, freight transit, transportation system management and operations, and transportation options / transportation demand management;
- align the functional plan language and provisions with recent statewide rulemaking and policy development to implement the Climate-Friendly and Equitable Communities Program, including modal system planning, multimodal inventories, transportation performance, project prioritization, parking management, reporting; and
- update the timeline for local TSPs updates in collaboration with cities, counties and the ODOT Transportation System Plan Funding Program.

8.2.3.13 2040 Refresh Coordination

Lead agency	Partners	Proposed timing
Metro	Cities, counties, ODOT	TBD

Note: 2040 Refresh Coordination is awaiting further direction from Metro Council (anticipated in Fall 2023). The description below was carried over from the 2018 RTP.

In 2018, Metro's Chief Operating Officer recommended that Metro's Planning and Development staff return to the Metro Council in early 2019 with a proposed work program for updating the 2040 Growth Concept as part of the COO recommendation to the Metro Council on the 2018 Urban Growth Management Decision.

Green corridor implementation will be forwarded for consideration as part of this future planning effort. Green corridors were adopted as part of the 2040 Growth Concept in 1995. The purpose of green corridors is to prevent unintended urban development along these often heavily traveled routes, and maintain the sense of separation that exists between neighbor cities and the greater Portland region. The green corridor concept calls for a combination of access management and physical improvements to limit the effects of urban travel on the routes on adjacent rural activities. Following adoption of the 2040 Growth Concept, Metro worked with the cities of North Plains, Canby and Sandy from 1998-2000 to develop intergovernmental agreements (IGAs) but did not formalize these agreements. This remains as an outstanding issue in fully implementing the Growth Concept.

In 2010 and 2011, the elected governing bodies of Clackamas, Multnomah and Washington counties and Metro entered into agreements that determine the location and scale of urban development for the future. These agreements were the result of a two-year region-wide planning effort that identified areas for future urban use and other areas that should remain rural for the next 40 to 50 years. The urban and rural reserve decision provided a more certain framework for transportation improvements along the urban edge. Metro will work with interested local jurisdictions to complete IGAs for green corridors that reflect updated plans for urban and rural reserves.

8.2.3.14 Columbia Connects

Lead agency	Partners	Proposed timing
Oregon Metro and Southwest Washington Regional Transportation Council	Greater Portland Inc, Columbia River Economic Development Council, City of Portland, City of Gresham, City of Vancouver, Port of Portland, Port of Vancouver	2023-24

Columbia Connects is a regional project intended to strengthen the bi-state partnership between Oregon and Washington. Centered around the ecosystem of industries and work-sheds that are interconnected by the Columbia River, the project seeks to develop a clear understanding of the conditions within this sub-district; the shared economic and community values of the region; and the strategies, projects, and programs needed to achieve desired outcomes. Columbia Connects provides a Shared Investment Strategy that outlines specific opportunities for investment based on feasibility, effectiveness, equity, and input from project champions. Convened by Metro and RTC, the partners will finalize and carry out actions included in a Shared Investment Strategy, continuing to partner across state boundaries to establish agreements and commitments for implementation and ongoing coordination on resource acquisition.

8.2.4 Corridor Refinement Planning

Note - Section 8.24 will be further updated this Summer and informed by analysis of the RTP project list using the newly updated regional mobility policy.

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.[3]

This RTP calls for an update to the region's mobility policy and related performance targets beginning in 2019 and is expected to affect corridor refinement planning identified in this section. Many of the areas identified for refinement planning in the RTP are identified because they do not meet the newly updated regional mobility policy. Individual corridor refinement planning descriptions have been updated to reflect work remaining and are being carried forward in this RTP.

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

[3] 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.

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 and Appendix L for more information about the region's CMP.

A corridor refinement plan includes the following steps:

1. **Develop MOU or IGA** for refinement plan scope of work that includes identification of roles and responsibilities, methods of collaboration and consultation with Metro, if the refinement planning work is not led by Metro.

2. **Conduct analysis** that considers current and planned local land uses, regional and community goals for equity, housing, economic opportunity, environmental protection and stormwater management as well as safety, pedestrian, bike, system and demand management and operational strategies, freight, throughway, road and transit needs and previously identified solutions.

3. **Agree on corridor specific multimodal performance measures.**

4. **Evaluate multimodal performance** and potential impact on regional and community goals for equity, economic development and environmental protection and, if applicable, apply HCT system expansion assessment and readiness criteria.

5. **Develop alternative mobility or other performance standards**, if necessary.

6. **Determine mix and phasing of projects and/or land use changes** needed to address identified needs.

7. **Prepare local, regional and/or state plan amendments and MOU or IGA to implement** refinement plan recommendations at state, regional and local levels.

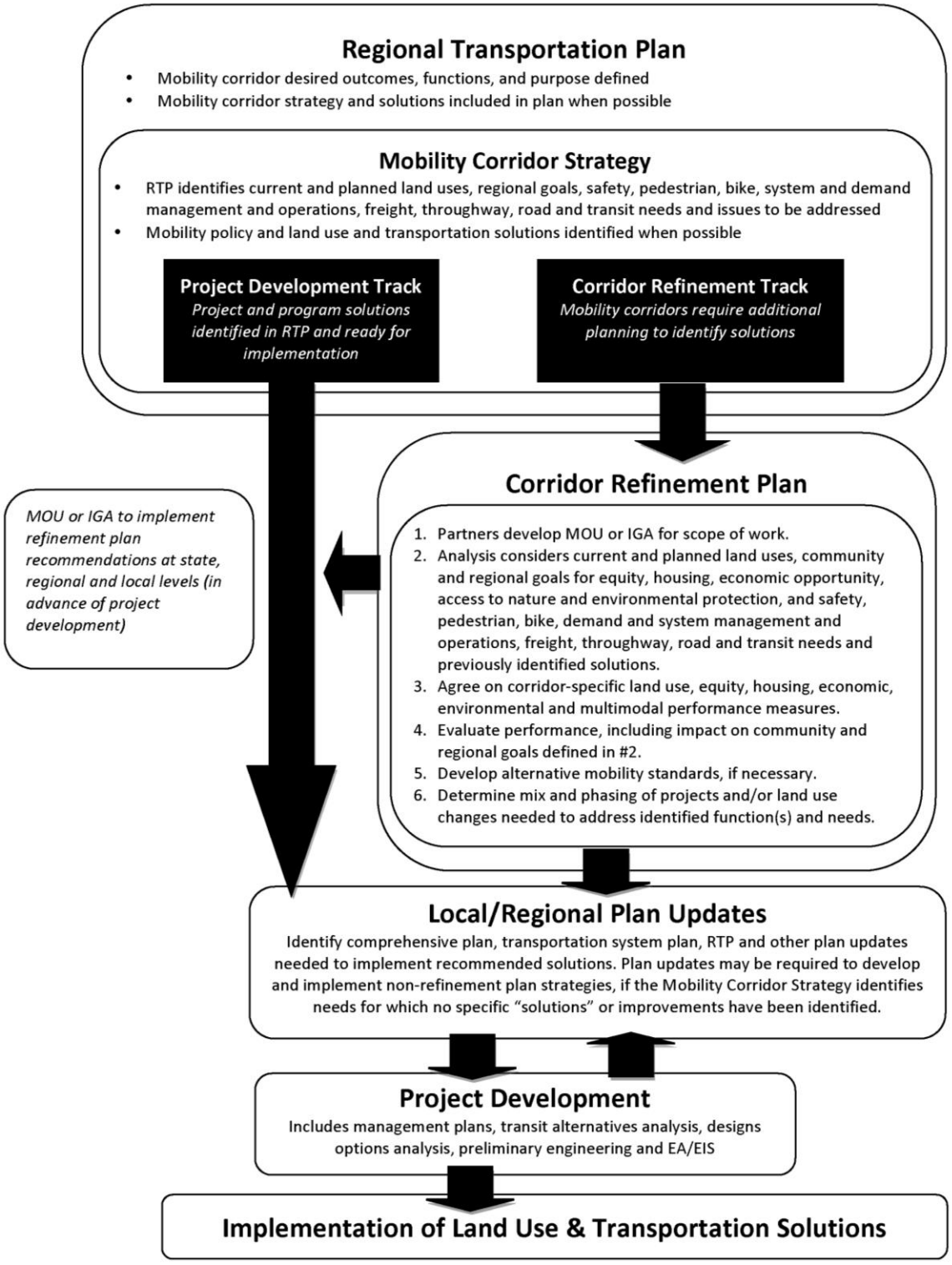
Consistent with the region's congestion management process, corridor refinement plans will provide decision-makers with more comprehensive information regarding safety, accessibility,

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 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.

Figure 8.2 shows the framework for how the mobility corridor strategy will be incorporated into the RTP or developed through a corridor refinement plan.

Figure 8.2 How A Mobility Corridor Strategy Is Developed and Implemented


Regional Transportation Plan
Mobility corridor desired outcomes, functions, and purpose defined
Mobility corridor strategy and solutions included in plan when possible
Mobility Corridor Strategy
RTP identifies current and planned land uses, regional goals, safety, pedestrian, bike, system and demand management and operations, freight, throughway, road and transit needs and issues to be addressed
Mobility policy and land use and transportation solutions identified when possible
Project Development Track
Project and program solutions identified in RTP and ready for implementation
Corridor Refinement Track
Mobility corridors require additional planning to identify solutions
MOU or IGA to implement refinement plan recommendations at state, regional and local levels (in advance of project development)
Corridor Refinement Plan
1. Partners develop MOU or IGA for scope of work.
2. Analysis considers current and planned land uses, community and regional goals for equity, housing, economic opportunity, access to nature and environmental protection, and safety, pedestrian, bike, demand and system management and operations, freight, throughway, road and transit needs and previously identified solutions.
3. Agree on corridor-specific land use, equity, housing, economic, environmental and multimodal performance measures.
4. Evaluate performance, including impact on community and regional goals defined in #2.
5. Develop alternative mobility standards, if necessary.
6. Determine mix and phasing of projects and/or land use changes needed to address identified function(s) and needs.
Local/Regional Plan Updates
Identify comprehensive plan, transportation system plan, RTP and other plan updates needed to implement recommended solutions. Plan updates may be required to develop and implement non-refinement plan strategies, if the Mobility Corridor Strategy identifies needs for which no specific "solutions" or improvements have been identified.
Project Development
Includes management plans, transit alternatives analysis, designs options analysis, preliminary engineering and EA/EIS
Implementation of Land Use & Transportation Solutions

Mobility Corridors Recommended for Future Corridor Refinement Plans

Note – This section will be further updated this Summer and informed by analysis of the RTP project list using the newly updated regional mobility policy.

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 8.4**. The corridors are not listed in priority order. In addition, potential high capacity transit corridors identified in the Regional Transit Strategy 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.

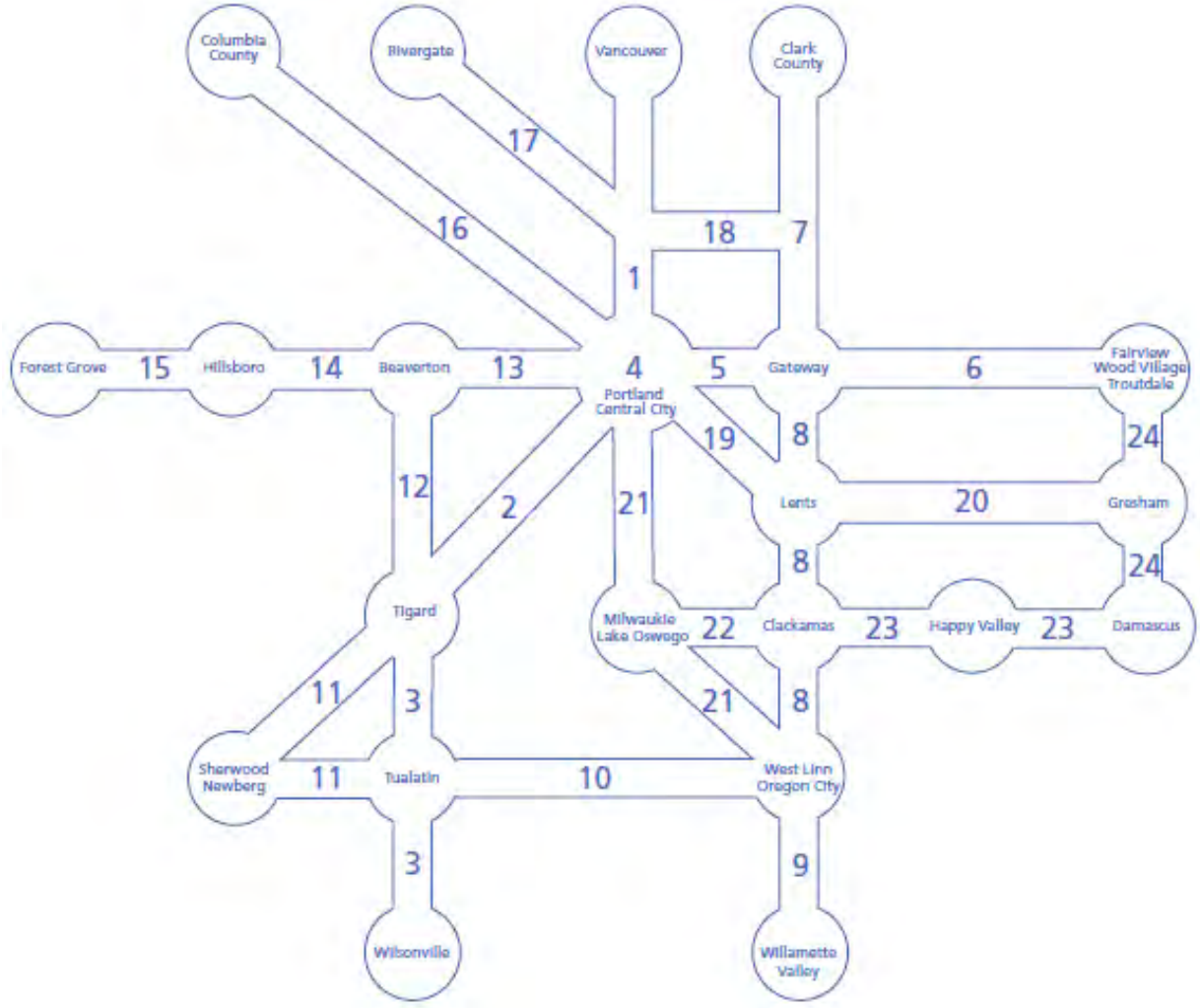
Table 8.4 Mobility Corridors Recommended for Future Corridor Refinement Planning

Regional Mobility Corridor	General Geographic Scope of Mobility Corridor
Mobility Corridors #3	Tigard to Wilsonville which includes I-5 South[4]
Mobility Corridor #4	Portland Central City Loop, which includes I-5/I-405 Loop
Mobility Corridors #7, #8 and #10	Clark County to I-5 via Gateway, Oregon City and Tualatin, which includes I-205
Mobility Corridor #14 and #15	Beaverton to Forest Grove, which includes Tualatin Valley

[4] In coordination with project development activities for Mobility Corridor #10.

	Highway
Mobility Corridors #13, #14	Hillsboro to Portland, which includes US 26
Mobility Corridors #19 and #20	Portland Central City to Lents and Lents to Gresham, which includes US 26/Powell Boulevard

Figure 8.3 Illustrative Map of Mobility Corridors in the Portland Metropolitan Region

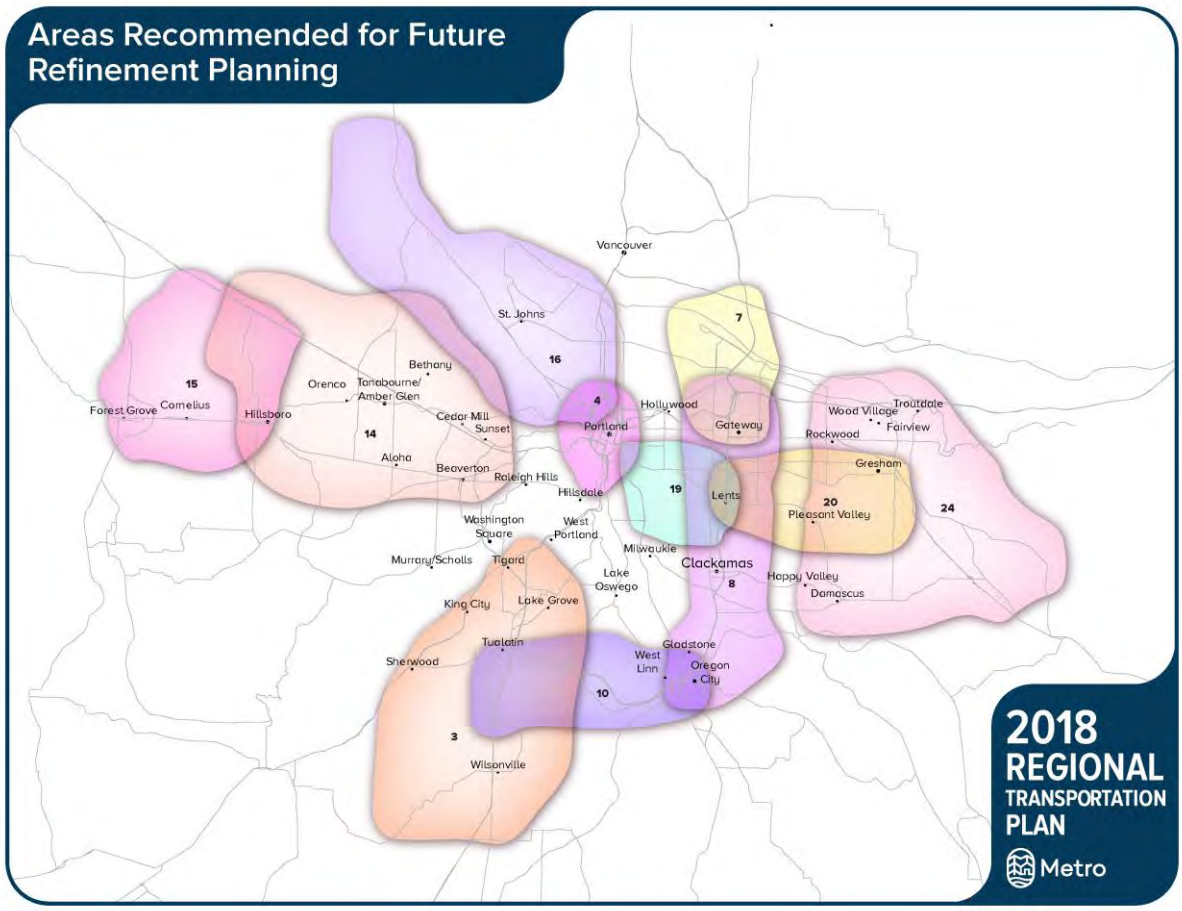


Corridor refinement plans that have been completed since 2018

- Clackamas to Columbia Corridor Plan (Gresham/Fairview/Wood Village/Troutdale to Damascus – Mobility Corridor #24)

Figure 8.4 Regional Mobility Corridors Recommended for Future Refinement Planning

Note: This map will be updated for the Adoption Draft RTP



8.2.4.1 Tigard to Wilsonville (Mobility Corridor 3)

Note – This section will be further updated this Summer and informed by analysis of the RTP project list using the newly updated regional mobility policy.

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.

In 2002, a joint ODOT and Wilsonville study[5] concluded that in 2030 widening of I-5 to eight lanes would be required to meet Oregon Highway Plan and RTP mobility standards, and that freeway access capacity would not be adequate with an improved I-5/Wilsonville Road interchange. The appropriate improvements in this corridor are unclear at this time. However, I-5 serves as a critical gateway for regional travel and commerce, and an acceptable transportation strategy in this corridor has statewide significance. Projections for I-5 indicate that growth in traffic between the Metro region and the Willamette Valley will account for as much as 80 percent of the traffic volume along the southern portion of I-5, in the Tualatin and Wilsonville area.

In 2009, ODOT and the City collaborated to plan the reconstruction of the I-5: Wilsonville Road interchange, including infrastructure improvements and management strategies to better serve planned growth in the area. Since adoption of the interchange area management plan, ODOT completed the interchange reconstruction and implemented the bulk of the management plan's recommendations. More recent projects include the City's addition of a third lane to the Wilsonville Road southbound on-ramp and improvements at the Elligsen Road northbound on-ramp. In addition, ODOT constructed a single southbound auxiliary lane on I-5 from north of Lower Boones Ferry Road to Nyberg Road and from South of Nyberg Road to I-205 and a second lane at the northbound exit ramp for Lower Boones Ferry Road to relieve congestion and reduce crashes. The auxiliary lane work included on- and off-ramp lane modifications at Lower Boones Ferry Road and Nyberg Street.

The Washington County Transportation Futures Study, completed in 2017, recommended completion of this corridor refinement plan to address growing transportation needs in the corridor. The Washington County Freight Study, also completed in 2017, identified the I-5 corridor as a key area of freight operational delay and unreliability and underscored the importance of developing and funding improvements in this area.

In 2017-2018, ODOT and the City of Wilsonville partnered on a Southbound I-5 Boone Bridge Congestion Study. They evaluated and developed solutions for a southbound bottleneck in the bridge area, in order to manage congestion and reliability for private vehicles, freight, and transit in the evening peak. This geographically focused study was timed to identify operational improvements in advance of upcoming seismic replacement of the Boone Bridge, so that they could proceed as one project and allow the state to reduce total costs. The study led to the adoption of the I-5 Wilsonville Facility Plan, which documented a southbound auxiliary lane

[5] *I-5/Wilsonville Freeway Access Study, DKS Associates, November 2002*

concept consistent with implementation recommendations for this corridor (see Project 11990 on the 2023 RTP Financially Constrained List). It did not preclude a larger I-5 south corridor refinement plan, and many of the broader multimodal needs in this corridor still need to be addressed.

A corridor refinement plan is proposed to address the following in coordination with project development activities for Mobility Corridor #10:

- Effects of widening I-205 on the I-5 South corridor;
- Effects of the I-5 to 99W Connector study recommendations on I-5 and the N. Wilsonville interchange and the resultant need for increased freeway access to preserve local system performance and in-line capacity for I-5 mobility;
- Effects of peak period and mid-day congestion in this area and mitigation options for regional freight reliability, mobility and travel patterns;
- Ability of inter-city transit service, to/from neighboring cities in the Willamette Valley, including commuter rail, to slow traffic growth in the I-5 corridor;
- Ability to maintain off-peak freight mobility with capacity improvements;
- Potential for better coordination between the Metro region and Willamette Valley jurisdictions on land-use policies;
- Effects of a planned long-term strategy for managing increased travel along I-5 in the Willamette Valley;
- Effects of UGB expansion and Industrial Lands Evaluation studies on regional freight mobility;
- Effects on freight mobility and local circulation due to diminished freeway access capacity in the I-5/Wilsonville corridor;
- Identify and implement safety and modernization improvements to I-5 defined by the Tigard to Wilsonville Corridor Refinement Plan;
- I-5/OR217 Interchange Phase 2: SB OR217/Kruse Way Exit – Complete interchange reconstruction: Braid SB OR 217 exit to I-5 with Kruse Way exit;
- I-5/OR217 Interchange Phase 3: SB OR217 to I-5 NB Flyover Ramp – Complete interchange reconstruction with new SB OR217 to NB I-5 flyover ramp;
- Effects of the new and proposed auxiliary (ramp-to-ramp) lanes;
- Effects of future Southwest Corridor LRT;
- Identify and implement active transportation priorities that provide safe alternatives to vehicle travel; and

- Consideration of how land use interfaces with the transportation needs and impacts, local system enhancements and new connections, and improved transit network and service and potential outcomes.

In addition, the following design elements should be considered as part of the corridor refinement plan:

- Congestion pricing, including consideration of the Regional Mobility Pricing Project, and HOV lanes for expanded capacity;
- Operational bus on shoulder treatments
- Provide regional transit service, connecting Wilsonville and Tualatin to the central city;
- Increase WES service frequency and hours/days of operation;
- Provide additional freeway access improvements in the I-5/Wilsonville corridor to improve freight mobility and local circulation;
- Add capacity to parallel arterial routes, including 72nd Avenue, Boones Ferry, Lower Boones Ferry and Carman Drive;
- Add overcrossings in vicinity of Tigard Triangle, City of Tualatin and City of Wilsonville to improve local circulation;
- Extend commuter rail service from Salem to the Portland Central City, Tualatin transit center and Milwaukie, primarily along existing heavy rail tracks;
- Additional I-5 mainline capacity;
- Provision of auxiliary lanes between all I-5 freeway on- and off-ramps in Tualatin south of the I-5/I-205 split and in Wilsonville; and
- Complete gaps in the Fanno Creek and Ice Age Tonquin Regional Trails to provide a continuous off-street active transportation route through the length of the mobility corridor.

8.2.4.2 Portland Central City Loop (Mobility Corridor 4)

Context

Note – This section will be further updated this Summer and informed by analysis of the RTP project list using the newly updated regional mobility policy.

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:

Scope

- Develop an overall Freeway Loop Corridor Refinement Plan that will guide public investment for improvements to the I-5/405 Freeway Loop.
- Develop a phasing strategy for implementation of the Master Plan. Include the currently approved Regional Transportation Plan improvements as well as new elements.
- Identify and pursue a funding strategy.

As directed by the FLAG's recommendations, planning proceeded on the I-84/I-5 section of the Loop under the N/NE Quadrant and the I-5 Broadway-Weidler Interchange Improvement Planning process. The key recommendations from the adopted 2012 N/NE Quadrant Plan include:

- Preserving and enhancing Lower Albina by protecting the working harbor and increasing land use flexibility that promotes a mix of uses on historic Russell Street and greater employment densities;
- Protecting historic neighborhoods and cultural resources;

- Concentrating high density development in the Lloyd District, with a focus on new residential development that will add activity and vibrancy to the district;
- Providing amenities, such as parks, street improvements and green infrastructure to support and encourage new development;
- Improving regional access and local street safety and connectivity for all modes;
- Encouraging sustainable development that supports the Lloyd EcoDistrict and goals for improved environmental health;
- Future changes to zoning and building height regulations that implement the plan goals.

Key recommendations for the I-5 Broadway-Weidler Plan include:

- Adding auxiliary lanes and full-width shoulders to improve traffic weaves and allow disabled vehicles to move out of traffic lanes;
- Rebuilding structures at Broadway, Weidler, Vancouver and Williams and adding a lid over the freeway that will simplify construction, increase development potential and improve the urban environment;
- Moving the I-5 southbound on-ramp to Weidler to improve circulation and safety;
- Improving conditions for pedestrian and bicycle travel by adding new connections over the freeway and safer pedestrian and bicycle facilities in the interchange area.

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 acknowledged 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). In development 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.

<u>Proposed Mobility Corridor Purpose Statement</u>

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.

Proposed Principles

These objectives will guide the selection and evaluation of options in the next phase:

- Maintain or enhance transportation performance, including safe and reliable highway operations and enhanced transit performance.
- Support a multi-modal strategy for automobiles, transit, trucks, bicycles, and pedestrians.
- Support trade and freight movement to facilitate regional and state economic development.
- Support local, regional, and state land use plans.
- Ensure regional accessibility to and from the Central City to reinforce its significant statewide, regional, and national economic role.
- Support economic activities and new investments in the Central City and in adjacent industrial areas.
- Improve the quality of the built environment and multimodal connections across facilities.
- Avoid or minimize negative impacts on the natural and built environments.
- Evaluate facility improvement costs relative to the distribution of benefits and impacts.
- Develop strategies that can be implemented in phases, including consideration of congestion pricing such as that identified in the Regional Mobility Pricing Project.

8.2.4.3 Clark County to I-5 via Gateway, Oregon City and Tualatin (Mobility Corridors 7, 8 and 10)

Note – This section will be further updated this Summer and informed by analysis of the RTP project list using the newly updated regional mobility policy.

Improvements are needed in this corridor to address existing deficiencies and expected growth in travel demand in Clark, Multnomah and Clackamas counties. Transportation solutions in this corridor should address the following needs and opportunities:

- Provide for some peak period and off-peak mobility and reliability for longer trips;
- Preserve freight mobility from I-5 to Clark County, with an emphasis on connections to Highway 213, Highway 224 and Sunrise Corridor;
- Maintain an acceptable level of access to the Oregon City, Clackamas and Gateway regional centers and Sunrise industrial area;
- Maintain acceptable levels of access to PDX, including air cargo access;
- Coordinate refinement planning activities with planning for the Stafford area;

- Adding general purpose lanes to I-205 should be considered to meet state and regional policies to bring the freeway up to three through lanes in each direction in the southern section from Oregon City to I-5 and to allow for potential of bus-on-shoulder operations for bypassing of traffic queues on I-205 during periods of congestion;
- 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;
- Complete gaps in the I-205 Multi-use path - including southernmost segment from Oregon City to Tualatin - to provide a continuous off-street active transportation route through the length of the mobility corridor; and
- Interchange improvements, auxiliary lanes and other major operational improvements such as ramp improvements and other weaving area improvements in the corridor should also be considered. Specific projects to be considered to meet identified needs include:
    - Southbound truck climbing lanes from Willamette River to 10th St. interchange;
    - Interchange improvements at locations including: Division/Powell, Airport Way, OR213, OR 212/224, Sunrise, Johnson Creek Boulevard and others;
    - Auxiliary lanes, northbound and southbound in the following locations: Airport Way to Columbia Blvd., Columbia Blvd. to I-84, I-84 to Glisan, Glisan to Division/Powell, Division/Powell to Foster, Foster to Johnson Creek Boulevard, OR 212/224 to Gladstone, Gladstone to OR 99E;
    - Widen to 6 lanes from Stafford Interchange to Willamette River;
    - Widen Abernethy Bridge to 6 lanes plus auxiliary lanes;
    - Improvements needed on OR 213 (82nd Avenue) include bicycle/pedestrian and streetscape improvements.
    - Implement tolling on I-205 between Stafford Road and the Abernathy Bridge.

Potential transportation and land use solutions in this corridor should evaluate the potential of the following design concepts:

- Auxiliary lanes added from Airport Way to I-84 East;
- Consider express HOV lanes as a strategy for expanding capacity;
- Relative value of specific ramp, overcrossing and parallel route improvements;

- Evaluate crash history of arterials and throughways in study area, with a focus on fatal and serious injury crashes, to inform potential transportation solutions and phasing;
- Eastbound HOV lane from I-5 to the Oregon City Bridge;
- Truck climbing lane south of Oregon City;
- Potential for inter-city transit service, vanpool services and other travel options, to/from rural areas and neighboring cities in Clackamas County, to expand travel options and slow traffic growth in the I-205 corridor;
- Potential for rapid bus transit service or light rail from Oregon City to Gateway;
- Potential for extension of rapid bus service or light rail north from Gateway into Clark County;
- Potential for refinements to 2040 land-use assumptions in this area to expand potential employment in the sub-area and improve jobs/housing imbalance;
- Potential for re-evaluating the suitability of the Beavercreek area for urban growth boundary expansion, based on ability to serve the area with adequate regional transportation infrastructure;
- Explore opportunities to support economic and land use goals with the Columbia Connections Strategy;
- Provide recommendations to the Bi-State Coordination Committee prior to JPACT and Metro Council consideration of projects that have bi-state significance.

8.2.4.4 Beaverton to Forest Grove (Mobility Corridors 14 and 15)

Note – This section will be further updated this Summer and informed by analysis of the RTP project list using the newly updated regional mobility policy.

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 10th 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 10th 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.

The TV Trail Concept Plan, a TGM funded plan by Washington County describes the selection of the two preferred near- and long-term opportunities to serve local and regional trail connectivity between SW 160th Avenue and Cornelius Pass Road.

The East Forest Grove Safety Action Plan examined the portion of OR 8 between Forest Grove and Cornelius. The plan identified multi-modal improvements to address safety along this section of the corridor.

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 Business Access and Transit lane in the westbound direction, and to not preclude Bus pullouts in the eastbound direction.

RTP Design and Functional Classifications.

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 160th Ave and Cornelius Pass Road;
- Multi-modal safety improvements from the East Forest Grove Safety Action Plan
- 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 160th 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, 209th Avenue, 198th Avenue, 185th Avenue, and 170th Avenue would provide the greatest benefit to the overall transportation system. Five improvements on 198th 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 209th 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.

- Implement improvements identified in the Tualatin Valley Trail Concept Plan
- 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 110th Avenue and SW 209th Avenue on TV Hwy), the project will enhance four pedestrian crossing locations, install buffered bike lanes between 153rd and 182nd Aves, consolidate bus stops, install illumination, ped actuation and signal interconnect at 141st/142nd and 174th, install physically separated walkways and bike lanes on bridge sections between 153rd and 160th Ave and the between 30th and 40th 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 160th and Cornelius Pass Rd.
- The location of a multi-use pathway parallel to Tualatin Valley Highway as per the Tualatin Valley Trail Concept Plan.
- 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)

Note – This section will be further updated this Summer and informed by analysis of the RTP project list using the newly updated regional mobility policy.

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.

The Oregon Department of Transportation (ODOT) is constructing improvements to help people get around busy Outer SE Powell Boulevard more safely. The Outer Powell Transportation Safety Project stretches between I-205 and Portland/Gresham city limits, just east of SE 174th Avenue. These safety improvements will reduce the frequency and severity of crashes and help vehicles, pedestrians, transit and bicyclists share the road with fewer conflicts.

Roadway, bike and pedestrian safety improvements include:

- Sidewalks where there are none now
- Mix of separated and sidewalk level bike lanes
- Center turn lanes for cars, buses and trucks for safer turns and to reduce back-ups
- Storm drains to prevent water from pooling on the road
- Lighting for improved visibility
- New waterline in some areas
- New traffic signals

- Mid-block flashing light pedestrian crossing beacons (Rectangular Rapid Flashing Beacons) to alert drivers that people are crossing the street

ODOT expects completion of construction in 2024.

Additionally, for the segment of SE Powell Boulevard between the Ross Island Bridge and I-205, ODOT is working with the City of Portland to implement safety investments such as enhanced crossings and speed feedback signs, and studying roadway configuration options to increase safety for all users.

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 and 14)

Note – This section will be further updated this Summer and informed by analysis of the RTP project list using the newly updated regional mobility policy. Additionally, some data used in the 2018 RTP will be updated prior to RTP adoption.

Washington County is growing faster than its neighbors in the region, and with that growth comes an increased need to move more people and freight. The Sunset Highway (US 26) Corridor is a critical thoroughfare for residents, commuters, and the regional economy, but current conditions result in vehicle congestion, diversion, and unreliable travel times for people driving, riding transit, and moving freight. These transportation deficiencies adversely affect the safety, affordability, and livability of the area and can impede economic competitiveness.

Centered on the US 26 (Sunset Highway) from Hillsboro to Portland, the Westside Multimodal Improvements Study was recommended in the 2018 RTP and kicked off in January 2022. The study's purpose was to address transportation challenges that affect the movement of people and goods 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.

ODOT and Metro co-managed the study in partnership with local agencies, business representatives, and community-based organizations. The study was guided by a Project Management Group, made up of technical staff from partner agencies, and a Steering Committee composed of decision-making representatives from each of the agencies that have jurisdiction or ownership of infrastructure or systems considered in the planning process. An analysis of existing conditions data helped to define the issues and needs within the corridor and are framed here in the context of five priority areas: mobility and reliability, safety, social equity, climate action, and economic vitality.

Mobility and Reliability

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.

Since the Covid-19 pandemic, we've seen changes in travel patterns, including fewer people transit, fewer people commuting daily to workplaces, and more people working from home or on flexible schedules. Meanwhile, jobs that require in-person attendance such as manufacturing,

agriculture, retail, hospitality and maintenance are often not centrally located and may have work shifts that cover 24 hours of the day. These changes have resulted in afternoon traffic congestion occurring earlier in the day and lasting longer than before the pandemic.

Corridor #13, which includes the Sunset Highway and its array of complementary parallel arterial roadways (Cornelius Pass Road, Germantown Road, Cornell Road, Barnes/Burnside Road, and Beaverton-Hillsdale Highway), carries 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 18,710 person-trips per weekday on the MAX Blue Line, the MAX Red Line, and multiple bus lines serving the parallel arterials in the corridor. Of those total trips, approximately 11,500 occur on the MAX Blue and Red Lines. Bus lines serving the Sunset Highway corridor include Line 47 (720 weekday boardings), Line 48 (1200 average weekday boardings), Line 57 (5,240 average weekday boardings) and Line 59 (50 average weekday boardings). This is a decrease from pre-pandemic transit use. TriMet plans to open the western extension of the MAX Red Line to Hillsboro's Airport/Fair Complex Station in fall 2024.

The existing transit network in the westside of the Metro area has limited north-south bus routes, some routes have infrequent service, and may require multiple transfers to reach a destination. Efforts such as TriMet's Forward Together concept, the Washington County Transit Study, and Metro's High-Capacity Transit Strategy include plans for transit enhancements and future investments to meet existing transit needs and accommodate future growth in the Westside Corridor.

Economic Vitality

The Sunset Highway corridor is a major employment center in the region. Many of the region's top private employers call the area home including Intel, Nike, Tektronix, Reser's Fine Foods, Qorvo, and Salesforce, among others. Top public sector employers include local school districts, city and county governments, hospitals, and health care providers.

The semiconductor industry expansion presents Oregon with an opportunity to create the kind of jobs and investment the state needs for a strong economy, and this area is often referred to as Oregon's "Silicon Forest." In July 2022 Congress passed the $52 billion CHIPS Act to boost domestic semiconductor manufacturing and design. This creates an opportunity to solidify Oregon's position as a world leader in semiconductor innovation and expand semiconductor design and manufacturing development in Washington County. New industrial development will place additional demand on our transportation system and a greater need for freight mobility and reliability through the Sunset Highway corridor.

Outreach done during the Westside Multimodal Improvements Study reinforced freight-related concerned identified during the 2013 *Westside Freight Access and Logistics Analysis* Oregon's export economy relies heavily on the computer and electronics industry, which accounts for over

60% of state's exports, and valued $15 billion in 2021. This industry is primarily located in the region's Westside, and depends on a tightly managed supply chain to efficiently bring products to markets that are mostly outside of the greater Portland area. Addressing freight mobility challenges experienced by the Westside computer and electronics industry will likely also benefit the footwear, apparel, medical/dental, biopharma and agriculture industries in Washington County.

Freight movement between the Westside industries and the PDX freight consolidation area and the Portland International Airport depends on two routes:

- US 26 eastbound to I-405 northbound to I-5 Northbound to Columbia Boulevard; and
- Cornelius Pass Road northbound to US 30 southbound to Columbia Boulevard via the St. Johns Bridge.

US 26 eastbound between Highway 217 and I-405 ranks among the top bottlenecks in the region. Travel times can vary up to 20 minutes or more for a typical trip from Hillsboro's employment areas to PDX, due largely to traffic on US26. This lack of reliability means that freight haulers and commuters can't be certain how long a trip will take them, leading to lost productivity. US26 has the highest freight volume of all non-interstate highways in the region, but freight trips make up just five percent of total trips on US26. Meanwhile, freight trips account for sixteen percent of total trips on Cornelius Pass Road, indicating it is a preferred route for many freight haulers.

Work commute estimates based on Street Light Data indicate that a significant number of people commute into the area for work. Data shows that about 97,000 people per weekday commute to the Westside Multimodal Improvements Study area. About 27,000 both live and work in the study area and have local commute trips, while another 64,000 people live in the study area and commute to jobs elsewhere in the region.

Safety

Many of the key arterials in the Sunset Highway Corridor are identified among Metro's 2016-2020 High Injury Corridors. These are roadways in the greater Portland area where the highest concentrations of serious crashes involving a motor vehicle occur. The top five most dangerous corridors within the study area include: Tualatin Valley Highway, Baseline Rd, Cornell Rd, Cornelius Pass Rd, and Farmington Rd. A total of 15,000 crashes occurred between 2015-2019 in the study area, with 53% of crashes resulting in injury. Of these, 223 crashes involved pedestrians and 188 crashes involved bicyclists.

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.

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.

Social Equity

People living within the Sunset Highway corridor are more racially diverse than the region and state, with over 37% residents of color. Forty-five percent of households are renters, which is higher than the regional average.

Many areas throughout the corridor score high on TriMet's transit equity index, reflecting higher concentrations of people of color, low-income households, people with low English proficiency, people with disabilities, older adults, youth, households with poor vehicle access, access to affordable housing, access to low/medium wage jobs, access to services. Higher scores indicate a potential for higher need for increased transit service, particularly in areas south of US 26.

Climate

Land use patterns and past infrastructure investments in the study area prioritized auto vehicle travel, which contribute to continued reliance on personal vehicles to meet people's daily travel needs. This pattern results in high vehicle miles traveled (VMT) and contributes to greenhouse gas emissions from gasoline powered vehicles. Frequent congestion on US 26 and nearby facilities contributes to traffic diversion to other routes, increased vehicle miles traveled (VMT), inefficient vehicle operation, and vehicle idling, all of which contribute to greenhouse gas emissions in the region.

Recommended Transportation Investments

The Westside Multimodal Improvements Study produced a list of transportation investments that are intended to address the identified issues and needs in the Sunset Highway corridor. Investment options were evaluated based on how well they addressed mobility and reliability, safety, social equity, climate action, and economic vitality. The Westside Multimodal Improvements Study developed an Implementation Plan that outlines priority investments for the region to advance for future project development and funding, including project descriptions, lead agencies, cost ranges, benefits, issues, and dependent projects.

[PLACEHOLDER FOR RECOMMENDED INVESTMENT OPTIONS & DESCRIPTIONS]

8.3 PROJECTS

8.3.1 Major Project Development

Transportation improvements where the need, mode, function and general location is identified in the RTP and local plans are expected to be further refined during detailed project development. For major projects, project development is generally completed jointly by affected or sponsoring agencies, in coordination and consultation with Metro. For purposes of the RTP, major projects are defined as large-scale, complex investments in the transportation system that typically cost $500 million or more regardless of the source of funding for the total project and is likely to receive state or federal financial assistance. Projects with total costs between $100 million and $500 million may also be considered major projects and are currently considered major projects for the purposes of the Metropolitan Transportation Improvement Program (MTIP). FHWA requires all projects with costs of $100 million or more to have financial plans updated annually. Major projects typically have a high level of public, legislative or congressional interest, may be constructed in multiple phases and are anticipated to go through one of the planning processes identified below.

The purpose of project development is to consider project design details and select a specific project alignment, as necessary, after evaluating engineering, management and design alternatives, potential environmental impacts and consistency with applicable comprehensive plans, the Oregon Transportation Plan and the RTP. The TPR defines project development as, "implementing the transportation system plan by determining the precise location, alignment and preliminary design of improvements included in the TSP based on site-specific engineering and environmental studies," (660-012-005 (36)). The project need, mode, function and general location do not need to be addressed again at the project level, since these decisions have been previously documented in the adopted corridor refinement plan or RTP project list.

For projects of regional significance with multiple jurisdictions, decisions may be documented through adoption of a Locally Preferred Alternative. Project development decisions for projects that qualify for a Categorical Exclusion under NEPA can be documented by other means in accordance with the responsible agency's procedures.

Once the RTP or corridor refinement plans have established mode, function, general location, and identified solutions, project development may also result in recommended phasing of improvements.

A summary of progress on major project development activities follows.

Table 8.5 Progress (as of 2023) on Major Project Development

Project	Status
Interstate 5 Bridge Replacement (IBR) Project	LPA approved in July 2008. Record of decision signed by FHWA in December 2011. Project development work discontinued in 2013 in Washington and 2014 in Oregon. Joint Washington and Oregon Legislative Action Committee discussions begin in 2017. Partner agencies confirmed support for Modified LPA Draft Supplemental Impact Statement in development, plan to publish Summer 2023
Sunrise Project and Sunrise Community Visioning Project	LPA approved in July 2009. Record of decision for Phase 1, Units 1, 2 and 3 signed by FHWA in February 2011. Sunrise Jobs and Transportation Act (JTA) Phase 1 related projects were completed in June 2016. Environmental approval received for improvements on OR 224 at Rusk Road. In May 2023, Clackamas County initiated the Sunrise Community Visioning Project to engage community in the development of improved safety and increased mobility in the corridor. This process will include an updated LPA for OR212 and OR224 from 205 to 172nd Ave (Phase 2 and Phase 3 of the original project). The visioning project will include PEL framework and will lead into the necessary NEPA updates to advance the LPA. The project will also include 10% design of the LPA.
Southwest Corridor Project	LPA approved in Nov. 2018. ROD received April 2022.
I-5 Rose Quarter Improvement Project	Supplemental Environmental Assessment published for public comment in 2022. Design phase in progress.
I-205 Abernethy Bridge and Phase 1A Construction	Construction is underway. Column work is underway and will lead to the construction of the crossbeams in late 2023. Major drilled shaft work is anticipated to be complete by Fall 2023. Mainline widening construction is anticipated to be complete by Fall 2025.

I-205 Toll Project	Environmental Assessment was published on Feb. 21, 2023. Environmental Assessment Public Comment Period ended April 21, 2023. Revised Environmental Assessment is anticipated as the next step.
I-5 & I-205 Regional Mobility Pricing Project	Planning and Environmental (PEL) phase was completed in Fall 2022. Environmental analysis process, under the National Environmental Policy Act (NEPA), was initiated in Nov. 2022. A scoping comment period was held from Nov. 18 to Jan. 6, 2023. Environmental Assessment publication is anticipated by the end of 2023, followed by a public comment period and then a Revised Environmental Assessment is expected in 2024.
I-5 Boone Bridge Replacement	The project is currently in the Planning and Environmental Linkages (PEL) phase. The National Environmental Policy Act (NEPA) class of action determination and preliminary planning activities are scheduled to be completed in late 2024 or early 2025.
Earthquake Ready Burnside Bridge	Preferred Alternative approved in March 2023. FHWA Record of Decision anticipated to be published in December 2023 Design Phase anticipated to start, July 1, 2023.
82nd Avenue Transit Project	Working towards an LPA in late 2023/early 2024. The NEPA process would begin in 2024 after early corridor design and FTA determination of class of action.
Tualatin Valley Highway Transit and Development Project	LPA anticipated late 2023

8.3.1.1 Interstate 5 Replacement (IBR) Program (previously Columbia River Crossing Project)

The Interstate Bridge is a critical connection between Oregon and Washington, located on Interstate 5 where it crosses the Columbia River. Replacing the aging Interstate Bridge across the Columbia River with a modern, earthquake resilient, multimodal structure that provides improved mobility for people, goods, and services is a high priority for Oregon and Washington.

In July 2008, the Metro Council approved a Locally Preferred Alternative (LPA) for the Columbia River Crossing (CRC) project. In December 2011, the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) approved the CRC LPA and issued a Record of Decision for the CRC project. The CRC project development work was discontinued in 2013 in Washington and in 2014 in Oregon. All six transportation problems identified during CRC remain unaddressed (congestion, earthquake vulnerability, safety, impaired freight movement, inadequate bike and pedestrian paths, and limited public transportation).

The Interstate Bridge Replacement (IBR) program is a renewed effort jointly led by the Oregon Department of Transportation and the Washington State Department of Transportation in collaboration with eight regional partner agencies: Oregon Metro, Southwest Washington Regional Transportation Council, TriMet, C-TRAN, City of Portland, City of Vancouver, Port of Portland, and Port of Vancouver. These partners serve on an Executive Steering Group that provides regional leadership recommendations to the program. The IBR program continues to work with the program partner agencies, stakeholders, and public to identify the best possible multimodal solution.

In December 2021, FHWA and FTA provided their joint determination that a Supplemental Environmental Impact Statement (SEIS) is necessary to identify and disclose potential adverse impacts and mitigation that could result from changes that have happened since the 2011 CRC Record of Decision. The IBR program is leveraging work from previous planning efforts (CRC) where appropriate and updating prior studies to integrate new data, regional changes in transportation, land use, and demographic conditions, and public input to inform program development work.

Through planning work and community outreach, the IBR program confirmed the six transportation problems identified in CRC still exist, and also added equity and climate as priorities. To address the physical and contextual changes that have occurred in the program area since 2013, the IBR program developed design options, desired outcomes, and transit investments in coordination with program partners and input from the community.

The design options were analyzed and narrowed down to a recommended Modified Locally Preferred Alternative (LPA). The Modified LPA was approved by the boards, councils, and commissions of each of the eight local partner agencies in the summer of 2022. In July 2022, the Executive Steering Group reached a unanimous recommendation to move the program's recommended Modified LPA into the federal environmental review process for further study.

The Modified LPA refers to an agreed upon set of components that will be further evaluated through the federal environmental review process as required by NEPA to better understand the benefits and impacts. The Modified LPA is not the final design of the replacement bridge, but it is a key milestone, setting the direction for the program as we start to test and evaluate plans for a new multimodal river crossing system. In some instances, multiple design concepts are being studied (e.g., park and ride locations, bridge configuration and roadway alignment) to better understand the range of impacts and better optimize the design.

Elements of the Modified LPA currently being studied includes:

- Replacing the Interstate Bridge over the Columbia River
- Replacing the North Portland Harbor Bridge over the Columbia Slough connecting Hayden Island to North Portland
- Constructing three through-lanes northbound and southbound throughout the program corridor with safety shoulders and the addition of one auxiliary lane in each direction
- Connecting existing transit systems by extending light rail transit from Expo Center in Portland to Evergreen Boulevard in Vancouver in a dedicated guideway adjacent to I-5 , including new bus on shoulder facilities in the project area, and connecting to C-TRAN's current and future Bus Rapid Transit lines as described in adopted regional plans
- Improving seven interchange areas within the program area corridor:
    - Victory Blvd
    - Marine Drive
    - Hayden Island
    - SR 14
    - Mill Plain Blvd.
    - 4th Plain Blvd.
    - SR 500
- Active transportation and multimodal facilities that adhere to universal design principles and facilitate safety and comfort for all ages and abilities including local and cross-river connections
- Variable rate toll on motorists using the river crossing to manage demand and generate revenue for construction and facility operations and maintenance
- A commitment to establish a GHG reduction target relative to regional transportation impact, and to develop and evaluate design solutions that contribute to achieving program and state-wide climate goals.
- A commitment to evaluate program design options according to their impact on equity priority areas with screening criteria such as air quality, land use, travel reliability, safety, and improved access to all transportation modes and active transportation facilities. The Program also commits to measurable and actionable equity outcomes and to the development of a robust set of programs and improvements that will be defined in Community Benefits Agreement.

The federal environmental review process, and corresponding environmental studies, will determine how the IBR program will move forward and what necessary work is needed to avoid,

minimize, or mitigate negative effects to the physical and built environment. The IBR program will disclose the findings of the environmental evaluation in a Draft SEIS, which is anticipated to be published in late 2023 for public review and comment. After the public comment period closes, the Modified LPA will be refined in response to public input and other design considerations. Refinements will result in a combined Final SEIS and Amended Record of Decision issued by FHWA and FTA, anticipated in late 2024. At this stage, the IBR program will be able to apply for permits, update cost estimates, and further design. Construction is anticipated to begin as early as late 2025.

In December 2022, the IBR program released a cost estimate that reflects the Modified LPA components and includes updated market assumptions and program specific risk potential and cost savings opportunities. The current cost estimate ranges from $5 - $7.5 billion, with a most likely cost of $6 billion. The IBR program assumes a combination of a variety of funding sources, including state, federal and toll revenue.

Anticipated IBR Program Funding Sources:

Source	Amount in Millions of Dollars
Existing State Funding	$100 M
Connecting WA Funding—Mill Plain Interchange	$98 M
Move Ahead WA Funding	$1,000 M
Anticipated Oregon Funding	$1,000 M
Toll Funding	$1,250 – 1,600 M[1]
Federal Grants	$860 – 1,600 M[2]
FTA New Starts CIG Funding	$900 – 1,100 M
Anticipated Total	**$5,208 – 6,498 M**

[1] *This range is consistent with CRC toll funding estimates. A Level 2 toll traffic and revenue study for IBR is underway and will be reviewed by both states. This range is a placeholder until spring 2023.*

[2] *Federal grant funding is unknown but being actively pursued. The top of this range is optimistic. The range will be refined as more information becomes available. Includes $1M FHWA BIP grant already received.*

8.3.1.2 Sunrise Project and Sunrise Community Visioning Project

The Sunrise Corridor is an essential freight route from I-5 and I-205 to U.S. 26 and central and eastern Oregon. It provides access to the Clackamas Industrial Area, home to one of the state's busiest and most critical freight distribution centers and the City of Happy Valley Rock Creek Employment Center with over 200 acres of employment and industrial land. The OR 212/224 corridor is currently failing and is not capable of handling the expected increase in traffic resulting from significant community development and industrial expansion in the corridor.

In July 2009, the project's Policy Review Committee (PRC) selected the Preferred Alternative for the Sunrise Project. The Preferred Alternative is Alternative 2 as studied in the Supplemental Draft Environmental Impact Statement with Design Options C-2 and D-3 and a portion of Design

Option A-2 (Tolbert Overcrossing). A detailed description and map of the Sunrise Project original Preferred Alternative is included in Appendix Q.

FHWA, ODOT and Clackamas County completed the Final Environmental Impact Statement (FEIS) for the Sunrise Project and on February 22, 2011, the FHWA signed a Record of Decision (ROD) that approves the Sunrise Corridor Preferred Alternative.

The Sunrise Jobs and Transportation Act (JTA) Project constructed a new 2.5 mile road from I-205 to 122nd Avenue (as part of the larger Sunrise Project). The Oregon Legislature approved $100 million in JTA funding for this project, which was built to address congestion and safety problems in the OR 212/224 corridor and improve local roadway connections to the Lawnfield Industrial District. Construction for the JTA phase of the Sunrise Project was completed in June 2016 and opened for use on July 1, 2016.

During development of Metro's 2020 Funding measure the Sunrise Project underwent extensive redesign based on public input and feedback from the taskforce. The effort culminated in a "right sized" cross section including 2 lanes in either direction and a suite of pedestrian and bicycle improvements on existing Highway 212.

In 2021 the Oregon State Legislature allocated $4 Million dollars for the Sunrise Gateway Community Corridor Visioning Project to create a vision for the corridor through meaningful partnerships with the people who live, work and own businesses in the area. This project will analyze transportation and land use scenarios that also consider economic opportunities, community health, equity, other infrastructure, open space, and housing for the Sunrise Gateway Corridor along Highway 212 from 122nd Avenue to 172nd Avenue. The Project will employ meaningful community engagement to create a vision that will identify challenges and opportunities to increase the safety and viability of the corridor for years to come.

One of the products of this visioning project will be an updated LPA for the Sunrise Corridor based upon the updated cross section developed during Metro's 2020 funding measure. The project will be guided by the PEL framework and will lead into the update to the NEPA approval from the 2011 FEIS.

Future phases of the Sunrise Project include the design and construction of improvements between SE 122nd Avenue and SE 172nd Avenue.

8.3.1.3 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. The work was guided by a Steering Committee comprised of representatives from the cities of Beaverton, Durham, King City, Portland, Sherwood, Tigard and Tualatin; Washington County; and 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 August 2011, the Metro Council adopted Resolution No. 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.

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 high capacity transit (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 emerged as the preferred high capacity transit investment of the Southwest Corridor Shared Investment Strategy. The project is a proposed 11-mile MAX light rail extension 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) was prepared by Metro, TriMet and FTA. 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 LPA. In November 2018, the Metro Council adopted Resolution No. 18-4915 approving the Southwest Corridor LPA. The LPA is included in the RTP.

The Final EIS was completed in January 2022 and the project received a Record of Decision in April 2022.

TriMet entered into FTA New Starts Project Development with in late 2018. Major Project Development activities took place in 2019 and 2020. Unfortunately, the project development activities, except NEPA, were put on pause in late 2020 when the regional transportation funding measure did not pass. The project officially withdrew from New Starts project Development in July 2022.

Project leaders will reconvene in 2023 to discuss updated cost and ridership projections and begin conversations about possible paths forward for the project, which remains a regional priority.

8.3.1.4 I-5 Rose Quarter Improvement Project

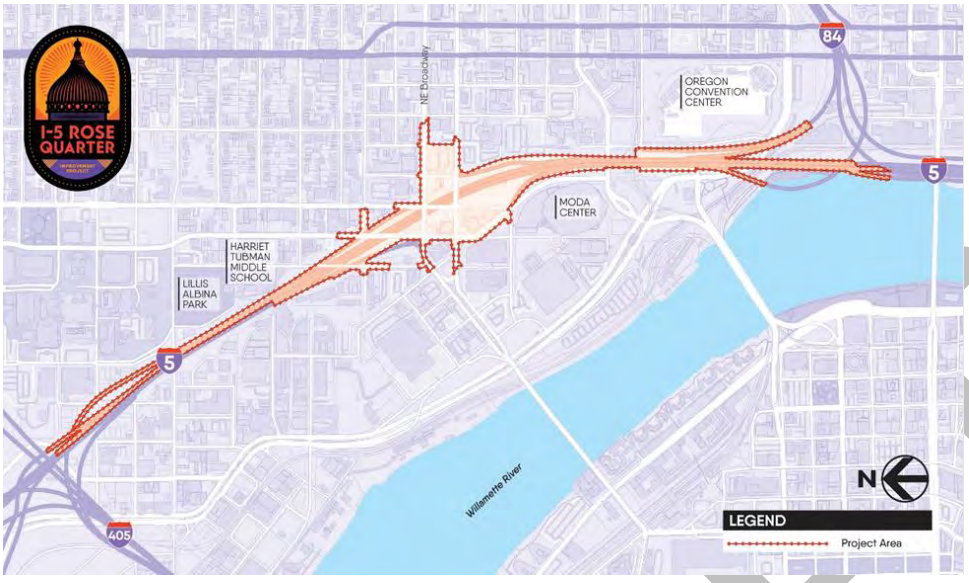


Figure 8.5 I-5 Rose Quarter Improvement Project Location

The purpose of the I-5 Rose Quarter Improvement Project is to improve the safety and operations on I-5 between I-405 and I-84, at the Broadway/Weidler interchange, and on adjacent surface streets in the vicinity of the Broadway/Weidler interchange, and to enhance multimodal facilities in the Project Area. In achieving the purpose, the Project also would support improved local connectivity and multimodal access in the vicinity of the Broadway/Weidler interchange and improve multimodal connections between neighborhoods east and west of I-5. Additional project benefits include improving safety and mobility on local streets, creating new space and new infrastructure to support community development with the construction of a highway cover over a portion of I-5 and developing a diverse and skilled workforce.

This 1.8-mile stretch of highway is the only two-lane section of I-5 in a major urban area between Canada and Mexico. It has the highest crash rate on any urban interstate in Oregon and is the state's top traffic bottleneck. The project addresses the critical need to keep Oregon's people and economy moving. Key elements of the project design include:

- New ramp-to-ramp connections (auxiliary lanes) in each direction of I-5 between I-84 and I-405 to reduce vehicle weaving, create safer merging and improve connections between interchanges.

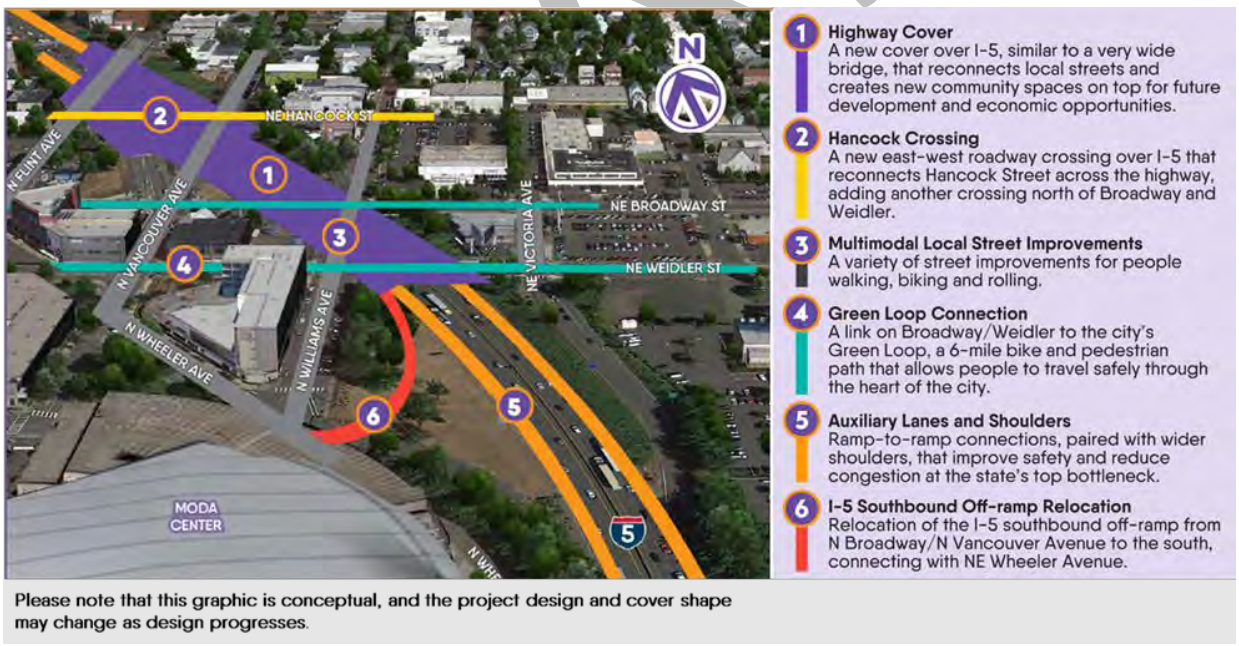
- Wider shoulders in each direction of I-5 between I-84 and I-405, providing space for stalled vehicles to move out of traffic and for emergency vehicles to respond to emergencies more quickly (this includes adding 12-foot-wide outside shoulders SB from Broadway off-ramp to the I-84 off-ramp and NB from I-84 on-ramp to I-405 off-ramp and adding 8 foot-wide inside shoulders in both directions, except under the highway cover where shoulders would be 5 feet wide).

- A highway cover over I-5 that reconnects local streets and creates new community spaces on top for future development and economic opportunities.
- A new east-west roadway crossing over I-5 that reconnects Hancock Street across the highway, adding another crossing north of Broadway/Weidler.
- Enhanced bicycle and pedestrian facilities on Broadway and Weidler to facilitate the City of Portland's Green Loop, a planned 6-mile bike and pedestrian path that allows people to travel safely through the heart of the city.
- Multimodal local street improvements including wider paths, curb ramps that are accessible in accordance with the Americans with Disabilities Act (ADA) and better lighting for people walking, biking and rolling.
- Relocation of the I-5 southbound off-ramp to maximize space for new developable land on the highway cover.

Figure 8.5 shows the project location and **Figure 8.6** illustrates the project features.

More information is available at www.i5rosequarter.org.

Figure 8.6 I-5 Rose Quarter Improvement Project Features



Source: ODOT

In accordance with the National Environmental Policy Act, ODOT prepared and published an Environmental Assessment (EA) in 2019, and a Supplemental EA in 2022. Both times, the process included an opportunity for the public to review the findings and comment on the analysis. The Federal Highway Administration (FHWA) reviews all findings and public comments before making an environmental decision on a project. In response to public comment received on the

2022 Supplemental EA, project design refinements and updated technical analysis are underway and will be reflected in a Revised Supplemental EA that will accompany the environmental decision by the FHWA, expected by early 2024. Final design and construction will begin following completion of the environmental decision document.

The project team will continue refining the design based on community input, including based on the public comments received during the 2022 Supplemental Environmental Assessment phase, and working with the City of Portland on a Community Framework Agreement to define the future development scenarios for the new highway cover land.

8.3.1.5 I-205 Abernethy Bridge and Phase 1A Construction

Phase 1A of the I-205 Improvements project will upgrade the Abernethy Bridge to withstand a major earthquake and will be the first earthquake-ready interstate structure across the Willamette River in the Portland metropolitan area.

In addition to the seismic upgrades, the project will add auxiliary lanes across the Abernethy Bridge in each direction. This phase of the project will also include interchange improvements to the interchanges directly north and south of the Abernethy Bridge at OR 43 and OR 99E, respectively. The interchange improvements will make travel safer, resulting in fewer crashes and better travel-time predictability. These improvements include removal of the current I-205 northbound on-ramp from OR 43. This will be replaced with a roundabout to access I-205 northbound. This will reduce crashes and conflicts with movements to and from OR 43. The project will also realign and widen the OR 99E on and off ramps providing added capacity.

The project also includes construction of a sound wall near the southbound lanes of I-205 at Exit 9 and new pedestrian and bicycle facilities around OR 43 and OR 99E to increase comfort for people walking and biking in these areas. Construction began in June 2022 and is expected to end in fall 2025. Financing for this project was possible with financing tools authorized in HB3055 during the 2022 legislative session.

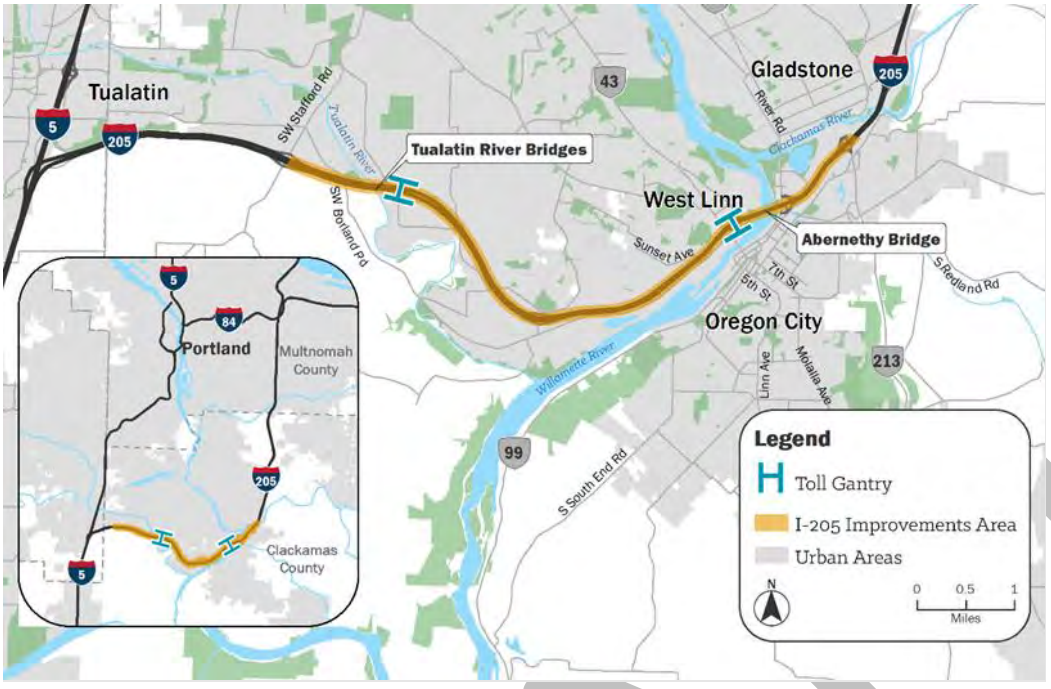
Figure 8.7 I-205 South Widening and Seismic Improvements Project Area Map

Source: ODOT

8.3.1.6 I-205 Toll Project (Includes Widening and Seismic Improvements)

The proposed I-205 Toll Project would implement variable-rate tolls on the Interstate-205 (I-205) Abernethy Bridge and Tualatin River Bridges to raise revenue for construction of planned improvements to I-205 and to manage congestion. Planned I-205 improvements that are part of the I-205 Toll Project include widening a seven-mile portion of I-205 to construct a third travel lane in each direction between the Stafford Road interchange and the OR 43 interchange; constructing a northbound auxiliary lane between OR 99E and OR 213; replacing or reconstructing eight bridges between Stafford Road and OR 213 to withstand a major seismic event, and installing Traveler Information Signs (Active Traffic Management improvements). The I-205 Toll Project location is shown on Figure 8-8.

Figure 8.8 I-205 Toll Project Area Map



As directed by Oregon House Bill 2017 and the Oregon Transportation Commission, Oregon Department of Transportation (ODOT) prepared the Portland Metro Area Value Pricing Feasibility Analysis, which determined that congestion pricing could be used to help improve travel on I-5 and I-205 during peak times and raise revenue for congestion-relief projects. In December 2018, the Oregon Transportation Commission submitted a proposal to the Federal Highway Administration (FHWA) seeking approval to continue the process of implementing tolls on I-5 and I-205. The I-205 Toll Project is being evaluated under the National Environmental Policy Act (NEPA) process and is allowed under the federal tolling authorization program codified in 23 U.S. Code Section 129.

The planned I-205 improvements now included in the I-205 Toll Project were formally part of a different project, identified as the "I-205 South Corridor Widening and Seismic Improvements Project" in the 2018 Metro RTP (also referred to in environmental documentation and public information materials as the I-205: Stafford Road to OR 213 Improvements Project or, simply, the I-205 Improvements Project). In 2021, Oregon House Bill 3055 provided financing options that allowed the first phase of the I-205 Improvements Project to be constructed. This first phase, referred to as the I-205: Phase 1A Project (Phase 1A), includes reconstruction of the Abernethy Bridge with added auxiliary lanes and improvements to the adjacent interchanges at OR 43 and OR 99E. However, ODOT determined that toll revenue would be needed to complete the remaining construction phases of the I-205 Improvements Project after Phase 1A. As such, the planned improvements (besides Phase 1A) were removed from the I-205 Improvements Project and accompanying 2018 NEPA Documented Categorical Exclusion and are now included in the I-205 Toll Project.

ODOT, in partnership with FHWA, has prepared an Environmental Assessment (EA) to evaluate the effects of the I-205 Toll Project on the human and natural environment in accordance with NEPA. The I-205 Toll Project responds to six key problems identified in the need statement: critical projects need construction funding; traffic congestion results in unreliable travel; traffic congestion affects freight movement; traffic congestion affects safety; traffic congestion contributes to climate change; and Oregon's highway system is not seismically resilient.

The EA was released for public and agency comment from February 21 to April 21, 2023. Following the comment period, ODOT may prepare a Revised EA that could include FHWA's and ODOT's responses to comments, additional environmental analysis as needed, and refinement and finalization of environmental commitments to avoid, minimize, and mitigate impacts. FHWA will issue a NEPA decision that could be a Finding of No significant Impact (FONSI). If a FONSI is issued, construction of the I-205 Project is expected to last approximately four years.

As Oregon's toll authority, the Oregon Transportation Commission will set toll rates, policies (including discounts and exemptions), and price escalation. As part of the Oregon Toll Program development, ODOT has committed to providing a low-income toll program when tolling begins. If tolling is approved, the Oregon Transportation Commission will ultimately set toll rates at levels sufficient to meet all financial commitments, fund Project construction and maintenance, and manage congestion. The Oregon Transportation Commission is expected to finalize toll rates about 6 months prior to toll implementation. ODOT could begin tolling in January 2026.

8.3.1.7 I-5 & I-205 Regional Mobility Pricing Project

The Regional Mobility Pricing Project (RMPP) will apply congestion pricing on all lanes of Interstate-5 (I-5) and Interstate-205 (I-205) to manage travel demand and traffic congestion on these facilities in the Portland, Oregon metropolitan area in a manner that will generate revenue for transportation system investments. The pricing varies by time of day according to a set schedule, which can be updated periodically by the Oregon Transportation Commission. Higher fees will be charged during peak travel periods (such as morning and evening peak hours) and lower fees during off-peak hours. Congestion pricing is intended to encourage motorists to plan travel in advance and allows traffic to flow more freely during peak times. The project is being developed with an all-electronic fee collection system.

The Regional Mobility Pricing Project would apply congestion pricing within the following extents, as determined by legislation, with the exact locations to be determined during the federal NEPA process:

I-5 from the Hayden Island Drive interchange to, and including, the Boone Bridge over the Willamette River in Wilsonville.

I-205 from the Glenn Jackson Bridge to OR 213 in Oregon City and I-205 between Stafford Road and I-5.

Figure 8.9 Regional Mobility Pricing Project Extents

These extents are shown in Figure 8.9. The exact locations where congestion pricing will be applied within the project limits will be determined during the federal National Environmental Policy Act (NEPA) process.

Following Oregon House Bill 2017, the Oregon Transportation Commission, and the Oregon Department of Transportation (ODOT) prepared the Portland Metro Area Value Pricing Feasibility Analysis, which determined that congestion pricing could be used to help improve travel times on I-5 and I-205 during peak times and raise revenue for congestion-relief projects. In December 2018, the Oregon Transportation Commission submitted a proposal to the Federal Highway Administration (FHWA) seeking approval to continue the process of implementing tolls on I-5 and I-205.

The Regional Mobility Pricing Project Planning and Environmental Linkages phase concluded in September 2022 and ODOT, with FHWA, initiated the environmental review phase under NEPA in November 2022. ODOT, in partnership with FHWA, is currently preparing an Environmental Assessment (EA) to evaluate the effects of the project on the human and natural environment in accordance with NEPA. The Regional Mobility Pricing Project responds to six key problems identified in the draft need statement: daily traffic congestion is negatively affecting the quality of life in the growing Portland region; traffic congestion adversely affects the Portland metropolitan area economy; state and federal transportation revenue sources are increasingly insufficient to fund transportation system needs; our regional transportation system must reduce greenhouse gas emissions by managing travel demand and congestion; a lack of comprehensive multimodal travel options in the Portland metropolitan region contributes to congestion and limits mobility;

and the Portland metropolitan area's transportation networks have resulted in inequitable outcomes for historically and currently excluded and underserved communities.

Once the EA is complete, the document will be released for public and agency comment. Following the comment period, ODOT may prepare a Revised EA that could include FHWA's and ODOT's responses to comments, additional environmental analysis as needed, and refinement and finalization of environmental commitments to avoid, minimize, and mitigate impacts. FHWA will issue a NEPA decision that could be a Finding of No significant Impact (FONSI). If a FONSI is issued, ODOT will need to complete a Cooperative Agreement with U.S. Department of Transportation/FHWA for congestion pricing implementation under the Value Pricing Pilot Program[6] or recently created Congestion Relief Program.

As Oregon's toll authority, the Oregon Transportation Commission will set toll rates, policies (including discounts and exemptions), and price escalation. As part of the Oregon Toll Program development, ODOT has committed to providing a low-income toll program when tolling begins. More details about the low-income program are expected in 2023, following recommendations from ODOT's Statewide Toll Rulemaking Advisory Committee. The Oregon Transportation Commission is expected to finalize toll rates about six months prior to toll implementation.

8.3.1.8 I-5 Boone Bridge Replacement

The Boone Bridge on I-5 represents a crucial link on one of Oregon's critical seismic lifeline routes that connects the Portland metro area to the Mid-Willamette Valley and areas to the north and south. The Boone Bridge, which is over 60 years old and has been widened and modified over time, will require significant upgrades to withstand a major Cascadia Subduction Zone quake and enable I-5 to continue to serve as a primary West Coast route for passenger and freight movement stretching from Canada to Mexico. Lifeline routes will play a critical role in getting supplies and services to the region in the event of a significant seismic event or other catastrophe.

It is the only crossing of the Willamette River within 15 miles of the Wilsonville town center. This section of I-5 also experiences significant bottlenecks leading to safety concerns and poor travel time reliability. Inefficient merging and weaving caused by short merging areas results in congestion and crashes that reduce travel speeds and travel-time reliability. Without improvement, this bottleneck will continue to deteriorate, leading to slower travel, more costly freight movement, and higher safety risks for those who use I-5 and the surrounding transportation network. The project area also includes two of the top 10% Safety Priority Index System (SPIS) locations (e.g.. 2019 location on I-5 south of the bridge and a 2019 location near the

[6] The U.S. Department of Transportation Federal Highway Administration Value Pricing Pilot Program is intended to demonstrate whether and to what extent roadway congestion may be reduced through application of congestion pricing strategies, and the magnitude of the impact of such strategies on driver behavior, traffic volumes, transit ridership, air quality and availability of funds for transportation programs. The Program provides tolling authority to State, regional or local governments to implement congestion pricing applications and report on their effects.

Wilsonville Road interchange. The 2018 I-5 Wilsonville Facility Plan and Regional Transportation Plan identified solutions to address these issues.

The 2023 RTP includes plans to replace Boone Bridge with a seismically resilient structure, preserve the current NB auxiliary lane and add an auxiliary lane on SB I-5 from Wilsonville Road to the Wilsonville-Hubbard Highway (OR 551). The auxiliary lanes address crashes due to short merging distances, closely spaced interchanges and frequently congested conditions both on and just south of the Boone Bridge. The project will also provide a standard 26 foot wide median and widen the outside shoulders to the current 12-foot standard width. The wider shoulders will provide opportunities for programs such as Bus on Shoulder. The Boone Bridge is at the edge of designated Urban Growth Boundary and small portion of the project falls outside the boundary at the south end of the project.

The first phase of the project is Planning and Environmental Linkages (PEL) which will include conceptual design, public involvement, transportation planning and analysis (i.e., travel patterns, demand), preliminary traffic engineering analysis, and land use analysis and other related consulting and technical advising services. It will conduct planning-level analysis and coordination that prepare materials to support the federally required National Environmental Policy Act (NEPA) process, anticipated to begin in 2025. Further analysis will be completed to refine project costs, advance project design, determine bicycle, pedestrian, and public transportation access, conduct stakeholder engagement, develop and integrate an equity framework, evaluate land use impacts, coordinate with Regional Mobility Pricing Project analysis, determine the NEPA class of action, and prepare the purpose and need statement.

8.3.1.9 Earthquake Ready Burnside Bridge Project

The Earthquake Ready Burnside Bridge Project will replace the existing 97-year old movable bridge in downtown Portland, Oregon with a new, seismically resilient bridge, providing Burnside Street, a regionally designated lifeline route, with a crossing of the Willamette River that would remain fully operational and accessible for vehicles and other modes of transportation immediately following a major earthquake. A seismically resilient Burnside Bridge will support the region's ability to provide rapid and reliable emergency response, rescue, and evacuation after a major earthquake, as well as enable post-earthquake economic recovery. The project is anticipated to infuse $545 million into the state and local economy and create a combination of short and long-term family-wage jobs, equivalent to approximately 6,200 job-years within Oregon.

Multnomah County initiated the federal environmental review process in 2019. The County, in partnership with the Federal Highway Administration (FHWA), issued a Draft Environmental Impact Statement (DEIS) in February 2021 that evaluated four build alternatives and identified one of those alternatives, the Long-span Replacement Alternative, as the project's recommended Preferred Alternative.

Following the issuance of the DEIS, additional cost and funding analysis identified a substantial risk that the construction costs would be too high to reasonably be able to fund, which led the

County to evaluate ways to reduce construction costs while still meeting the Project's purpose and need. Cost reductions were proposed as refinements to the Preferred Alternative in a Supplemental Draft Environmental Impact Statement. They included the reduction of vehicle lanes from five to four, selection of a girder style structure for west approach, selection of a bascule style movable span over the navigation channel, and a range of either a cable stay or tied arch option for east approach long span.

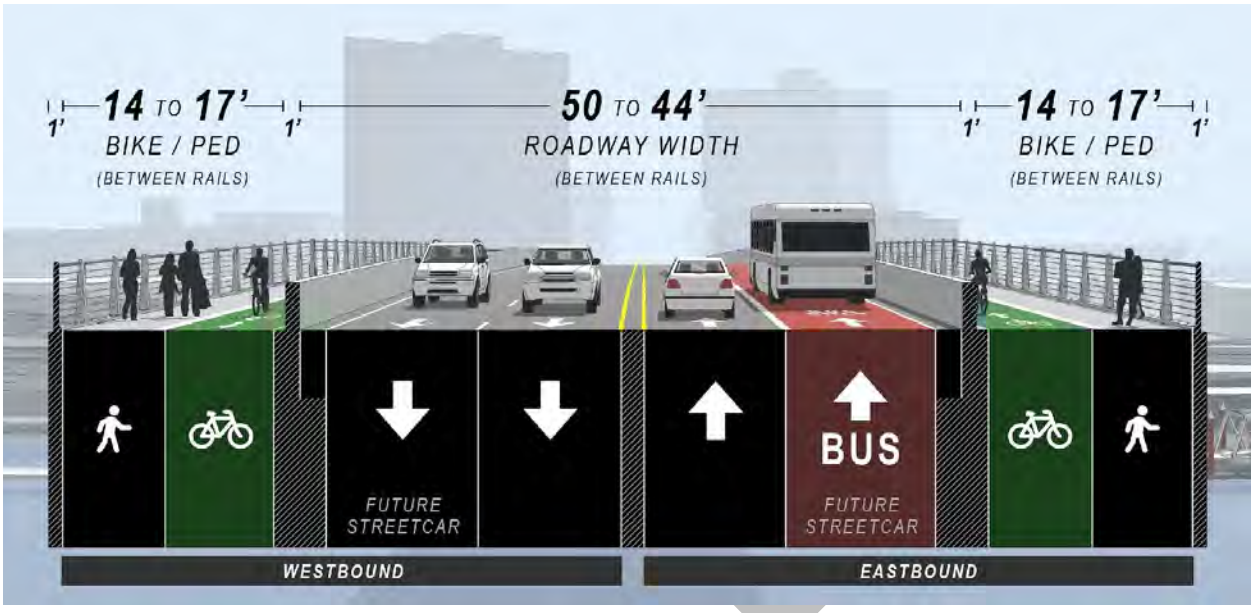
The County Board of Commissioners adopted the refined Preferred Alternative in March 2022 and the SDEIS was published in April 2022. In January and February of 2023, TPAC and JPACT, respectively, recommended the approval of the Preferred Alternative. In March 2023, Metro Council approved the Preferred Alternative. A combined Final Environmental Impact Statement and federal Record of Decision is anticipated in December 2023.

The Earthquake Ready Burnside Bridge, downtown Portland's first seismically resilient bridge, will include bike and pedestrian lanes separated from vehicular traffic by a crash-worthy barrier, an eastbound transit lane with the option to implement a westbound transit lane in the future, and the ability to accommodate a streetcar line identified in existing City of Portland planning documents.

The Project is estimated to cost $895M including design, right-of-way, and construction. Currently, $300M in local funds has been identified through the County's Vehicle Registration Fee. The Project is currently funded through the Design Phase. Once additional funding is secured, construction could start as early as 2025 and be completed by 2030.

Additional project information is available at: www.burnsidebridge.org

Figure 8.10 Earthquake Ready Burnside Bridge Proposed Typical Cross Section



8.3.1.10 Tualatin Valley Highway Transit and Development Project

The Tualatin Valley (TV) Highway Transit and Development project is studying the feasibility of converting the existing TriMet Line 57 bus to a bus rapid transit (BRT) line through major federal investment. Metro is also supporting the creation of a community-led equitable development strategy (EDS) alongside the transit study to support community stability in the face of a major transportation investment in the corridor. The goal of the transit study is to identify a locally preferred alternative (LPA) that would enable partners to apply for federal funding of transit improvements. A BRT project would improve transit speed and reliability, making the bus more competitive with driving along this regional corridor. BRT investment would also improve corridor safety with station access infrastructure for pedestrians and provide a more dignified and attractive transit rider experience through improvements to stations such as shelters and lighting. The BRT project may be nested within or completed in tandem with a roadway project that more directly addresses the significant safety needs along this high-crash corridor, especially those of people walking, biking, and accessing transit.

The project Steering Committee, consisting of representatives from the cities of Forest Grove, Cornelius, Hillsboro, and Beaverton; Washington County; ODOT, TriMet and Metro; and four community representatives, is moving toward agreement on an LPA anticipated in late 2023. The LPA will cover the entire length of the corridor (Beaverton Transit Center to 19th and B Street in Forest Grove) and may include a minimum operable segment that defines an initial federal capital investment in a portion of the corridor.

The EDS was completed in June 2023 and approved by the TV Highway Equity Coalition (TEC), the body who guided its development. Strategies from this document are being advanced by

government and nonprofit partners throughout the corridor and are independent of the implementation stage of the transit study.

8.3.1.11 82nd Avenue Transit Project

Metro, TriMet, the City of Portland, Clackamas County, ODOT, Multnomah County, and the Port of Portland as well as community members are collaborating to develop a rapid bus transit project in the 82nd Avenue corridor between Clackamas Town Center and a northern terminus yet-to-be-determined. In addition, Metro is working to support a community-led equitable development strategy (EDS) that will address community priorities outside of, but often-related to the transit project investment.

The 82nd Avenue corridor is a major route for the region connecting key destinations and communities in Clackamas County and Portland, Oregon and supporting the movement of people and goods in a diverse and growing area. The corridor serves many people who are part of BIPOC, limited English proficiency, and low-income communities, zero car households, or living with a disability. 82nd Avenue was once the primary north-south highway for the area before Interstate 205 was opened in 1983. Since then, the primary function of 82nd Avenue as a regional throughway has diminished, but its importance as a transit and pedestrian corridor has grown. The roadway continues to carry substantial amount of freight, auto, and bus traffic.

TriMet's Line 72 Killingsworth/82 serves the 82nd Avenue corridor and is the highest ridership bus line in TriMet's system[7], and exceeds ridership on the Orange and Yellow Max light rail lines. However, unlike light rail transit, the bus runs in mixed traffic and is often delayed. Line 72 is a frequent service route connecting riders to major destinations, high-capacity transit lines (the new Division FX2 and the MAX Green, Blue, and Red Lines), and over 20 bus routes just in the corridor. It is a workhorse with high ridership all day and weekends and saw relatively high retention of riders during the pandemic.

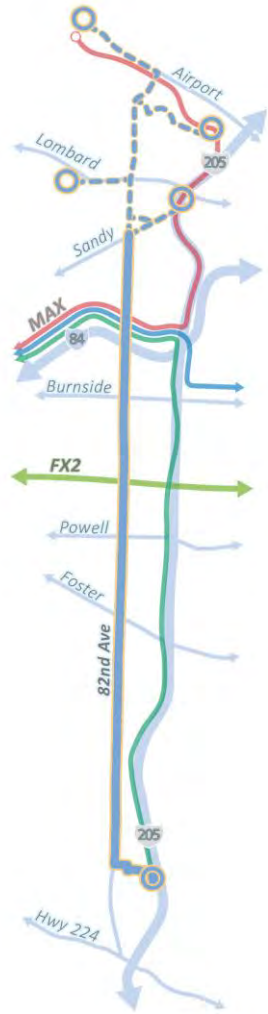
The need for a major transit improvement has been identified in multiple plans including the 2010 High Capacity Transit (HCT) System Plan, the 2018 Regional Transportation Plan (RTP), and the 2018 Regional Transit Strategy. In 2019, Metro's Transportation Funding Task Force selected 82nd Avenue as a Tier 1 priority to include a bus rapid transit project investment. The steering committee has called for the project to address transit speed and reliability, safety, needs of transit-dependent communities in the corridor, and to reduce pollution and greenhouse gas emissions, while designing for a constrained physical environment.

[7] The Line 72 continues west of 82nd Avenue to Swan Island. However, the 82nd Avenue segment accounts for 77 percent of rides (2022) and 82 percent of the passenger delay (2019).

The 82nd Avenue Transit Project would improve transit in the corridor by adding: new buses with greater capacity, improved pedestrian facilities and access, better lighting, transit signal priority and physical bus priority in the roadway to move the bus through congestion, and better stations with shelters, seating, lighting, and real time bus arrival information. The work will be integrated with the streetscape improvements both planned and underway.

The need is urgent with an unprecedented opportunity for an 82nd Avenue bus rapid transit project to leverage and complement a $185 million investment that the City of Portland, the State of Oregon, and regional partners are making as part of the 82nd Avenue jurisdictional transfer. These investments provide the opportunity to reimagine the corridor to improve safety and pedestrian facilities in conjunction with high-quality, frequent, reliable Bus Rapid Transit service. The City of Portland and ODOT are already making near-term safety, paving, and maintenance fixes that will improve access to transit. A second phase of that work is underway through the City's Building a Better 82nd Avenue program to identify additional improvements within Portland for the corridor. These improvements would complement/support the transit investment and could be delivered with the transit project.

The people who live along 82nd Avenue are more likely to rely on transit than the general population with a high number of equity communities in greater representation than the region as a whole. These include people that are low-income, BIPOC, have limited English proficiency, live with a disability, or live in zero car households or in affordable housing. In addition, 82nd Avenue is high injury corridor with inadequate pedestrian facilities, lighting, and limited signalized crosswalks and few transit shelters.



82nd Ave Transit Corridor

The project anticipates having an approved locally preferred alternative demonstrating regional consensus around the transit mode, general station locations, and alignment in winter of 2023/24. The NEPA phase of the project would begin post LPA and after early corridor design is underway.

8.3.2 Metropolitan Transportation Improvement Program

Note – This section will be further updated this Summer

The Metropolitan Transportation Improvement Program (MTIP) documents how all federal transportation funding is spent in the greater Portland region for a four-year period as well as state- and locally-funded projects that may significantly affect the region's transportation system performance. The MTIP serves multiple purposes – the document:

- lists all federally-funded transportation expenditures;
- identifies funding sources for transportation projects;
- provides project implementation details (e.g., in what year the preliminary engineering, right-of-way acquisition and construction phase is expected);
- demonstrates federal planning and fiscal requirements to expend federal funds have been met; and
- reports how adopted regional policies influenced the selection of these near-term investments as priorities to move forward.

This section describes the role of the MTIP as a key tool for implementing the RTP and provides an outline of expectations for demonstrating consistency with the RTP to be programmed in the MTIP for implementation. The MTIP document provides more specific description of how projects proposed to be included in the MTIP are expected to demonstrate consistency with the RTP.

8.3.2.1 MTIP responsibilities and oversight

Metro has the responsibility to prepare the MTIP, but it is done in collaboration and coordination with ODOT, and transit agencies, TriMet and SMART, as the region's four entities responsible for administering federal transportation funding. Additionally, cities, counties, the Port of Portland, other local agencies, and the public participate in the development of the MTIP.

JPACT, the Metro Council and the Governor of the State of Oregon approve the MTIP. The MTIP is then incorporated, without change, into the State Transportation Improvement Program (STIP), which integrates regional and statewide improvement programs.

8.3.2.2 The role of the MTIP in regional planning

The RTP plays a significant guiding role for the MTIP as it sets the policy direction for what transportation investments are eligible for federal funding and the prioritization criteria for allocating federal funding. Through inter-regional coordination throughout the planning and programming process, the MTIP ensures that investments of federal funds are consistent with the RTP and makes progress in achieving performance targets established in the plan. The MTIP is updated every three years.

One of the primary purposes of the MTIP is to ensure scarce federal transportation funding and investments are making progress towards the regional vision set out for transportation system in the RTP. As a result, the greater Portland region's MTIP gives top priority to strategic transportation investments that leverage and reinforce the region's land use strategy envisioned in the 2040 Growth Concept and the supporting multimodal transportation investments in the RTP.

8.3.2.3 Demonstrating consistency prior to implementation

As the vehicle for implementing the RTP, the MTIP has two primary purposes:

1. ensure federal planning and fiscal requirements for expending federal transportation funds are being met; and
2. ensure the investments are making progress towards regional goals, objectives and implementing regional policies as part of performance-based programming.

Recognizing these two primary purposes of the MTIP, any investment requiring inclusion in the MTIP must demonstrate and justify how the investment implements the RTP and regional policy outcomes. This is necessary to meet federal eligibility and compliance purposes, provide the best transportation experience possible for the region's residents, businesses, employees, and visitors and for good stewardship of scarce transportation resources.

The determination and demonstration of consistency with the RTP, done through the MTIP process, comprises quantitative and qualitative evidence that the investment advances implementation of the RTP investment strategy, financial constraint, project performance towards regional and federal performance targets, and public involvement and consultation. In general, there are two main avenues to demonstrate consistency with the RTP whether as an individual transportation investment or an entire package of transportation investments may be included in the MTIP. The two avenues include the following:

1. During the prioritization process to allocate federal transportation dollars to various transportation projects, including the identification of the criteria and the consideration of multimodal tradeoffs (prior to the submission to the MTIP); and
2. The process for amending the MTIP.

As each four-year MTIP is developed, determination of consistency is also conducted and demonstrated programmatically to show how the MTIP package is consistent with and advances the implementation of the Plan. Additionally, the programmatic evaluation serves as a monitoring tool for assessing progress in implementing the RTP.

The following sections describe the core areas that MTIP investments (at individual scale and during the funding allocation process) are required to demonstrate consistency with federal requirements and adopted regional transportation policy as expressed in the RTP goals, objectives, and policies. Example questions are provided to illustrate what information is sought.

Regional significance

The adopted RTP represents the regional transportation system in the greater Portland region, which serve regional transportation needs and provides a specified level of seamless multimodal connectivity, accessibility, and management of people and goods traveling on the system. As a result, the limited amount of available federal funding must be allocated strategically to advance the operation or enhance the development of key facilities across the different modal systems (e.g., transit, bicycle and pedestrian active transportation, freight) to ensure an interconnectivity while supporting other desired regional outcomes (travel options, reduced greenhouse gas emission, etc.).

For the purposes of demonstrating consistency, the RTP has identified these key facilities, programs, and strategies in defining the regionally significant system. Additionally, other conditions and circumstances may qualify a transportation investment as regionally significant, as reflected in the RTP definition of regional significance and corresponding RTP network maps contained in Chapter 3.

Examples of questions asked for transportation investments to demonstrate Regional Significance:

- Is the transportation investment advancing a project on a facility designated in one or more of the RTP network maps?
- Does the transportation investment require permitting approval(s) from a federal agency or project level NEPA review?
- Does the transportation investment provide new motor vehicle capacity and would normally be included as an input to the regional travel demand model?

Regional goals and objectives

The adopted RTP demonstrates a significant need for investment in the transportation system to address many growing demands of the transportation system, including the growing backlog of maintenance, expansion of services, and increased connectivity and completeness of different modes. Recognizing the scarcity of funding while the need for investment is ever growing, each dollar invested in the regional transportation system must serve a regional purpose and advance the implementation of the region's transportation vision and supporting goals, objectives and policies.

To be included in the MTIP, investments must demonstrate how implementation will address one or more of the RTP's goals, objectives, and policies, listed in Chapters 2 and 3. Moreover, the Metro Council identified these key regional policy priorities – transportation equity with a focus on race and income, safety, travel options, Climate Smart Strategy implementation, economic development and managing congestion – to be the focus of this RTP. The RTP's goals serve as the broad direction and expectation of what each investment in the system should aim to achieve but additional focus and attention should be paid to the RTP policy priorities. These goals are consistent with the federal planning factors issued by U.S. DOT.

Examples of questions asked for investments to demonstrate consistency with Regional Goals and Objectives include:

- What regional goals and objectives are being addressed by this transportation investment?
- Is the project identified as part of the adopted RTP financially constrained project list?
- Is the project advancing one or more of the Climate Smart Strategy policies? If so, which policy(ies) and how?
- Is this project addressing and/or advancing a strategy or action within an adopted regional modal or topical strategy or plan, or shared strategy of the RTP? If so, which modal or topical strategy or plan? Which strategy (or strategies) and action(s)? How does it address or advance the modal or topical strategy or plan?

8.3.2.4 Demonstrating fiscal constraint

As a federal requirement, both the RTP and the MTIP are fiscally constrained. Project costs are not to exceed expected revenue sources. For the MTIP, transportation identified investments are only those projects for which resources are expected to be available, and funding identified for the first year must be committed by administering agencies to the project. The MTIP is not a comprehensive accounting of all transportation investments in the region; it only accounts for the funding of regionally significant projects and does not include projects on local streets and facilities. Projects that are 100 percent locally funded but of regional significance are included for informational and analysis purposes only.

Per federal regulations, transportation projects using federal funds are expected to demonstrate that revenues needed to deliver the project are available and the revenues were accounted for in long-range transportation plan revenue projections. Therefore, projects included in the MTIP must be included in the RTP financially constrained project list either as an identified individual project or through a programmatic category. Additionally, projects in the MTIP must be consistent in scope and financial scale as to what was reflected in the financially constrained RTP project list. The revenue assumptions used to develop the RTP financially constrained project are defined in Chapter 5. Projects included in the RTP financially constrained project list are identified in Appendix A (2023-2030 time period) and Appendix B (2031-2045 time period).

If a project is proposed for funding and inclusion in the MTIP and is not included in the RTP financially constrained project list, the RTP must be amended to include the project as a condition of being adopted in the MTIP.

To amend projects into the financially constrained project list fiscal constraint must be demonstrated by identifying additional revenues or removing other projects from the financially constrained project list. More information about the process and other requirements that must be met to amend the RTP will be provided in the Appendix.

Examples of questions asked for transportation investments to demonstrate Fiscal Constraint:

- Is the transportation investment/project identified in the adopted RTP financially constrained project list?
- Is the project consistent in scope and cost as to what was accounted for in the RTP financially constrained project list and regional travel model?
- How will the funding and implementation of this project impact the sponsoring agencies ability to adequately operate and maintain its transportation system in the future?

8.3.2.5 Demonstrating support toward achievement of performance targets

Signed into law in 2012, the previous federal transportation reauthorization, known as Moving Ahead for Progress in the 21st Century (MAP-21), created the most significant federal transportation policy shift since the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA). A fundamental element of the legislation was its focus on performance-based planning and programming.

For the first time, MAP-21 established a federal performance management framework to improve transparency and hold state transportation departments, transit agencies and metropolitan planning organizations (MPOs) accountable for the effectiveness of their transportation planning and investment decisions. The objective of the performance management framework was to ensure states and MPOs invest federal resources in projects that collectively will make progress toward the achievement of the national goals. The required performance-based approach includes targets for measures specified by U.S. DOT and requirements to track and report progress toward meeting these targets. Twelve performance measures have been identified through MAP-21 and subsequent U.S. DOT rulemaking. These federal performance measures and targets address:

- Safety
- Infrastructure condition
- Congestion reduction
- System reliability
- Freight movement and economic vitality
- Environmental sustainability

Preceding the adoption of the MAP-21 performance-based planning requirements, the Metro Council and JPACT adoption of the 2010 RTP established an outcomes-focused performance-based planning process that continues today. The RTP performance-based process centers on measuring the performance of the adopted RTP investment strategy and monitoring progress towards transportation system performance targets identified in Chapter 2. The RTP performance targets address:

- Affordability
- Safety

- Vehicle miles traveled
- Mode share
- System Completion
- Mobility
- Climate change and greenhouse gas emissions reduction
- Clean air

The RTP performance measures and targets contained in Chapter 2 and Appendix L support and are consistent with federal and state performance-based planning requirements and measures and align to the federal planning factors required for MPOs to address and make progress towards. To be included in the MTIP, transportation investments planned for the region to meet growing demands, needs or deficiencies, must also demonstrate contribution to progress toward federal and RTP performance targets.

Examples of ways in which transportation investments can demonstrate consistency with performance targets include addressing:

- How does the transportation investment/project contribute one or more of the federal and/or regional performance targets for the transportation system?
- What evaluation was performed to compare candidate projects for making progress toward federal and regional performance targets? What results can be provided to demonstrate the investment is making progress towards the federal and/or regional performance targets?
- How did the funding allocation process consider federal and regional performance targets in its criteria in the selection of projects and allocation of funds?

8.3.2.6 Public involvement expectations and process for demonstrating consistency

As part of federal guidance on public involvement and on Civil Rights laws and the Executive Order on Environmental Justice, it is expected that all transportation investments identified in the MTIP have provided and will continue to provide opportunity for community input and comment until the investment is implemented and/or open for service. This means prior to an investment being identified in the MTIP, it must have emerged through planning process that was adopted or approved by a governing body and be included in the RTP investment strategy. The planning process, and that process's community engagement effort, indicates the investment addresses an identified transportation deficiency and need in the local community and the community has had opportunity to inform the plan. The adoption or approval of the plan must also provide an opportunity for public testimony.

Commonly recognized planning processes from which projects emerge include local transportation system plans (TSPs), but other planning processes include corridor studies, facility plans and sub-area plans. Additionally, through the development of the RTP project list, local jurisdictions are asked to self-certify transportation investments being proposed for the long-

range transportation plan have undergone or are currently undergoing public involvement efforts through an approved planning process.

Examples of ways in which transportation investments can demonstrate consistency with Public Involvement include addressing the following:

- From which planning process does the transportation investment emerge from? What opportunities for public feedback were available as part of the process?
- How was feedback from the public incorporated into the development of the investment?
- What demographic assessment was done to identify communities of color, people with limited English proficiency, people with low income and other historically marginalized communities as stakeholders?
- Were all interested/affected stakeholders meaningfully engaged in the funding allocation prioritization and decision-making process?
- Were all interested/affected stakeholders meaningfully engaged prior to the request for programming a project into the MTIP? [8]

8.3.2.7 Developing the MTIP

The MTIP development process is initiated by Metro with an update to the MTIP program direction and an initial financial forecast of revenues expected to be available for programming. The program direction identifies how JPACT and the Metro Council intend to coordinate the funding allocation processes administered by Metro through the Regional Flexible Funds Allocation (RFFA) process and for funds administered by ODOT and public transit agencies – TriMet and SMART. The policy document also describes how the funding allocation processes address federal regulations for the allocation of federal transportation funds.

Projects seeking funding through any of the funding allocation processes must be included in the financially constrained Regional Transportation Plan project list. JPACT and the Metro Council consider the MTIP for final approval. Upon adoption by the Metro Council, the MTIP is submitted to the Governor of Oregon for inclusion in the STIP.

[8] Interested and affected stakeholders means those members of the public affected or interested in transportation investment (or package of investment), as well as formal entities, such as natural resource agencies, emergency management agencies, tribal entities, etc. which may have interests or be affected by the implementation of the proposed transportation investment.

8.4 DATA AND TOOLS

8.4.1 Performance-based planning and programming

Over the past two decades, Metro and other transportation agencies have increasingly been applying "performance management" – a strategic approach that uses performance data to support decisions to help achieve desired performance outcomes. Performance management is credited with improving project and program delivery, informing investment decision-making, focusing staff on leadership priorities and providing greater transparency and accountability to the public.

Performance-based planning and programming (PBPP) applies this strategic approach within the planning and programming processes of MPOs, like Metro, and other transportation agencies to achieve desired performance outcomes for the multimodal transportation system. This includes a range of activities and products undertaken by a MPO together with other agencies, stakeholders, and the public as part of a 3C (cooperative, continuing, and comprehensive) process. It includes development of: long-range regional transportation plans, the Congestion Management Process, other plans and processes developed by ODOT and transit providers, such as Strategic Highway Safety Plans, Asset Management Plans, Transit Agency Asset Management Plans and Transit Agency Safety Plans, and programming documents, including State and Metropolitan Transportation Improvement Programs (STIPs and MTIPs).

PBPP 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.

This section summarizes data and research activities to address existing and emerging planning and policy priorities and innovative practices in transportation planning and analysis. These activities help ensure that the region has the resources to fulfill its state and federal transportation performance measurement, monitoring and reporting responsibilities.

8.4.2 Data Collection and Coordination

This section summarizes data collection and coordination to support regional transportation planning and analysis, including regional travel model calibration and validation, and federal congestion management process analysis and performance based planning target setting and monitoring. The majority of our data is maintained in Metro's Regional Land Information System (RLIS). This database is comprised of over 150 different (primarily geospatial) data sets, and most of the data sets identified in the sections below are elements. Metro publishes RLIS on a quarterly basis, but many data sets are on different cycles and come from different sources. All data sets are available for review at http://rlisdiscovery.oregonmetro.gov, along with a date of last publication. The associated metadata should be consulted in advance to understand how the data were generated and to determine the appropriateness of its use.

8.4.2.1 Growth Data

Metro Research Center will continue to refine its recently developed Land Development Monitoring System (LDMS) as a component of RLIS. LDMS tracks the location cost and use-type of residential and employment land utilization to inform regional growth management and transport planning. Metro will work to enhance LDMS and RLIS with more equity-related data.

8.4.2.3 Travel Activity Data

Metro Research Center staff is leading coordination efforts for the next regional travel behavior survey (Oregon Travel Study, Spring 2023-Spring 2024). Additional research will be necessary to ensure that the survey captures traditionally relevant as well as emerging behavior (e.g., extent of Uber/Lyft utilization in place of other travel modes, working from home, and online shopping), and be conducted in a comprehensive and cost-effective manner. One outcome was a shift from traditional one-day travel diaries to smartphone-based weeklong surveys as the primary collection method. The new survey also includes revised sampling, recruitment, and outreach strategies to improve participation among hard to reach and historically marginalized groups.

New and emerging data collection methods (e.g. location-based services data, longitudinal or rolling surveys, emerging needs follow up surveys, mobile phone apps, personal GPS devices, etc.) will also be investigated to help ensure that the survey effort is well positioned to capture rapidly changing trends in personal travel behavior. Metro will partner with other Oregon modeling agencies (via the Oregon Modeling Statewide Collaborative, OMSC) as well as the Southwest Regional Transportation Council (SWRTC) to maximize the geographic span and cross agency utility of the data.

8.4.2.4 Transportation Safety Data

Metro staff will coordinate with federal, state, regional and local partners to acquire, collect and maintain the data currently used for transportation safety related analysis. This data includes, but is not limited to, crash data provided by ODOT and roadway network, traffic volume and vehicle mile traveled data. Additionally, new data required to provide more in-depth analysis will be pursued, including race and ethnicity of crash victims, posted speed and pedestrian crossing data to name a few.

8.4.2.5 Multi-Modal Network Data

Metro Research Center will continue to update multimodal data in RLIS. RLIS street centerlines, sidewalks, bike routes and off-street trails networks are updated quarterly and comprise the basis of the multimodal network.

Research staff will also continue to develop and maintain high-resolution multimodal modeling networks. The modeling networks support long-range planning, project evaluation, and system performance monitoring needs. Staff will coordinate with other state agencies via the OMSC as

new modeling networks are developed (e.g. the statewide OpenStreetMap-based network and the statewide multimodal network).

8.4.3 Analysis Tool Maintenance and Enhancement

This section summarizes planned maintenance and enhancement of the regional travel model and MOVES, and the development of a replacement land use model for the now defunct MetroScope model to address existing and emerging planning and policy priorities and innovative practices in regional transportation planning and analysis.

8.4.3.1 Growth Forecast

Metro Council has committed to making its next Urban Growth Boundary decision by the end of 2024. That decision will adopt a Regional Economic Forecast of total future jobs and employment. Upon adoption of those regional control totals Metro will work to create the next generation Distributed Forecast (the Traffic-Analysis-Zone-level growth forecasts used in transportation planning and forecasting). The distributed forecast (likely to be released in 2026) will be available to support future MTIP and RTP update cycles.

8.4.3.2 Growth Forecast Tools

A replacement land use model will not be in place for the 2026 Distributed Forecast. The Metro Planning, Development and Research Department will work closely with local jurisdictions to modify and prepare a revision to the most recent land use forecast with available methods and best available Regional Economic Forecast information. Metro Research Center is now working to scope and implement a replacement for the MetroScope land use allocation model but it will not be ready in time for the anticipated 2024 Urban Growth Management cycle. We will consider a wide variety of traditional and next-generation tool options to replace Metro Scope with the goal to have such a land use model operational by the subsequent growth management cycle in 2030. This work will directly improve the means of producing future distributed forecasts.

8.4.3.3 Regional Transportation Model Tools

Metro staff will continue to maintain and enhance the current trip-based travel model. Recent enhancements to the model include the transition from a 2015 to a (pre-COVID) 2020 base year; implementation of a new regional freight model that considers commodity flows associated with supply chains at the global, national, and regional scales; and improvements to the model's ability to represent the effects of roadway pricing across varying user segments. Future activities include incorporation of the results of an updated regional household travel survey and refinements to: the bicycle assignment algorithm. Metro staff will stay current with updated versions of the EPA's Motor Vehicle Emission Simulator (MOVES) for estimating emissions of criteria pollutants, greenhouse gases and air toxics.

8.4.4 Analysis Tool Development

This section summarizes development of new analysis tools to address existing and emerging planning and policy priorities and innovative practices in regional transportation planning and analysis. It includes visualization tools, housing and transportation cost tool, project-level evaluation, piloting the multi-criteria evaluation (MCE) tool, and crash prediction modeling tools.

8.4.4.1 Regional Activity-Based Model

The statewide estimation of the ActivitySim platform will begin in FY23-24, with scoping and design to begin in April 2023. Upon completion of the Oregon Household Survey in 2024, estimation of the activity-based model will begin (FY24-25). Key efforts during 2024-2025 will include the development of staff expertise and a common, statewide estimation of ActivitySim that will be the basis for local deployment of the toolset. FY25-26 will see the deployment of ActivitySim to local jurisdictions—including Metro—and will require further estimation and calibration work to customize for the Portland region. Travel Forecasting staff will coordinate closely with Metro planning to ensure that the activity-based model framework is analytically aligned with anticipated policy questions, and will be ready for deployment for the 2028 Regional Transportation Plan.

8.4.4.2 Regional Freight Model

Development of the freight model is complete and the model is integrated with the trip-based travel demand model. The freight model will be integrated with the ActivitySim activity-based model as that model is implemented at Metro.

8.4.4.3 Housing and Transportation Expenditure Tool

During the 2018 RTP, the Metro Research Center began development of the framework for a Housing and Transportation Expenditure tool to assess out-of-pocket expenditure for housing and transportation and to project the effects of future transportation investments on housing and transportation costs. Both current and forecast states of the regional land markets and transportation system will be represented in a final tool after further development, testing and refinement. The tool will help to respond to various questions pertaining to gentrification and displacement when assessing transportation investment scenarios.

8.4.4.4 Economic Value Atlas Decision-Support Mapping Tool

Development of the Economic Value Atlas (EVA) established tools and analysis that align planning, infrastructure, and economic development to build agreement on investments to strengthen our economy.

This work:

- Provides mapping and insight into our regional economic landscape;
- Links investments to local and regional economic conditions and outcomes; and

- Informs policy and investment – providing a foundation for decision-makers to understand the impacts of investment choices to support growing industries and create access to family-wage jobs and opportunities for all.

The EVA provides a solid data foundation for key regional activities such as:

- outlining a path to pursue policy, actions and investment that help support growing industries and family-wage jobs;;
- defining potential areas for partners to collaborate and develop shared investment strategies;
- pinpointing areas of focus for regional investment to bridge local and regional economic development aspirations; and
- providing a data picture of the regional economy to align investments that achieve the coordinated vision of Greater Portland 2020, the 2040 Growth Concept and the Regional Transportation Plan.

This work supports regional transportation planning and investment decisions by:

- Highlighting key intersects between transportation + economic conditions that can guide project prioritization criteria incorporated into the next 3-year RFFA cycle.
- Building a granular understanding of relative economic strengths and challenges among communities in the region to inform local Transportation System Plans and area studies, regional investment areas and corridor refinement planning and planning studies, and advance more strategic transportation project prioritization and investment based on surrounding economic conditions.
- Supporting multiple applications by ongoing regional programs in Metro's Planning and Development Department.

8.4.4.5 Displacement Monitoring Tool

First Identified as a key priority for the RTP transportation equity evaluation in 2017, involuntary displacement continues to be of concern in the region.. Specifically, policymakers and marginalized communities desired to understand the potential displacement impacts to result in investment as well as what proactive mitigation strategies may be put into effect in advance to address the displacement risk. Through development of the 2018 RTP transportation equity system evaluation method, it was determined the RTP system analysis would not be able to look at displacement risk due to the limitations of the forecasting tool.

Nonetheless, in an effort to honor the input and recognize the concern about displacement risk from public investment in the transportation system, the 2018 RTP recommended development of a streamlined displacement risk tool, which can help inform plans, project designs, and other components of transportation investment. Since 2018, the Southwest Equitable Development Strategy (SWEDS) developed a displacement risk method that is informing development of a displacement risk monitoring tool in the future.

Metro's Data Resource Center (DRC) is currently researching methods of monitoring displacement risk in the region, which will likely include some of the demographic, housing, and business data that Metro already collects or compiles. Metro's displacement research is evolving alongside other analytical areas, including monitoring geographic changes in land use and demographics in the region. A displacement monitoring tool will help policy makers understand where displacement risk is heightened in the region, as well as understand what indicators are increasing the risk. This information will in turn help policy makers work with stakeholders and constituents to identify policies that can help mitigate displacement, especially in areas where public investment is occurring

8.4.4.6 Crash Prediction Modeling Tool

Better understanding and evaluation of how projects, programs and strategies impact transportation safety system wide are key elements to effectively planning for safety and achieving safe system programs such as Vision Zero. Metro staff will coordinate with federal partners and other MPOs to develop and pilot the use of crash prediction modeling tools to assess safety performance system wide.

8.4.4.7 Social Vulnerability Explorer

Metro's Data Resource Center has developed a Social Vulnerability Explorer[9], which provides an introductory point of access to regional indices and indicators related to potential social vulnerability in the five-county Portland metropolitan region, including Clackamas, Columbia, Multnomah, and Washington counties in Oregon and Clark County in Washington. The application enables exploratory data analysis and visualization, as well as comparisons of user-specified areas to regional averages.

The online explorer was built as part of a larger Social Vulnerability Tools project[10], which sought to identify which communities in the region experience barriers to emergency services and programs before, during, and after disasters. Besides helping to craft a common understanding of social vulnerability in the region, the Social Vulnerability Tools project also helped to create a set of social vulnerability data, including input indicators and output indices.

The Social Vulnerability Explorer was specifically built for the purpose of allowing those that do not have access to or experience with mapping software to use an online internet browser to explore and visualize the geographic distribution of and relationship between indicators and indices in the Social Vulnerability Tools project.

Potential use cases of the Social Vulnerability Explorer include:

[9] https://gis.oregonmetro.gov/social-vulnerability-explorer/

[10] https://rdpo.net/social-vulnerability-tools-project

- Emergency management and human or health services professionals can understand the demographic composition of service territories or investment areas, as well as the various types of vulnerabilities that may be reflected in their respective constituencies.
- GIS professionals can conduct exploratory visualization and analysis, specifically as it relates to the intersection of multiple indicators, which can be done more quickly and efficiently with the online tool than with traditional desktop-based mapping software.
- Community-based organizations can quantify the demographic composition of their service areas – perhaps for grant writing.
- Academics or researchers can compare demographics between neighborhoods and other areas of interest, such as transportation corridors, municipalities or the region.

8.4.4.8 VisionEval (VE-RSPM) Climate Monitoring Tool

The VisionEval framework is built on the "GreenSTEP family" of models developed by the Oregon Department of Transportation (ODOT) to assist in the development of plans to reduce greenhouse gas (GHG) emissions from light-duty vehicles in order to meet Oregon State statutory goals. The RSPM (Regional Strategic Planning Model) was developed by ODOT as an offshoot of the GreenSTEP model to support the preparation of metropolitan area scenario plans. The name reflects a broadening of the policies, beyond state statutory requirements. Metro and consulting staff are using and enhancing Metro's VE-RSPM to monitor our progress toward our climate goals achieved by RTP projects and policies.

8.4.5 Monitoring and Reporting Tools

This section summarizes information systems and data resource coordination efforts that Metro is doing or will do to ensure that the region has the resources to fulfill its transportation performance-based planning, programming and reporting responsibilities.

8.4.5.1 Monitoring Data and Information Systems

Metro Research Center staff will continue to investigate new and emerging data sources and data collection methods (e.g., location-based services data, longitudinal or rolling surveys, mobile phone apps, personal GPS devices, etc.) to help ensure that Metro is well Research Center staff will also continue to collect and process National Performance Management Research Data Set (NPMRDS) data for federally-required performance monitoring purposes. Staff will also continue to explore and support the ODOT-provided auto travel speed and volume data available via the Regional Integrated Transportation Information System (RITIS) platform

8.4.5.2 Congestion Management Process Data Collection and Monitoring

This section summarizes the region's approach to monitoring and reporting on the progress implementing the RTP through the regional Congestion Management Process (CMP).

The great challenge for establishing and maintaining a monitoring program has been the availability of data. Historically, collecting and managing data has been expensive and difficult. With advancements in Intelligent Transportation Systems (ITS) in the region, more and better data is available today and will continue to grow with implementation of data collection projects identified in the Regional Transportation System Management and Operations (TSMO) plan.

Starting in 2008, the region approved ongoing funding for implementation, including an annual allocation to fund Portal, the regional transportation data archived, housed and maintained by Portland State University. PSU, in partnership with ODOT, TriMet, Metro and other local agencies, provides data aggregation, maintenance and reporting on the region's roadways and transit systems. Metro will continue to work with ODOT and other regional partners to expand existing data collection and performance monitoring capabilities, in order to evaluate system performance for all modes of travel and support the region's CMP.

This work includes supporting a data management system to facilitate data collection, maintenance and reporting to support on-going RTP and MTIP monitoring. The performance monitoring will be reported biennially as part of the Regional Mobility Program, consistent with the region's federally approved congestion management process.

Table 8.6 lists where key elements of the region's CMP are addressed in the RTP and Appendices to show how the region's planning and investment activities implement the CMP.

Table 8.6 Key Elements of the Region's Congestion Management Process (CMP)

Regional Congestion Management Process	Associated RTP/MTIP Activities
Develop congestion management objectives and policies	RTP Goals and Objectives (Chapter 2), RTP Policies (Chapter 3)
Define geographic area and network of interest	RTP (Appendix L – Figures 3 and 4)
Establish multimodal performance measures	RTP Performance Measures and Targets (Chapter 2), RTP Federal Performance Measures and Targets (Appendix L)
Collect data and monitor system performance	RTP Existing Conditions (Chapter 4Mobility Corridor Atlas (2015)
Analyze congestion problems and needs	RTP Existing Conditions (Chapter 4), RTC CMP Monitoring Report (2021), RTP Performance Evaluation (Chapter 7)
Identify and evaluate effectiveness of strategies	RTP (Chapter 6), RTP (Chapter 7), RTP (Appendix E - Transportation Equity Evaluation), RTP (Appendix F – Environmental Analysis and Potential Mitigation Strategies), RTP (Appendix J – Climate Smart Strategy Implementation and Monitoring), corridor refinement planning, area studies, local transportation system plans

Regional Congestion Management Process	Associated RTP/MTIP Activities
Implement selected strategies and manage transportation system	MTIP, local jurisdictions, ODOT, TriMet, SMART, TransPort, Regional Transportation Functional Plan, RTP (Chapter 8)
Monitor strategy effectiveness[11]	Scheduled RTP updates, CMAQ Performance Plan , RTP (Appendix J – Climate Smart Strategy Implementation and Monitoring), RTC CMP Monitoring Report

More information about the region's Congestion Management Process is provided in Appendix L.

8.4.5.3 Performance monitoring measures and targets

Performance monitoring measures identified in Chapter 4, Appendix J and Appendix L are used to track changes in system performance and implementation progress over time and between scheduled updates to the RTP. Reporting these changes provides valuable information on trends and conditions using actual empirical or observed data to the extent possible in advance of RTP updates to assess how the transportation system is performing and identify possible policy or strategy adjustments that may be needed.

Appendix J contains a complementary set of performance measures and performance monitoring targets specific to tracking implementation of the Climate Smart Strategy adopted by JPACT and the Metro Council in 2014 and report on progress. The Climate Smart Strategy performance measures and targets are used to monitor and assess whether key elements or actions that make up the strategy are being implemented, and whether the strategy is achieving expected outcomes. The Climate Smart Strategy performance monitoring targets are not policy targets, but instead reflect a combination of the planning assumptions used to evaluate the Climate Smart Strategy and outputs from the evaluation of the adopted strategy.

Appendix L documents the region's approach to addressing the federal transportation performance-based planning and congestion management requirements contained in the Moving Ahead for Progress in the 21st Century Act (MAP-21) and the Fixing America's Surface Transportation (FAST) Act. The multimodal performance measures and near-term performance monitoring targets in Appendix L are used to monitor transportation system performance using empirical or observed data between scheduled updates.

[11] USDOT, "Guidebook on the Congestion Management Process in Metropolitan Transportation Planning." Page 1-1 (April 2011).

Work continues to establish a coordinated program for data collection and system performance monitoring between scheduled updates to the Regional Transportation Plan to inform planning and investment decisions.

DRAFT – May 26,2023

2023 RTP Glossary of Terms

May 26, 2023 WORKING DRAFT

This draft is subject to copy edits, technical corrections and minor updates as it finalized for public review.

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GLOSSARY OF TERMS

Accessibility – The ability 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, intersection design, 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. *See also Transit 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.

Active Transportation Plan – Adopted in 2018, the Regional Active Transportation Plan identifies a vision, policies and actions to complete a seamless green network of on- and off-street pathways and districts connecting the region and integrating walking, biking and public transit.

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.

Air quality – Air quality refers to the degree to which the air is suitable or clean enough for humans or the environment. Good air quality means the air is free of harmful substances.

All Roads Transportation Safety (ARTS) – Formerly known as the Jurisdictionally Blind Safety Program, is an Oregon Department of Transportation Program that is designed to address safety needs on all public roads in Oregon. The program's goals are to:

- Increase awareness of safety on all roads;
- Promote best practices for infrastructure safety;
- Complement behavioral safety efforts;
- Focus limited resources to reduce fatal and serious injury crashes in the state of Oregon.

The program is data driven to achieve the greatest benefits in crash reduction and is blind to jurisdiction.

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_{10}, $PM_{2.5}$, 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. The greater Portland region received attainment status in 2017.

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;[i] 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 is the portion of the roadway adjoining the through lanes for speed change, turning, weaving, truck climbing, maneuvering of entering and leaving traffic, and other purposes supplementary to through-traffic. 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 and is not intended to function as a general purpose travel lane. Auxiliary lanes add additional motor vehicle capacity. New or extended auxiliary lanes with a total length of one-half mile or more, or existing auxiliary lanes being considered for conversion to general purpose lanes through restriping, must be reviewed as provided under the Congestion Management Process (RTP Section 3.55) and OAR 660-012-0830 (unless exempted as provided by the rule) due to the potential for these facilities to increase motor vehicle travel per capita. *See also definition for Congestion Management Process.*

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.

Better Bus (enhanced transit toolbox) – Better bus is a set of street design, signal, and other enhanced transit improvements that improve transit capacity, reliability and travel time along major Frequent Service bus lines. 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.

Better Bus 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. Better Bus is intended to be flexible and context-sensitive during design and implementation. It 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.

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. Also referred to as bike.

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 boulevards may also be referred to as "neighborhood greenways." *see also Neighborhood Greenways*

Bicycle comfort index (BCI) – A method to analyze the auto volumes, auto speeds and number of auto lanes on existing bikeways and within defined 'cycle zones' and assign a comfort rating to the bikeway. Generally off-street paths receive the highest rating because they are completely separated from auto traffic. Results help identify existing bikeways on the regional bicycle network that could be upgraded to increase bicyclists comfort. Metro's BCI analysis was used in the existing conditions step of developing the Regional Active Transportation Plan. Additional data would be useful to refine the tool.

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 Regional Active Transportation Plan. 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 (bicycle) 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, though 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.

Bipartisan Infrastructure Law – The Infrastructure Investment and Jobs Act (IIJA) (Public Law 117-58, also known as the "Bipartisan Infrastructure Law") is the Federal transportation bill signed into law November 15, 2021 by President Biden. The Bipartisan Infrastructure Law is the largest long-term investment in infrastructure and economy in the history of the United States.

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. Certain faciliites that increase motor vehicle capacitty must be reviewed as provided for in OAR 660-012-0830: (A) A new or extended arterial street, highway, freeway, or bridge carrying general purpose vehicle traffic; (B) New or expanded interchanges; (C) An increase in the number of general purpose travel lanes for any existing arterial or collector street, highway, or freeway; and (D) New or extended auxiliary lanes with a total length of one-half mile or more.

Notwithstanding any provision in subsection (a) of OAR 660-012-0830, subsection (b) includes exceptions to enhanced review for certain proposed facilities: (A) Changes expected to have a

capital cost of less than $5 million; (B) Changes that reallocate or dedicate right of way to provide more space for pedestrian, bicycle, transit, or high-occupancy vehicle facilities; (C) Facilities with no more than one general purpose travel lane in each direction, with or without one turn lane; (D) Changes to intersections that do not increase the number of lanes, including implementation of a roundabout; (E) Access management, including the addition or extension of medians; (F) Modifications necessary to address safety needs; or (G) Operational changes, including changes to signals, signage, striping, surfacing, or intelligent transportation systems. .*See also definitions Auxiliary lane and Congestion Management Process.*

Capital project – A capital project is a project to construct either new facilities or make significant, long-term renewal improvements to existing facilities.

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 – Destinations and gathering places such as hospitals and other medical services, civic places, such as post offices, churches, social services, libraries, schools and colleges, financial institutions, such as banks and credit unions, grocery stores, and retail services, such as hardware stores, pharmacies and laundry services

Commute – Regular travel between home and work or 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 – A Project Checklist that is circulated for a sign-off from various agency departments when street designs are in process to ensure coordinationto ensure projects implement Complete Street elements.

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 (CMP)– 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.

Section 3.3.4 of the RTP describes the congestion management process policy to analyze and implement system and demand management strategies and/or a combination of other strategies (e.g. pedestrian, bicycle, transit strategies) prior to building new motor vehicle capacity, consistent with the Federal Congestion Management Process (CMP) and the Oregon Transportation Plan policies (including Oregon Highway Plan Policy 1G). Sections 3.08.220 and 3.08.510 of the Regional Transportation Functional Plan (RTFP) further direct how cities and counties implement the CMP in the local transportation system planning process. *See Appendix L for more information on the Congestion Management Process.*

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.

Cordon pricing - Motorists are charged to enter a congested area, usually a city center or other high activity area well served with non-driving transportation options. Cordon pricing is most often implemented as flat or variable rate fees.

Crash – A violent collisionbetween tow or more motor vehicles (inlcuding commercial vehicles, school buses, transit buses, etc.), or between a vehicle and a pedestrian, person on a bicycle or motorcycle, scooter, or other type of micromobility, or with a stationary objectsuch 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 or that do not meet the travel speed thresholds defined in Table 3-5 (Mobility performance targets and thresholds), 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). A deficiency is a transportation need. *See also gap.*

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.

Diversion - Diversion is the movement of automobile trips from one facility to another because of pricing implementation. All trips that change their route in response to pricing are considered diversion, regardless of length or location of the trip, or whether they divert to or from the priced facility.

Dynamic rate fee - Fee rates are continually adjusted according to traffic conditions to better achieve a free-flowing level of traffic. Under this system, fee rates increase when the priced facilities get relatively full and decrease when the priced facilities get less full. This system is more complex and less predictable than using a flat or variable rate fee structure, but its flexibility helps to better achieve the optimal traffic flow by reflecting changes in travel demand. MDynamic fee systems may sometimes include a pre-set maximum price. The current price is often displayed on electronic signs prior to the beginning of the priced facility.

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 orthreatening 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 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.

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 coordinated, 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. This approach involves investments, policies, and protections to prevent displacement of vulnerable residents, businesses, and community organizations.

Equitable Outcomes – Means outcomes that burdens underserved populations less than and benefits underserved populations as much or more as the city or county population as a whole. Examples of equitable outcomes include: (a) Increased stability of underserved populations, lowering the likelihood of displacement due to gentrification from public and private investments; (b) More accessible, safe, affordable and equitable transportation options with better connectivity to destinations people want to reach; (c) Adequate housing with access to employment, education, fresh food, goods, services, recreational and cultural opportunities, and social spaces; (d) Increased safety for people in public spaces, transportation and community development; (e) Equitable access to parks, nature, open spaces, and public spaces; (f) Better and more racially equitable health outcomes across the lifespan, particularly health outcomes connected to transportation choices, air pollution, and food; (g) Recognizing and remedying impacts of past practices such as redlining, displacement, exclusionary zoning, and roadway and other public infrastructure siting decisions that harmed underserved communities; and (h) Fairly-distributed benefits to residents and local governments across cities and counties within metropolitan areas.

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, Social equity, and Transportation 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 goods and passengers). This includes

streets, throughways, bridges, sidewalks, bikeways, transit stations, bus stops, ports, air and marine terminals and rail lines and yards.

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 highwaysThe 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 (or financial) constraint – A federal requirement that long-range transportation plans and four-year **Metropolitan** Transportation Improvement Programs (MTIP) 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 highways and public transit systems for fiscal years 2016-2020. The $305 billion, five-year bill maintained the core highway and transit funding programs established by its predecessor MAP-21, and established the National Highway Freight Program, a formula program focused on goods movement.

Flat rate fee (toll) - A flat rate fee, also known as a toll, charged by a toll facility operator in an amount set by the operator for the privilege of traveling on said toll facility. Tolling is a user fee system for specific infrastructure such a bridges and tunnels. Toll revenues are used for costs associated with the tolled infrastructures. This tool is used to raise funds for construction,

operations, maintenance, and administration of specific infrastructure. Flat rate tolling can also serve as a method for congestion management, though it is not responsive to changing conditions or time of day. Additionally, flat rate tolling cannot be used for congestion pricing programs or projects authorized by the Value Pricing Pilot Program, Congestion Relief Program, or Section 166 on interstate highways under Federal law.

Forecast – Projection of population, employment or travel demand for a given future year.

Freeway – A design for highway 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. In the RTP freeways are indentified with the Throughway classification.

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 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 (between 5 and 7 every mile), providing corridor service rather than nodal service along selected arterial streets based on demand. 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 motor vehicle 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. Classifications also exist for biking and walking networks. These definitions can be found elsewhere in the glossary: bicycle parkway, regional bikeway, local bikeway, pedestrian parkway, pedestrian corridor and local pedestrian connector.

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. Gaps are a transportation need. *See also deficiency.*

Goal – A broad statement that describes a desired outcome.Actions are steps taken to make progress toward goals**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 (CO2), nitrous oxide (N2), methane (CH4), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6). 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.

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 professional 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.**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 and primarily running in exclusive right of way 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. Local streetcar also helps extend the reach of the high capacity transit network by acting as a circulator within the Central City and between dense urban regional centers in close proximity.

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.

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.

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. *See also capacity.*

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.

Intercity transit – Intercity transit includes service that goes beyond regional boundaries to serve people traveling to destinations in and out of our region, connecting regions and even states.

Intercity rail refers to passenger rail service that provides transportation between cities or metropolitan areas at speeds and distances greater than that of commuter or regional rail.

Intermodal connector – A road that provides connections between major rail yards, marine terminals, airports, and other freight intermodal facilities; and the freeway and highway system (the National Highway System).

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 .

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.

Low-carbon travel options - Low-carbon travel options include walking, rolling, biking, transit, and electric vehicles.

Low emissions zone pricing - Similar to cordon pricing, drivers are charged when they enter a Low Emissions Zone, unless they have a vehicle that meets the requirements of the Low Emissions Zone, for example an electric vehicle that does not emit tailpipe emissions when only using electricity to run.

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.

Main line rail – Class I rail lines (e.g., Union Pacific and Burlington Northern/Santa Fe).

Main roadway routes – Designated freights routes that are freeways and highways that connect major activity centers in the region to other areas in Oregon or other states throughout the U.S., Mexico and Canada.

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.

Marginalized communities - Groups who have been denied access and/or suffered past institutional or structural discrimination in the United States, including people of color, people with low English proficiency, people with low income, youth, older adults and people living with disabilities.

Marine facilities – A facility where freight is transferred between water–based and land–based modes.

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 Greenspaces Master Plan (1992) – Details the vision, goals and organizational framework of a regional system of natural areas, trails and greenways for wildlife and people in the region, and set the foundation for subsequent bond measures and trail plans.

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. 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, allocates federal transportation funding through the Regional Flexible Funds process (RFFA), 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, and others, 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.

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.
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Mileage Based User Fee – See Road Usage Charge

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 – People and businesses can safely, affordably, and efficiently reach the goods, services, places and opportunities they need to thrive by a variety of seamless and well-connected travel options and services that are welcoming, convenient, comfortable, and reliable.

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.

Motorcycle – A motor vehicle with motive power having a seat or saddle for the use of the rider and designed to travel on not more than three wheels in contact with the ground. The NHTSA defines "motorcycle" to include mopeds, two or three-wheeled motorcycles, off-road motorcycles, scooters, mini bikes and pocket bikes.

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.

Must – When used in the context of actions and policies must means there is a legal obligation or requirement to take the action or enact the policy. Must is often used interchangeably with shall. *Also see should.*

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.

National Performance Management Research Data Set (NPMRDS) – A data set derived from vehicle/passenger probe data (sourced from Global Positioning Station (GPS), navigation units, cell phones) that includes average travel times representative of all traffic on each mainline highway segment of the National Highway System (NHS), and additional travel times representative of freight trucks for those segments that are on the Interstate System. The data set includes records that contain average travel times for every 15 minutes of every day (24 hours) of the year recorded and calculated for every travel time segment where probe data are available. The NPMRDS does not include any imputed travel time data.

Needs – see Transportaton needs.

Neighborhood Greenway - Neighborhood greenways are low-traffic and low-speed streets where priority is given to people walking, bicycling, and rolling. Neighborhood greenways are designed to provide a safe network that connects neighborhoods, parks, schools, and business districts. *see also Bicycle Boulevards*

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.[1] TriMet's *Coordinated Transportation Plan for Seniors and Persons With Disabilities* (2020) identifies several principles and actions related to addressing safety and security concerns getting to and at transit stops and on transit. *See Appendix G.*

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.

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

[1] U.S. Department of Transportation, Federal Highway Administration Older Drivers and Pedestrians Special Rule. https://safety.fhwa.dot.gov/hsip/older/

and providing information on parking space availability. When used in conjunction with other demand management strategies, parking management is an effective means of reducing drive-alone auto trips and achieving GHG reductions. More information can be found at vtpi.org/park_man.pdf

Parking pricing - Drivers pay to park in certain areas. Parking pricing may include flat, variable, or dynamic fee structures. Dynamic pricing involves periodically adjusting parking fees to match demand, this can be paired with technology which helps drivers find spaces in underused and less costly areas.

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 comfort index (PCI)- Uses data such as auto volumes, auto speeds, number of auto lanes, sidewalk existence and width, number of pedestrian crossings on existing roadways and assigns a comfort rating for pedestrians. Results help identify roadways on the regional pedestrian network that could be upgraded to increase bicyclists comfort. Metro has collected and

analyzed initial data for the regional pedestrian network but has not created a PCI. Additional data and analysis is needed.

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 reliabilityof the transportation system and reduce or mitigate stormwaterimpacts 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.

Pricing - Motorists pay directly for driving on a particular roadway or for driving or parking in a particular area. Pricing includes applying different rates by location, level of congestion, or time of day, amongst other methods. Rates may vary based on vehicle size or type, incomes, or other variables. Pricing within the Portland metropolitan context could include the following methods and pricing strategies. Methods and strategies can be combined in different ways, such as variable cordon pricing or dynamic roadway pricing. Different types of pricing can be implemented in

coordination with each other to provide greater systemwide benefits. Pricing can be implemented at the state, regional, or local level. Types of Pricing: Cordon / Low Emissions Zone; Parking; Road Usage Charge / VMT Fee / Mileage Based User Fee. Roadway Rate Types: Flat; Variable; Dynamic

Principal arterial – Limited-access roads that serve longer-distance motor vehicle and freightƒ 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.[2] 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.[3]

Public health – The health of the population as a whole, especially as monitored, regulated, and promoted by the state.

Public Transportation Safety Action Plan (PTASP) – A plan developed by certain operators of public transportation systems that are recipients or subrecipients of Federal Transit Administration (FTA) grant funds that include the processes and procedures necessary for implementing Safety Management Systems (SMS). Each safety plan must include, at a minimum:

- An approval by the agency's Accountable Executive and Board of Directors (or an equivalent authority); The designation of a Chief Safety Officer;
- The documented processes of the agency's SMS, including the agency's Safety Management Policy and processes for Safety Risk Management, Safety Assurance, and Safety Promotion;
- An employee reporting program;

[2] "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.
[3] A Right to the Road, p.48, GHSA, 2017.

- Performance targets based on the safety performance measures established in FTA's National Public Transportation Safety Plan (NSP);
- Criteria to address all applicable requirements and standards set forth in FTA's Public Transportation Safety Program and the NSP; and
- A process and timeline for conducting an annual review and update of the safety plan.

A rail transit agency's safety plan also must include or incorporate by reference an emergency preparedness and response plan or procedures.

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.

Rail branch lines – Non–Class I rail lines, including short line or branch lines.

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 bike lanes) shoulder bikeways, shared roadway/wide outside lanes and bicycle priority treatments (e.g. bicycle boulevards).

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 Conservation Strategy (RCS) for the Greater Portland Vancouver Metropolitan Area, Intertwine and Metro - Identifies high quality land and riparian areas in the region. The strategy was developed by The Intertwine Alliance, Metro and a broad coalition of conservation organizations to pull together 20 years of conservation planning and create an integrated blueprint for regional conservation. The plan will help government, nonprofit and private organizations work together to care for and restore thousands of acres of natural area land and create habitat for wildlife.

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 Allocation (RFFA) – Regional flexible funds come from the Surface Transportation Block Grant Program and Transportation Alternatives set aside and the Congestion Mitigation/Air Quality Program federal funding programs. The regional flexible fund allocation process identifies which projects in the Regional Transportation Plan will receive these funds to carry out RTP investment policy priorities. Regional flexible funds are allocated every three 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 Regional Mobility Policy is a policy in Metro's Regional Transportation Plan (RTP) as well as ODOT's Oregon Highway Plan (OHP). It applies to system planning and plan amendment processes only within the Portland metropolitan area. The regional mobility policy is one of many policies that helps the region choose where to focus resources for the transportation system to support implementation of city and county comprehensive plans. The goal of the updated policy is to better align the policy and measures with shared regional values, goals, and desired outcomes identified in RTP and 2040 Growth Concept, as well as with local and state goals. Specifically, the updated policy is intended to support mobility outcomes related to equity, efficiency, access and options, safety, and reliability. Six policies and three measures are included in the policy that have direct relationships to these desired mobility outcomes.

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 – Regional program led by Metro and guided by a 10-year strategy aimed at reducing the demand for roadway travel, particularly single occupant vehicle travel and improving people's travel choices. Metro coordinates partner activities and provides grant funding for the following:

- support for employment-based programs to reduce SOV auto trips to worksites and ECO rule compliance
- 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
- community-based programs that focus on the travel needs of specific neighborhoods or people
- funding for bicycle parking, wayfinding signage and other tools that help people to use travel options
- 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; RSIAs 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.

Reload facility – An intermediary facility where freight is reloaded from one land–based mode to another.

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 diet – Road diets are one way to reconfigure limited roadway space in a way that allows for the inclusion of wider sidewalks and separated bicycle facilities such as buffered bicycle lanes, which can provide space for all users to operate safely an in their own "zones." Road diets can have multiple safety and operational benefits for autos, as well as pedestrians and cyclists. On existing roadways, separated in-roadway facilities may be implemented by narrowing existing travel lanes, removing travel lanes, removing on-street parking or widening the roadway shoulder. If constraints, such as narrow existing right-of-way, prohibit providing optimally desired bicycle facility widths, then interim facility improvements can be used.

Road Usage Charge / VMT Fee / Mileage Based User Fee - Motorists are charged for each mile driven. A road usage charge is often discussed as an alternative to federal, state, and local gas taxes which have become less relevant to the user-pays principle as more drivers switch to fuel efficient or electric vehicles. Road usage charges are most often implemented as flat or variable rate fees.

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.

Roadway pricing - Motorists are charged to drive on a particular roadway. Roadway pricing can be implemented as a flat, variable, or dynamic fee. Roadway prices that vary by time of day can follow a set fee schedule (variable), or the fee rate can be continually adjusted based on traffic conditions (dynamic).

Rural reserves (2040 Design Type) – Lands that are high value working farms and forests or have important natural features like rivers, wetlands, buttes and floodplains. These areas are protected from urbanization for 50 years after their designation.

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 System Approach – A data-driven, strategic approach to roadway safety that aims to eliminate fatal and severe injury crashes. The approach is based on a foundational understanding of the underlying causes of traffic fatalities and severe injuries (using data) and is based on the principle that errors are inevitable but serious crashes should not be. Transportation safety policies that use a Safe System approach include Vision Zero, Towards Zero Deaths, Road to Zero and Sustainable Safety.

Safe System Approach Speed Setting – Speed limits are set according to the likely crash types, the resulting impact forces, and the human body's ability to withstand these forces. It allows for human errors (that is, accepting humans will make mistakes) and acknowledges that humans are physically vulnerable (that is, physical tolerance to impact is limited). Therefore, in this approach, speed limits are set to minimize death and severe injury as a consequence of a crash.

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. *See also BIL*

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, shared e-scooters, 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.

Should – When used in the context of a policy or action, should means an expected course of action or policy that is to be followed unless inappropriate for a particular circumstance. *Also see must.*

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–occupanct vehicle (SOV) – A private motorized passenger vehicle carrrying one occupant (the driver only). Also referred to as a drive alone vehicle. Also, an automated vehicle with one passenger.

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 MTIPsThe 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 a set of actions that follows the planning process of setting goals, objectives and performance measures, and mobilizing resources to execute the actions. A strategy describes how the ends (goals) will be achieved by the means (resources).

Street – A 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 – A social goal about the ability of people to co-exist on Earth over a long time**, u**sing, developing and protecting the natural environment and resources in a manner that enables people to meet current needs and while enabling future generations to meet future needs, from the joint perspective of environmental, economic and community objectives. **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.

Target – A specific level of performance that is desired to be achieved within a specified time period.

Threshold - Thresholds determine the upper and lower limits of performance for a specific time period.

Throughways – Controlled access (on-ramps and off-ramps) interstates and major highways. These routes generally correspond to Expressways designated in the Oregon Highway Plan.

Toward Zero Deaths – The United States' highway safety vision. The National Strategy on Highway Safety provides a platform of consistency for state agencies, private industry, national organizations and others to develop safety plans that prioritize traffic safety culture and promote the national Toward Zero Deaths vision. As a strategic policy it is similar to Vision Zero.

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, investigate and remove lane-blocking or rail-blocking vehicles and

debrisquickly and safely in order to quickly recover road, transit and other operations for travelers.

Traffic management – Actions that improve traffic conditions for safety and reliability during incidents such as special events, crashes, construction, inclement weather or a natural disaster that cause delays, unreliable travel times and/or the need for alternate routes and/or additional transit and other mobility services.

Traffic signal progression – A process by which a number of traffic signals are synchronized to create the efficient progression of vehicles.

Transit accessibility – 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, walking or rolling, even if stops are mere feet away. Complete sidewalks and bike paths improve safety and enhance the experience of using transit and the accessible stations are essential to making transit work for everyone. The first/last mile connection is also an important part of accessibility, as it often represents the best opportunity for people living in less developed areas, rural towns or outlying areas to access our transit system. The second is to ensure that schools, particularly high schools and colleges, community places, such as grocery stores and medical services, 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.

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) – Is a mix of residential, retail, and office uses and a supporting network of roads, bicycle, and pedestrian ways focused on a major transit stop designed to support a high level of transit use.

(Metro) Transit Oriented Development (TOD) Program - 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.

Transit-supportive elements - Transit-supportive elements include programs, policies, capital investments and incentives such as Travel Demand Management and physical improvements such as sidewalks, crossings, and complementary land uses.

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) – A policy approach such as variable pricing to manage demand of limited transportation capacity or transportation services. Also, a strategy with a set of actions 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 provide information, encouragement and incentives to help people choose non-SOV modesin 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. This includes every person in their youth and is likely to affect people in their oldest years.

Transportation equity – The removal of barriers to eliminate transportation-related disparities faced by and improve equitable outcomes for marginalized communities, especially Black, Indigenous, people 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/or residences (such as condo Home Owner Associations and Community Development Corporations) all dedicated to reducing traffic congestion and pollution while improving travel 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 develoment 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, shared-use mobility) serving as a single unit or system.

Transportation system management (TSM) – A strategy composed of actions for increasing travel flow on existing facilities through improvements such as ramp metering, traffic signal performance, incident response, traveler information and integrated travel choices such as mobility on demand.

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 660-012-0015) 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 and crowdsourced data regarding road conditions, weather conditions, camera images, crash alerts, 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.

Truck terminal – A facility that serves as a primary gateway for commodities entering or leaving the metropolitan area by road.

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 – Lands suitable for accommodating urban development over the 50 years after their designation.

Variable rate fee - With this type of pricing, a variable fee schedule is set so that the fee is higher during peak travel hours and lower during off-peak or shoulder hours. This encourages motorists to use the facility or drive less during less congested periods and allows traffic to flow more freely during peak times. Peak fee rates may be high enough to usually ensure that traffic flow will not break down, thus offering motorists a reliable and less congested trip in exchange for the higher peak fee. The current price is often displayed on electronic signs prior to the beginning of the priced facility and is often published as a schedule on agency websites and other routing resources.

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. Also s*ee pricing*

Vanpool – A form of transit in which a group of passengers share the use and cost of a van in traveling to and from pre-arranged destinations together.

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.

VMT Fee – See Road Usage Charge

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 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, tactile, haptic or audible methods used to convey location and directions to travelers. Wayfinding helps people traveling to orient themselves and reach destinations easily.