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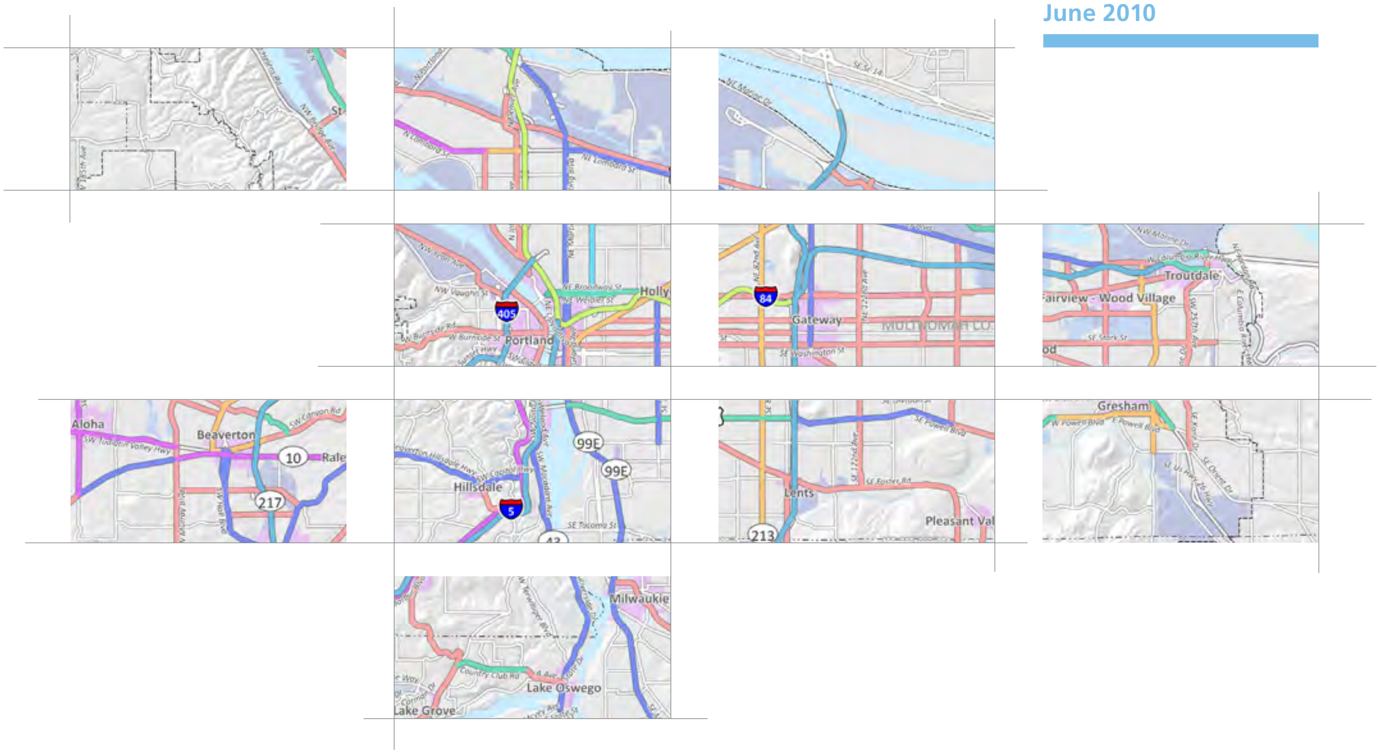

REGIONAL TRANSPORTATION SYSTEM MANAGEMENT AND OPERATIONS PLAN

2010 – 2020

June 2010

Metro | *Joint Policy Advisory Committee on Transportation*

5649

Metro is the federally mandated metropolitan planning organization designated by the governor to develop an overall transportation plan and to allocate federal funds for the region.

The Joint Policy Advisory Committee on Transportation (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 assures a well-balanced regional transportation system and involves local elected officials directly in decisions that help the Metro Council develop regional transportation policies, including allocating transportation funds.

Project web site: www.oregonmetro.gov

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I. Introduction

Transportation is so critical to our daily lives. We move between places and activities using an extensive network of roads, transit lines, bikeways, and sidewalks; billions of our tax dollars invested to ensure mobility for people and goods. As the 21st century unfolds, a new paradigm is emerging - brought on by concerns over the social, environmental and fiscal costs of traditional transportation solutions – that supports an integrated approach to the provision of transportation infrastructure and services where better management of the existing system has a prominent role.

The Portland region is in an enviable position; a penchant for regional coordination and openness to new ideas has placed the region on the leading edge for "smart" investments in both transportation system and demand management. The Regional Transportation System Management and Operations (TSMO) Plan takes the next step by integrating these complementary elements of system management to better link opportunities for coordinated investments that maximize the efficiency of the existing transportation system.

What is TSMO?

TSMO is a set of integrated transportation solutions intended to improve the performance of existing transportation infrastructure. Through a combination of transportation system management (TSM) and transportation demand management (TDM) systems, services and projects, TSMO addresses transportation goals such as mobility, reliability, safety and accessibility, which have traditionally been achieved via larger scale, expensive infrastructure investments.

The TSM component typically incorporates advanced technologies to improve traffic operations. TDM promotes travel options and ongoing programs that result in reduced demand for drive alone trips. Together these two transportation management techniques optimize the existing transportation infrastructure.

The Regional TSMO plan identifies four functional areas of investment:

1. multimodal traffic management
2. traveler information
3. traffic incident management
4. transportation demand management

Each of these four functional areas is further detailed in the action plan segment of this document.

What are the benefits of TSMO?

The region's experience with TSMO as well as that of agencies in other parts of the country demonstrates that TSMO strategies support many regional transportation goals, including:

- Improve travel time reliability
- Reduce crashes
- Improve transit on-time arrival
- Reduce travel delay
- Reduce fuel consumption Reduce air pollution and greenhouse gas (GHG) emissions
- Reduce drive alone trips
- Reduce vehicle miles traveled

Following are example benefits specific to the Portland region that can be achieve in each of the functional areas.

Multimodal traffic management

- An adaptive signal timing project installed in Gresham in 2007 reduced average travel times by 10 percent and saves over 74,000 gallons of fuel every year.
- A typical signal timing project in Portland saves over 300 metric tons of CO2 annually per retimed traffic signal[1].
- The transit signal priority project in the Portland metro area has the ability to reduce transit delay by 30 to 40% and improve travel time by 2 to 16% based on previous studies.[2]

Traffic incident management

- The ODOT incident response program responds to over 12,700[3] incidents each year in the Portland metro area. Based on 2001 data, if all delay-causing incidents in the Portland region were reduced by 5 minutes, over 270,000 hours of delay would be saved annually.[4]

Traveler Information

- In 2008 the TripCheck web site was visited over 23 million times, and that number has grown steadily since 2002 when data was first collected. The record month for visits was

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[1] DKS. Monitoring and Verification Report: Estimated Project CO2 Savings. Portland Climate Trust Traffic Signal Optimization Project. December 27, 2009

[2] ITS Benefits and Costs databases (http://www.itsbenefits.its.dot.gov

[3] 2006 incidents as noted on ODOT's website: http://www.oregon.gov/ODOT/HWY/ITS/project_COMET.shtml

[4] Bertini, Robert L. Rose, Michael W. El-Geneidy, Ahmed M. Portland State University. Using Archived Data to Measure Operational Benefits of ITS Investments: Region 1 Incident Response Program. June 2004.

December 2008 with almost 6 million visits. Surveys show that TripCheck information influences travel decisions for up to 80 percent of survey respondents.

- In 2009, TriMet's transit tracker phone service received an average of 1.4 Million calls every month and 360,000 trips were planned online using the agency's online trip planning tool.
- The CarpoolMatchNW.org ride-matching web site has more than 11,000 registered users.

Transportation demand management

- An individualized marketing project in North and Northeast Portland during the opening of MAX Yellow Line reduced auto trips by 9% and transit ridership grew 44% while ridership in a control group grew only 24%.
- Employer transportation programs are in place at 1,139 worksites in the region, and 924 of those include an employer-provided transit subsidy for employees. Surveys of employees indicate that the non-SOV mode share at these worksites exceeds 35%.
- A survey of residents in the Portland metro area found that nearly one out of five (19%) took action to reduce car trips because of what they saw, read or heard about the Drive Less/Save More campaign.

Why does the region need a TSMO Plan?

The Oregon Transportation Plan and the 2035 Regional Transportation Plan (RTP) emphasize the importance of TSMO as a cost effective way to achieve plan goals including mobility, accessibility, safety and sustainability. However, these plans lack detail as to how TSMO will be used in pursuit of plan goals. Outstanding questions include:

- What are the available opportunities?
- Among the identified problems and challenges, which are best suited for TSMO solutions?
- What are the regional priorities for investment in TSMO?

In the past decade, many agencies across the region have completed intelligent transportation system (ITS) plans to guide advanced technology investments. A strategic plan for regional travel options programming was also completed. While these efforts have benefited efficiency, safety, and improved traveler information and options, they have been largely isolated from the development of long-range transportation plans.

There is a paradigm shift both regionally and nationally regarding how best to address transportation challenges. With raising costs for traditional infrastructure solutions and declining transportation budgets, agencies are looking for ways to better manage existing systems. There is also a growing acknowledgement that building to address congestion is inconsistent with other goals like reducing GHG emissions, decreasing our dependence on the automobile, encouraging more walking and biking, and developing in ways that are consistent with desired land use goals.

Lastly, there is a critical need for regionalism in implementing TSMO strategies. Coordination and collaboration is needed between cities, counties, regional service providers and the state so that our transportation system operates seamlessly.

How Was the TSMO Plan Developed?

Developing the TSMO Plan was a joint effort among key stakeholders. Throughout the course of this project, several committees joined efforts to create, review, and revise the plan. Figure 1 shows the general advisory committee structure for the TSMO Plan. Three advisory committees guided the planning effort.

TransPort, the operations subcommittee to the Transportation Policy Alternatives Committee (TPAC), served as the TSM technical advisory committee. TransPort members include operations professional from transportation agencies across the region. TransPort met monthly to review the technical aspects of the plan.

The Regional Travel Option (RTO) Subcommittee, the TDM subcommittee to TPAC, joined efforts in the development of the TSMO plan and provided key information for the transportation demand management solutions. The RTO Subcommittee includes public agency and private stakeholders interested in TDM. The committee meets bi-monthly.

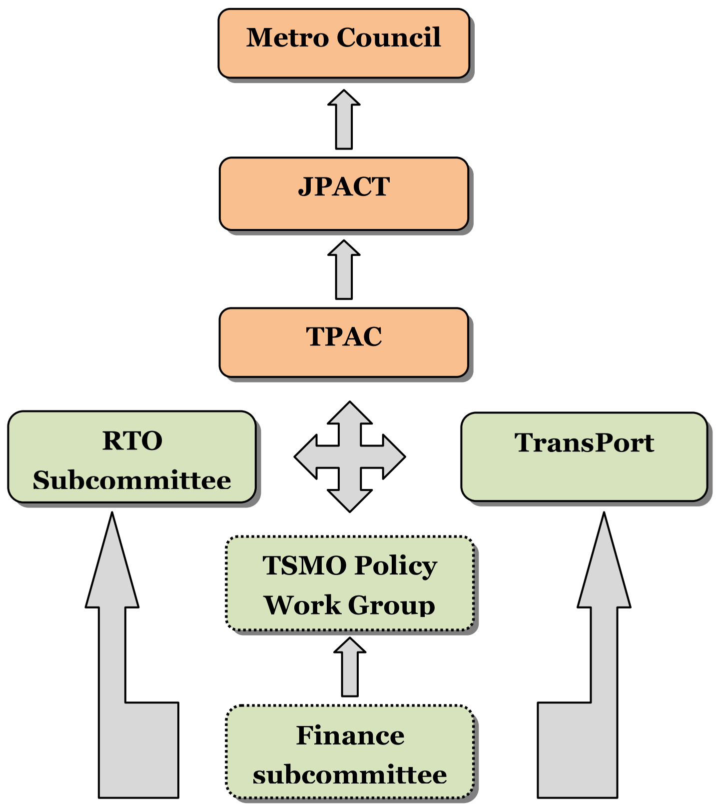


Figure 1: Advisory committee structure for TSMO Plan

The TSMO Policy Work Group (PWG) was formed to provide high-level policy guidance for the plan. The group consisted of TPAC members, key private sector stakeholders, and other transportation professionals that participate in, or oversee TSMO activities. The PWG met four times over the course of the plan to review and comment on and provide recommendations for vision and goals, strategies, and implementation actions.

A finance subcommittee, comprised of members from all three advisory groups, also convened during the course of this project to address funding challenges and non-capital actions for successful implementation.

Presentations were made to TPAC, the Joint Policy Advisory Committee on Transportation (JPACT), the Metropolitan Policy Advisory Committee (MPAC), and Metro Council at critical milestones including the creation of visions, goals, and objectives for TSMO, and the TSMO Action Plan.

Together, all of these advisory groups provided feedback and reached consensus as the plan progressed. The key steps involved:

1. Creating a vision statement with supporting goals, guiding principles and objectives to guide the course of the TSMO plan.
2. Identifying transportation needs and existing conditions of the transportation network.
3. Developing and prioritizing projects that encompass the TSMO action plan.
4. Addressing implementation and finance challenges and recommending actions necessary for successful implementation of the regional TSMO plan.
5. Recommending a set of projects for the first funding allocation.
6. Establishing a method for future project selection and funding.

II. Traffic congestion and TSMO

TSMO solutions address transportation congestion problems, which are a growing concern in the Portland region. This section presents a brief overview of congestion in the Portland area. For more information about Portland congestion issues, please refer to Appendix B.

Traffic congestion generates longer and often unreliable travel times, reduces mobility, increases operational and delivery costs, wastes fuel, increase vehicle emissions and is the cause of many crashes. Congestion has intensified steadily along with the growth in population and today costs the region more than $600 million annually in lost time and wasted fuel – an increase of more than 450 percent since 1985.[5]

[5] Congestion Data for Your City. *Texas Transportation Institute. http://mobility.tamu.edu/ums/congestion_data/. Accessed Dec. 1, 2008.*

Sources of roadway congestion

Congestion is the direct result of the demand exceeding the available capacity. Capacity is either limited by a physical constraint in the transportation network or by an unpredictable event that reduces the available roadway capacity – an incident, special event, poor signal timing, weather or work zones. The root sources of roadway congestion are shown in Figure 2.[6] These six sources account for two types of congestion, recurring and non-recurring. Recurring congestion is generally predictable and occurs on most days because the typical source – a physical bottleneck – always exists in the absence of a capacity building project. Accounting for 40 percent of congestion, bottlenecks are areas where physical capacity does not meet vehicle demand. A well-known bottleneck in the Portland area is I-5 Northbound at the Columbia River, where congestion is predictable every day.

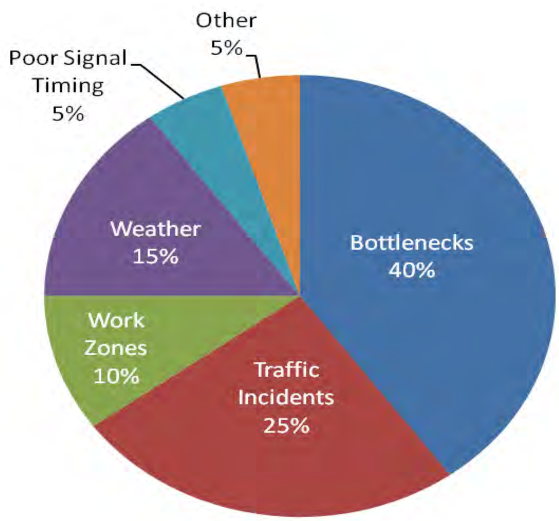


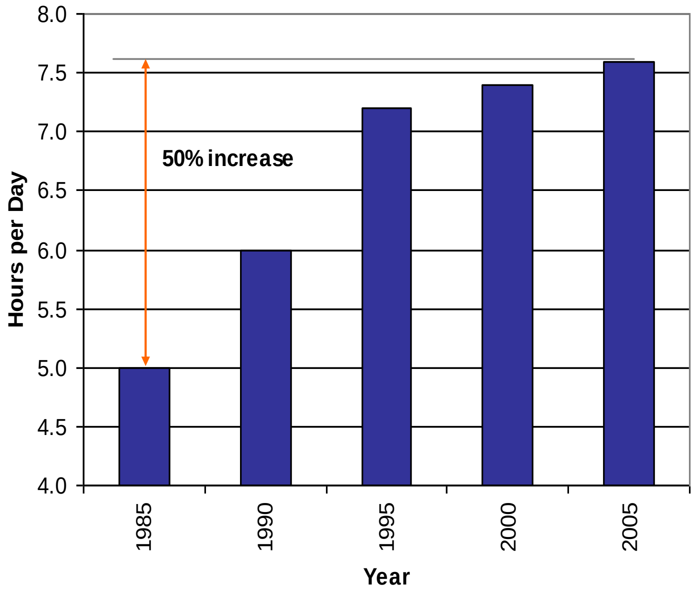
Figure 2: Sources of Congestion

Non-recurring congestion is less predictable and results from the other five sources – traffic incidents, work zones, weather, poor signal timing and special events. These events do not recur in the same location, but when they do roadway capacity is reduced. Congestion results when the demand exceeds the reduced capacity.

Hours of congested travel

Congestion on Portland's roadways is a growing problem. Auto and truck traffic has increased steadily and the region has not been able to keep pace with roadway expansion projects. The total hours of congested travel increased 50% from an average of 5.0 hours per day in 1985 to over 7.5 hours per day in 2005 as shown in Figure 3.

6 Describing the Congestion Problem. *Federal Highway Administration.* *http://www.fhwa.dot.gov/congestion/describing_problem.htm. Accessed Dec. 22, 2008.*



Data Source: Texas Transportation Institute

Figure 3: Congested Travel Hours Each Day in Portland (1985 - 2005)

Capacity is not constant

It is commonly assumed that roadway capacity is a constant when, in fact, incidents, work zones, poor signal timing, weather and special events all reduce existing capacity in the roadway network. Another assumption is that closing a single lane of a two lane roadway reduces the capacity by 50 percent. Seems logical, but research suggests this assumption is not correct. Closing a single lane of a two lane highway reduces the available capacity by 65 percent. Even closing a shoulder reduces capacity by as much as 19 percent. Table 1 shows the percentage of capacity lost when lanes are closed. [7]

TSMO strategies seek to restore the capacity lost from non-recurring events, manage the demand through bottlenecks and reduce demand overall.

Table 1: Impact of Incidents on Highway Capacity

Number of Hwy Lanes	% Facility Capacity Lost by Blockage Type			
	Shoulder	1 Lane	2 Lanes	3 Lanes
2	19%	65%	100%	N/A
3	17%	51%	83%	100%
4	15%	42%	75%	87%

Source: TRB

Key congestion findings for the Portland region include:

- Population is projected to increase from 1.7 million in 2005 to 3.0 million in 2030[8]. At that rate, the daily hours of congested travel and number of incidents will increase further unless something is done to manage demand and operations.

[7] Highway Capacity Manual 2000. *Transportation Research Board, National Research Council, Washington, D.C., 2000.*

[8] *Economic Report to the Metro Council, Proposed Final Draft*. Metro, Data Resource Center, Sept. 2002.

- In 2005 congestion in Portland cost the average driver over $700 per year today, a 450 percent increase since 1985.[9]
- Average peak period travel times are 20 percent longer today than in 1985[10].
- Over 25,000 incidents are reported annually on Portland region roadways.[11]
- Traffic incidents increase during peak congested hours[12], which cause further delay.
- Population is projected to increase from 1.7 million in 2005 to 3.0 million in 2030[13]. At that rate, the daily hours of congested travel and number of incidents will increase further unless something is done to better manage demand and operations.

Although roadway capacity building projects will still be constructed, demand far exceeds the available funding needed to build our way out congestion. Non-recurring events will continue to rob the facility of existing capacity. Because capacity building projects alone are not sustainable, improving the region's ability to manage non-recurring events, restore lost capacity quickly and reduce demand is essential.

TSMO provides cost effective tools and strategies to restore lost capacity quickly, promote and support effective non-drive alone travel options that can reduce demand, and control traffic approaching physical bottlenecks to manage demand. Congestion will continue to increase, but TSMO provides alternatives to building more physical capacity into the system. It allows the region to manage its existing transportation system at maximum efficiency, while improving the safety and quality of life for the region's residents.

III. TSMO policy framework

The TSMO plan is guided by a policy framework that includes a regional vision, planning goals and objectives, and guiding principles and aims to support implementation.

Vision Statement

The Portland metropolitan region will collaboratively and proactively manage its multimodal transportation system to ensure safe, reliable, efficient, and equitable mobility for people and goods. The region will strive to be a nationally recognized leader for innovative management and operations of its system.

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[9] *Congestion Data for Your City*. Texas Transportation Institute. http://mobility.tamu.edu/ums/congestion_data/. Accessed Dec. 1, 2008.
[10] *Congestion Data for Your City*. Texas Transportation Institute. http://mobility.tamu.edu/ums/congestion_data/. Accessed Dec. 1, 2008.
[11] ODOT ATMS data, 2005-2007.
[12] ODOT ATMS data, 2005-2007.
[13] *Economic Report to the Metro Council, Proposed Final Draft*. Metro, Data Resource Center, Sept. 2002.

Goals & Objectives

The goals and objectives direct how the region plans to achieve its vision for TSMO.

Goal 1: Reliability
Provide reliable travel times for people and goods movement.

Objective 1.1 Expand traffic incident and event management capabilities to restore roadway capacity reduced by incidents, weather and construction.

Objective 1.2 Enhance regional traffic signal coordination systems and support systems that respond to current conditions.

Objective 1.3 Implement and expand systems that improve reliability for transit, pedestrians and bicycles.

Objective 1.4 Implement systems that reduce delays through known bottlenecks.

Objective 1.5 Integrate arterial and freeway roadway systems and operate the transportation system from the overall system perspective.

Objective 1.6 Market and provide travel options services to employers and commuters.

Goal 2: Safety and Security
Enhance transportation safety and security for all modes.

Objective 2.1 Reduce crashes at signalized intersections.

Objective 2.2 Reduce crashes resulting from weather, construction and secondary crashes from incidents.

Objective 2.3 Reduce crashes involving vulnerable road users (pedestrians and bicycles).

Objective 2.4 Provide a safe environment for transit, bicycling and walking.

Objective 2.5 Encourage transit ridership by providing safe and secure public transportation facilities.

Objective 2.6 Improve communication and coordination between transportation agencies and emergency management agencies.

Objective 2.7 Protect physical infrastructure and transportation communication networks from harm or misuse.

Goal 3: Quality of Life
Enhance the environment and quality of life by supporting state and regional greenhouse gas and air quality goals.

Objective 3.1 Encourage transit ridership by improving transit travel times and services.

Objective 3.2 Improve connections between modes to enhance traveler mobility and reduce reliance on the automobile.

Objective 3.3 Support initiatives to reduce greenhouse gas emissions from vehicles.

Objective 3.4 Support equitable distribution of transportation services and investment.

Objective 3.5 Support systems that implement future pricing strategies (e.g., congestion, tolls, parking).

Objective 3.6 Continue a regional collaborative marketing campaign to increase awareness and use of travel options and reduce drive-alone trips.

Goal 4: Traveler Information
Provide comprehensive multimodal traveler information to people and businesses.

Objective 4.1 Provide current information that may affect roadway users and travel choices across all modes.

Objective 4.2 Enhance pre-trip and en-route traveler information tools.

Objective 4.3 Enhance regional multi-modal trip planning tools.

Objective 4.4 Expand traffic surveillance and transportation system condition data collection capabilities.

Guiding Principles & Aims

While the goals and objectives direct investment in TSMO, the guiding principles and aims steer implementation.

Guiding Principle 1: Regional Partnerships
Enhance regional partnerships that support collaborative investment and implementation of management and operations strategies that benefit the region.

Aim 1.1 Regularly update regional transportation systems architecture documents to ensure system compatibility amongst agencies.

Aim 1.2 Support collaboration and coordination of TSMO and RTO partner activities.

Aim 1.3 Encourage opportunities for public-private collaboration and partnerships that support transportation system management and operations goals.

Guiding Principle 2: System Performance
Monitor transportation system performance and evaluate system management strategies to aid equitable policy and sustainable investment decisions.

Aim 2.1 Apply appropriate measures to support investment in cost-effective strategies.

Aim 2.2 Support maintenance and upgrades to the regional data warehouse.

Aim 2.3 Include an automated data collection component with all systems management projects.

Guiding Principle 3: Investment in Ongoing Operations
Provide on-going maintenance and operations to support the transportation network.

Aim 3.1 Provide financial and staff resources to effectively manage, operate and maintain transportation management systems.

Aim 3.2 Develop regional investment strategies to develop, operate, and implement transportation system management and operation strategies.

Aim 3.3 Establish systems management and operations as a core program – equal in importance to systems development and preservation.

IV. TSMO Action Plan

The TSMO action plan is the region's road map for carrying out transportation system and demand management strategies to improve travel for people and goods. It builds upon previously completed Intelligent Transportation System (ITS) plans completed by ODOT and local transportation agencies, and the 2008-2013 RTO Strategic Plan.

Full (10 year) implementation of the region-wide and corridor specific transportation demand management projects will mean investing approximately $23 million in capital improvements and up to $44 million a year for operations and maintenance.[14] Full implementation of the systems management and operation projects will mean investing approximately $330 million for capital improvements and annual operation and maintenance costs of up to approximately $11 million.[15]

TSMO investments include capital improvements using intelligent transportation system (ITS) infrastructure and service strategies that provide traveler information and assistance, or respond to unexpected events. They also include programmatic investments to promote alternatives to driving alone, collect and analyze system operations data, and measure performance. In most cases, TSMO services require ongoing investment in personnel to operate incident response vehicles, staff operations centers, or maintain travel information and public outreach programs.

An effective TSMO program requires a managed program on an equal level to construction and maintenance programs. This presents public agencies with significant policy, organizational and budget challenges to successful implementation.

Action plan organization

The action plan is organized into two distinct sections: regional investments and corridor investments. Regional investments include strategies that cross agency boundaries, benefit multiple agencies and/or require a shared commitment to ongoing system management. An

[14] The annual operation and maintenance expense will reach $44 million after full implementation of the TDM projects; however, the average cost over the 10-year period is estimated at $30.5 million a year since not all projects will be implemented during the first year of the plan.
Total cost = $23M + (10 x $30.5M) = $328M

[15] The annual operation and maintenance expense will reach $11 million after full implementation of the TSMO projects; however, the average cost over the 10-year period is estimated at $7.4 million a year since not all projects will be implemented during the first year of the plan.
Total Cost = $327M + (10 x $7.4M) = $401M

example of regional investment is traffic incident management. Traffic incident management includes integration of emergency response and traffic management systems, and partnerships between transportation agencies and emergency services to provide a coordinated response to identify, respond to and clear incidents quickly. The system interfaces benefit both transportation and emergency service agencies, but traditional public agency budgets make it difficult to determine who should be responsible for the initial investments and ongoing system enhancements.

Corridor investments include both capital improvements and services that can be targeted and provided to a specific transportation corridor. For example, many arterials in the region lack the traffic detection and communications infrastructure to provide data and video images for a traveler information web site.

Functional area analysis

The stakeholders and project team considered a wide range of TSMO strategies covering the broad spectrum of transportation operations and demand management including transit operations, multimodal traffic control, traffic incident management, congestion pricing, traveler information, intelligent vehicle initiatives, pedestrian/bicycle safety enhancements, and transportation demand management. The following near term priority investments should be considered in the first implementation phase. These priorities are based on analysis of the strategies, a comparison of benefit-cost and the current state of TSMO investment in the region.

Multimodal traffic management

- Provides arterial and freeway multimodal traffic management and operations functions including signal timing, access management, arterial performance monitoring and data collection, active traffic management

Traveler information

- Provides current and forecasted travel conditions information via a variety of sources including web site, mobile devices, phone systems, dynamic message signs, highway advisory radio and via private sources for in-vehicle navigation systems to help people make better informed travel decisions.

Traffic incident management

- Provides resources and builds partnerships to foster a coordinated, timely and efficient response to incidents. The strategies are aimed at reducing overall incident duration to restore capacity quickly and reduce secondary crashes.

Transportation demand management (TDM)

- Maximizes investments in the transportation system and relieves traffic congestion by managing travel demand, particularly during peak commute hours. Supports and leverages capital investments in transit, trails, and other infrastructure by marketing travel options to potential riders and users and increasing the share of trips made by transit, walking, cycling and other travel options.

Ongoing funding

The collection of TSMO strategies in this action plan requires a moderate investment in up front capital and continued funding for operations and maintenance for most of the projects. Total capital investment for the 10-year plan for the Portland metropolitan area is valued at approximately $378.5 million. However, it is important to consider the necessary operation and maintenance investment in addition to the capital investment. A commitment to sustaining an ongoing operating program that will provide quality service to the traveling public requires an ongoing and stable funding source. A successful transportation system operations program must be treated like a capital and/or maintenance program with a dedicated funding source. The annual operations and maintenance cost, if all of the TDM and TSMO projects in this plan are implemented, is estimated to reach about $39 million. However, the annual operations and maintenance budget will not begin at $39 million. The annual investment will grow gradually as projects are implemented, and could reach up to $39 million with full implementation.

TSMO region-wide action plan

This section outlines the TSMO strategies that apply region-wide. These projects extend across agency boundaries and benefit multiple jurisdictions. Following this section, are the corridor specific projects which apply to particular geographic areas. The section is organized by the four functional areas: regional multimodal traffic management, traveler information, incident management and transportation demand management.

Functional area: multimodal traffic management

The Multimodal Traffic Management projects improve metropolitan mobility by applying 21st century technology solutions to actively manage the transportation network. It is clear that the existing network can be used more efficiently to improve mobility for people and goods while reducing the capital and social costs of large-scale infrastructure investments. This program area invests in highly congested transit, freight and emergency response corridors to improve on-time performance for buses, travel-time reliability for trucks, and response times for emergency responders. The program also builds the infrastructure for performance data that can supply traveler information such as real-time corridor travel times and congestion maps.

This data will be further used by agencies to promote more efficient use of the transportation system.

The following bullets describe the projects identified in this functional area, as well as preliminary cost estimates and timeframes.

- **Operate and maintain regional ITS communications network**
  Improved coordination is necessary to insure effective management of the regional transportation system. Maintaining the regional ITS network allows for more efficient use of available resources and sharing of resources can reduce overall costs and increase project efficiencies. The first step in facilitating regional coordination is to enhance the operation and maintenance of the regional ITS communications network. As the existing ITS network is expanded to include additional facilities and functions, the early projects will need reinvestment to insure that these critical links are adequate.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Operate and Maintain Regional ITS Communications Network	Ensure ITS capital investments are used as efficiently and effectively as possible.	High	Ongoing	$0	$100K	TransPort

- **Active traffic management regional concept of transportation operations (RCTO)**
  Active traffic management consists of a combination of strategies which vary in cost and capabilities. Active traffic management may include variable speed limit signs, lane control, reversible lanes, advanced signal systems, etc. Given the relatively high costs, lack of local implementation, and the limited number of national implementations of active traffic management, it is prudent to first conduct a preliminary study of the technology and potential locations or corridors where the technology benefits seem to be a good fit to the challenges.

  The first effort for active traffic management is to conduct a study to review the various strategies and determine those feasible. The next step is to identify the potential corridors for implementing active traffic management strategies based on current operational and safety challenges that could be addressed by active traffic management. Subsequent study(s) should focus on development of an active traffic management implementation plan and identifying specific elements appropriate for each of these corridors.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Active Traffic Management RCTO	Identify potential corridors for active traffic management implementation, and develop an implementation plan	High	1-5 years	$350K	$0	Metro

- **Transit priority treatment performance measurement**
  Transit signal priority (TSP) is used by TriMet and the City of Portland along key arterials with major transit routes. TSP enhances transit schedule reliability and thus encourages transit ridership. However, the field performance of TSP has not been thoroughly studied. It is therefore necessary to establish a set of performance measures which will apply across all corridors with TSP implemented, and regularly monitor and evaluate the performance of TSP. This evaluation is necessary to determine the cost-effectiveness of expanding TSP to other corridors.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Transit Priority Treatment Performance Measurement	Enhance regional traffic signal coordination systems and support systems that respond to current conditions.	High	1-5 years	$200K	$200K	TriMet

- **Region-wide access management strategies**
  Regional Concept of Transportation Operations (RCTO)
  Access management consolidates or restricts access points to provide a safer environment for vehicles, pedestrians and bicycles. Access management can be expensive depending on access rights and right-of-way acquisition. Strategy plans are necessary to guide the implementation of access management and better allocate the limited resources spent on access management. Currently, ODOT does have access management regulations and standards, however, these standards only apply to state highways. This project aims to incorporate non-state highways into the access management strategy and generate stronger regional policy regarding access management. The first step of the process is to develop overall access management goals and objectives and to identify potential corridors for access management implementation. The next step is to develop a corridor specific access management strategy that provides a toolbox of techniques that may be applied as road

improvement projects, development, or redevelopment occurs within the roadway corridor. The strategy is intended to be adopted by the jurisdictions that have responsibility for the roadway, permitting of driveways, land use regulations, local ordinances and site development requirements.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Region-wide Access Management Strategies	Improve safety and preserve capacity on regional facilities	Medium	6-10 years	$500K	$0	ODOT

- **Enhance regional traffic signal system**
  Software upgrades or enhancements can provide new functionalities and provide a low cost solution to increasing system capabilities. Software updates can be implemented in various transportation elements including advanced signal operations, supportive GIS databases, incident management timing plans, etc. Additionally, capabilities in traffic signal systems such as automation of turn movement counts collection and automated collection of arterial travel times requires additional equipment and hardware upgrades of the signal system.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Enhance Regional Traffic Signal System	Enhance regional traffic signal coordination systems and support systems that respond to current conditions.	High	1-5 years	$12M	$50K	TransPort

- **Expand PSU ITS freight data collection**
  Expand Portland State University's existing web based ITS "count sensor" program beyond the freeway to some key arterials throughout the region. Create a repository of freight data (primarily truck data) from the region's Freight Data Collection project.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Implement Freight Data Collection System	Collect region wide freight data	Medium	6-10 years	$50K	$100K	Port of Portland

- **Congestion pricing/high occupancy toll lanes**
  pilot project
  Congestion pricing is one of the effective ways to reduce traffic congestion. It works by shifting rush hour highway travel to other transportation modes or to off-peak periods. High occupancy toll (HOT) lane is one form of congestion pricing, which carries additional benefits compared to traditional tolling methods. HOT lanes encourage carpooling and at the same time utilize unused capacity of carpool lanes. On top on that, implementing dynamic pricing would have the effect of diverting traffic across different modes, time and space. A pilot project will develop and implement congestion pricing and study the effect it may have on reducing traffic congestion.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Congestion Pricing/ High Occupancy Toll Lanes	Support systems that implement future pricing strategies (e.g., congestion, tolls, parking).	High	1-5 years	$5 M	n/a	ODOT

- **Active traffic management pilot project**
  This pilot project is the second step following the development of regional concepts and implementation plans for active traffic management. Based on the results of the preliminary study, this step includes field implementation of active traffic management on the priority corridor identified as a part of the study.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Active Traffic Management Pilot Project	Field prove ATM concept and show system benefit	Medium	6-10 years	$5M	$100K	ODOT

- **Next generation transit signal priority system**
  After evaluating existing transit signal priority (TSP) system, the next step is to develop new standards for buses communicating to the traffic signal system. This brings TSP to the next level, giving new capabilities and increasing the operational efficiency of TSP system.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Next Generation Transit Signal Priority System	Enhance regional traffic signal systems to support efficiency goals.	Medium	6-10 years	$500K	$100K	TriMet/ TransPort

- **24-Hour transportation operations coverage**
  Following the improvement in operation and maintenance of the regional ITS communications network, the next step is to implement 24-hour transportation operations centers (TOC) coverage. Providing 24-hour staff coverage across the entire Portland Metro area will allow quicker identification of traffic issues, expansion of traffic surveillance and facilitation of communication at all hours of the day.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
24-Hour Transportation Operations Coverage	Expand traffic surveillance and facilitation of communication during late night/early morning hours.	Low	Beyond 10 years	$0	$100K	ODOT/ TransPort

- **Automated speed enforcement**
  Speeding can negatively affect the safety of other road users, transit, pedestrians and bicyclists. The use of technology to help enforce speeds can reduce needed manpower as well as result in increased vehicle operator obedience. To achieve automated ticketing of vehicle speeding, the first step is to identify and install speeding cameras along corridors with common speeding problems. The information for vehicle speeding would be matched with the vehicle registration database to achieve automated ticketing of speeding. This would be achieved through software and hardware upgrades.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Automated Speed Enforcement	Provide a safe environment for transit, bicycling and walking	Low	Beyond 10 years	$1M	$100K	ODOT or others

Functional area: traveler information

Real-time traveler information provides travelers more accurate and comprehensive information for their route, mode, and time of day choice decision making. The information system may include system components transmitted via internet, radio, cell phone, or physically on the roadside. Currently, real-time traveler information system in the Portland Metro area includes dynamic message signs, highway advisory radio, traffic surveillance cameras, Tripcheck.com, TriMet trip planning tools and PORTAL.

The following bullets describe the projects identified in this functional area, as well as preliminary cost estimates and timeframes.

- **Portland Oregon Regional Transportation Data Archive Listing (PORTAL) enhancements**
  PORTAL is a traffic information system developed by Portland State University. The purpose of the system is to implement the U.S. National ITS Architecture's Archived Data User Service (ADUS) for the Portland Metro area. PORTAL shares U.S. Department of Transportation's vision to improve transportation decisions through the archiving and sharing of ITS generated data. As the regional traffic information data warehouse for the Portland Metro area, PORTAL requires continuous support, maintenance and upgrades. The next stage in PORTAL development is to link GIS data with PORTAL to provide more capabilities.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Portland OR Regional Transportation Data Archive Listing (PORTAL) Enhancements	Expand traffic surveillance and transportation system condition data collection capabilities.	High	Ongoing	n/a	$100K	PSU

- **Multi-modal traveler data and tools**
  Provide and/or maintain data and tools to encourage and ease the use of travel options. While some Traveler Information shares real-time data with the travelling public, this action provides data and tools to the travelling public to pre-plan their mode and route. Examples include CarpoolMatchNW.org, and roadway bike-suitability data maintenance for bike maps and online trip planning tools.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Multi-modal traveler data and tools	Provide and/or maintain data and tools to encourage and ease the use of travel options.	High	Ongoing	$0	$150K	Metro

- **Park & Ride traveler information**
  Add Park & Ride feature to a future TriMet multimodal trip planning tool. The project will focus on Park & Ride lots that are at capacity in order to direct users to the next best Park & Ride lot. The tool might be based on estimates or real-time parking space availability (e.g. models and/or sensors) depending on project needs and investment decisions.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Park & Ride Traveler Information	Add Park & Ride feature to route planning tools	High	Ongoing	$500K	$150K	Metro or TriMet

- **TripCheck Travel Information Portal (TTIP) enhancement**
  TripCheck Travel Information Portal (TTIP) is a data exchange system that allows ODOT and other public jurisdictions to share traveler information data as well as provides an access point for private companies, which in turn repackage this travel information data. Currently, regional freeways are the main roadways with traveler information available on TTIP. The data exchange is capable of incorporating arterial roadways; however, equipment needs to be installed on arterial roadways to connect with the data exchange system. With this project, arterial travel information will be integrated into TTIP and region-wide coverage will be provided for incident, construction, traffic and weather information for both freeways and key arterials. ODOT's TripCheck website is the direct product of TTIP. It is envisioned that regional real-time traveler information could be accessed via one single central website for the entire region.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
TripCheck Travel Information Portal (TTIP) Enhancement	Provide current information to affect road users and travel choices for all modes.	High	1-5 years	$3M	$2M	ODOT

- **Arterial performance measure**
  Regional Concept of Transportation Operations (RCTO)
  A natural expansion of the region's performance measurement capabilities, beyond PORTAL and other freeway-based facilities, is to the major arterials across the region. Arterial performance measurement in the form of travel times, travel speeds, and potentially origin-destination data will support engineering and planning decision-makers, enabling more efficient investments of limited funds. Provision of this data in real-time or near real-time makes the data even more useful for transportation professionals and the traveling public.

  The first project using this TSMO strategy is envisioned to make use of media access control address (MAC) reading technology at strategic locations to cover the major arterials region wide. This data will be stored and used in a similar fashion to PORTAL. The arterial performance data, such as real-time speeds, will be made available to the public in an easy to use end format, such as ODOT's TripCheck website. The data could be used to help predict travel times under recurring or non-recurring events.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Arterial Performance Measure	Expand traffic surveillance and transportation system condition data collection capabilities across all modes.	High	1-5 years	$750K	$100K	Metro

- **Transit performance measurement system**
  Following the expansion of arterial performance measure capabilities, the next step is to develop tools to improve data collection from TriMet's automated vehicle locator (AVL) system. This system will be used for comparisons with arterial performance measurement system. The transit data can be compared with vehicle data collected from the arterial performance measurement system to evaluate transit performance and the competitiveness of transit compared to other transportation modes.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Transit Performance Measurement System	Provide effective data to decision makers and agency staff to affect the investments made on the system.	High	1-5 years	$350K	$50K	TriMet

Functional area: incident management

Effective incident management can reduce the effects of incident-related congestion by decreasing the time to detect incidents, the time for responding vehicles to arrive, and the time required for traffic to return to normal conditions. Efficient incident detection, communication and information exchange between various agencies and incident responders is critical.

The following bullets describe the projects identified in this functional area, as well as preliminary cost estimates and timeframes.

- **Incident management**
  Incident management comprises various strategies and elements to facilitate incident and emergency response. Incident management includes (but is not limited to) expanding designated incident response routes, installing surveillance equipment to provide improved incident detection, establishing target clearance goals, contracting with towing services for paid "dry-runs", adding vehicles and staff to the incident response fleet, and expanding incident training teams.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Incident Management	Expand traffic incident and event management capabilities to restore roadway capacity reduced by incidents, weather and construction	High	1-5 years	$2M	$200K	ODOT

- **Expand incident management teams/training**
  Together with implementing incident management strategies, it is necessary to expand incident management teams and provide training in order to enhance partnerships with transportation and emergency management agencies. Members of the incident management teams may include emergency responders, traffic operation center staff, non-transportation agencies associated with traffic incident management, private sector personnel, and others. The incident management teams would be responsible for coordinating traffic incident response, providing joint training, sharing lessons learned, and other functions to improve traffic incident management capabilities.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Expand Incident Management Teams/Training	Provide a coordinated response to traffic incidents	High	1-5 years	$0	$500K	TransPort

- **Integrate voice and data networks**
  An improvement to inter-agency communication systems is a key element in incident management. This project enables emergency information sharing between responders and integrates communications between transportation agencies and emergency management agencies. The information sharing would be facilitated by upgrading communication network (including video feed) between transportation operation centers (TOCs) and installing hardware equipment for incident and emergency responders. By implementing this project, better support and information exchange are possible in times of incidents and emergencies.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Integrate Voice and Data Networks	Improve communication and coordination between transportation agencies and emergency management agencies	Medium	6-10 years	$10M	$500K	TransPort

- **Emergency responder GIS system upgrades**
  GIS system upgrades allow emergency responders to access up to date roadway information while en-route. This project potentially includes responder equipment installation, central system upgrades, and sharing of surveillance or performance measurement data between agencies to speed response times and increase incident understanding prior to emergency response arrival.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Emergency Responders GIS System Upgrades	Provide better data and support for emergency management	Medium	6-10 years	$200K	$50K	Metro

- **Dynamic routing and preemption pilot project**
  Dynamic routing and preemption pilot project enables emergency responders to establish a response route and enact signal preemption along the route before arriving at signals.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Dynamic Routing and Preemption Pilot Project	Enable emergency responders to establish a response route and enact signal preemption along the route before arriving at signals.	Low	Beyond 10 years	$500K	$75K	TVF&R

Functional area: transportation demand management

Transportation Demand Management for the Portland region is coordinated through the Regional Travel Options (RTO) Program. RTO carries out regional strategies to increase use of travel options, reduce pollution and improve mobility.

Regional travel options include all of the alternatives to driving alone – carpooling, vanpooling, riding transit, bicycling, walking and telecommuting. The program maximizes investments in the transportation system and relieves traffic congestion by managing travel demand, particularly during peak commute hours.

The following bullets describe the priority projects in this functional area, as well as preliminary cost estimates and timeframes.

- **Collaborative marketing**
  Continue the Drive Less/Save More regional collaborative marketing campaign that increases awareness and use of travel options and reduces drive-alone trips. Update regional Bike There! map and other collateral materials. Provide sponsorships for partner events and activities. Conduct outreach to the public. Support partner collaboration and coordination.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Collaborative Marketing	Continue regional collaborative marketing campaign that increases awareness and use of travel options and reduces drive-alone trips.	High	Ongoing	$0	$975K	Metro

- **Employer services**
  Implement and/or support outreach and technical support in a collaborative manner with RTO partners to help employers increase non drive-alone travel modes.*

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Employer Services	Implement and/or support outreach and technical support in a collaborative manner with RTO partners to help employers increase non drive-alone travel modes.	High	Ongoing	$0	$1M	Metro

*Additional investment in this strategy is appropriate in some corridors.

- **Rideshare services**
  Implement and/or support marketing, outreach, vanpool fare incentives, and services directed at residents and employees to encourage and incentivize ridesharing.*

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Rideshare Services	Implement and/or support marketing, outreach, vanpool fare incentives, and services directed at residents and employees to encourage and incentivize ridesharing.	High	Ongoing	$0	$360K	Metro

*Additional investment in this strategy is appropriate in some corridors.

- **Measurement**
  Implement and/or support strategies that support investment in cost-effective strategies by measuring program effectiveness and easing data sharing among partners.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Measurement	Implement and/or support strategies that invest in cost-effective ways to measure program effectiveness and ease data sharing among partners.	High	Ongoing	$0	$150K	Metro

- **Regional Transportation System Management & Operations program**
  Support strategic and collaborative program oversight. Support meetings and activities of the RTO and TransPort Subcommittees of TPAC, administer RTO and TSMO grant programs. Develop equitable and sustainable funding plans, seek additional funds to leverage federal grants. Track and support the development of regional, state and local policies that advance TDM and TSM strategies.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
TSMO Program	Support strategic and collaborative program oversight.	High	Ongoing	$0	$335K	Metro

- **Parking management strategy**
  Develop a regional parking management strategy aimed at reducing peak-period congestion while promoting access to areas served by non-auto transportation options (transit, bike, walk, and rideshare). The strategy will include public education, enforcement of existing parking management, and technology for variable pricing at existing parking meters, and opportunities for suburban jurisdictions to advance parking management. The strategy must address the possible negative effects such as business impacts, spillover to adjacent neighborhood and socio-economic impacts.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Parking Management Strategy	Develop regional parking management strategy	High	1-5 years	$100K	$0	Metro

- **Parking management region-wide incentive pilot program**
  Implement a pilot program that provides incentives for jurisdictions to implement parking strategies in urban areas. This could incorporate a "best practices" type of policy or case studies within the jurisdiction to determine optimal parking strategies. Parking strategies can include time restrictions (maximums), paid parking areas, limiting parking to encourage alternative transportation modes, as well as other strategies.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Parking Management Pilot Program	Provide incentives for jurisdictions to manage parking	High	1-5 years	$0	$100K	Metro

- **Smartcard fare system regional concept of operations (RCTO)**
  A smartcard fare system will improve transit operating efficiency by accelerating boarding and fare payment and enhance attractiveness of the system by providing customers with more convenient and flexible payment options. This project develops the approach and lays out the processes to support implementation of the smartcard fare system.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Smartcard fare system RCTO	Improve transit operating efficiency	High	1-5 years	$100K	$0	TriMet

- **Smartcard fare system pilot project**
  A smartcard fare system will improve transit operating efficiency by accelerating boarding and fare payment and enhance attractiveness of the system by providing customers with more convenient and flexible payment options.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Smartcard fare system pilot project	Improve transit operating efficiency	High	1-5 years	$12M	$n/a	TriMet

- **Youth transit pass program – development stage**
  Overcome barriers to youth transit trips and increase the demand for transit region-wide in order to reduce miles driven by parents and among youth who have vehicles for their use. Develop agreements between TriMet, schools, and local governments to provide youth transit passes. This project could be incorporated with the development of a smart card fare system that can account the exact amount youth take transit trips. Work with schools to develop methods and agreements so that youth transit cards can be issued to students.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Youth transit pass program	Overcome barriers to youth transit trips and increase the demand for transit region-wide.	Medium	6-10 years	$0	$100K	Metro

- **Youth transit pass program**
  Implement a youth transit pass project that was developed in the project above. The project focuses on one or multiple schools across the region. The implementation component will be further defined as part of the development stage.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Youth transit pass program	Implement the youth transit pass program.	Medium	1 year (6-10 years)	$0	$15M	Metro

- **Regional incentive system**
  Provide a method for incentives that can be used regionally or by local partners to manage demand with individuals. Creating a regional system would allow seamless incentive delivery and management.

TSMO Project	Goal / Objective	Priority	Time-frame	Capital Cost	O&M Cost	Potential Lead Agency
Regional Incentive/Disincentive System	Provide a method for incentives used to manage demand with individuals.	Low	Beyond 10 years	$9M	$200K	Metro

Investment costs for region-wide projects

Table 2 shows the total costs if all the region-wide projects were to be implemented. The operations and maintenance cost is on an annual basis.

Table 2: Estimate of Region-Wide Investment Costs

Functional Area	1-5 Year Timeframe		6-10 Year Timeframe	
	Capital Cost	Annual O&M Cost	Capital Cost	Annual O&M Cost**
Regional Multimodal Traffic Management	$18M	$250K	$7M	$850K
Traveler Information	$4M	$2.5M	$500K	$2.6M
Incident Management	$2M	$700K	$11M	$1.3M
Transportation Demand Management	$12.1M	$3M	$9M	$18M*
Overall Cost (Region-wide Projects Only)	**$36.1M**	**$6.5M**	**$27.5M**	**$23M***

*This assumes a one-time annual operations and maintenance cost of $15 million for the youth transit pass pilot project.

**The annual O&M cost for the 6 to 10 year timeframe includes those projects started in the 1 to 5 year time frame and continued through the 6 to 10 year timeframe.

Corridor specific projects

In addition to the region-wide projects identified in this plan, several projects apply to specific facilities and are detailed in the corridor action plans that follow. The corridor mobility concept was developed by Metro as a new way to think about an integrated transportation system. The Portland area was divided into 23 unique corridors, see Figure 4. Each corridor focuses on the region's network of freeway and highways, and includes parallel networks of arterial streets, regional multi-use paths, high capacity transit and frequent bus service.

In following Metro's mobility corridor concept (which was in part designed to help planners and decision-makers understand existing conditions, identify needs and prioritize mobility investments) the projects in this action plan are allocated by mobility corridor.

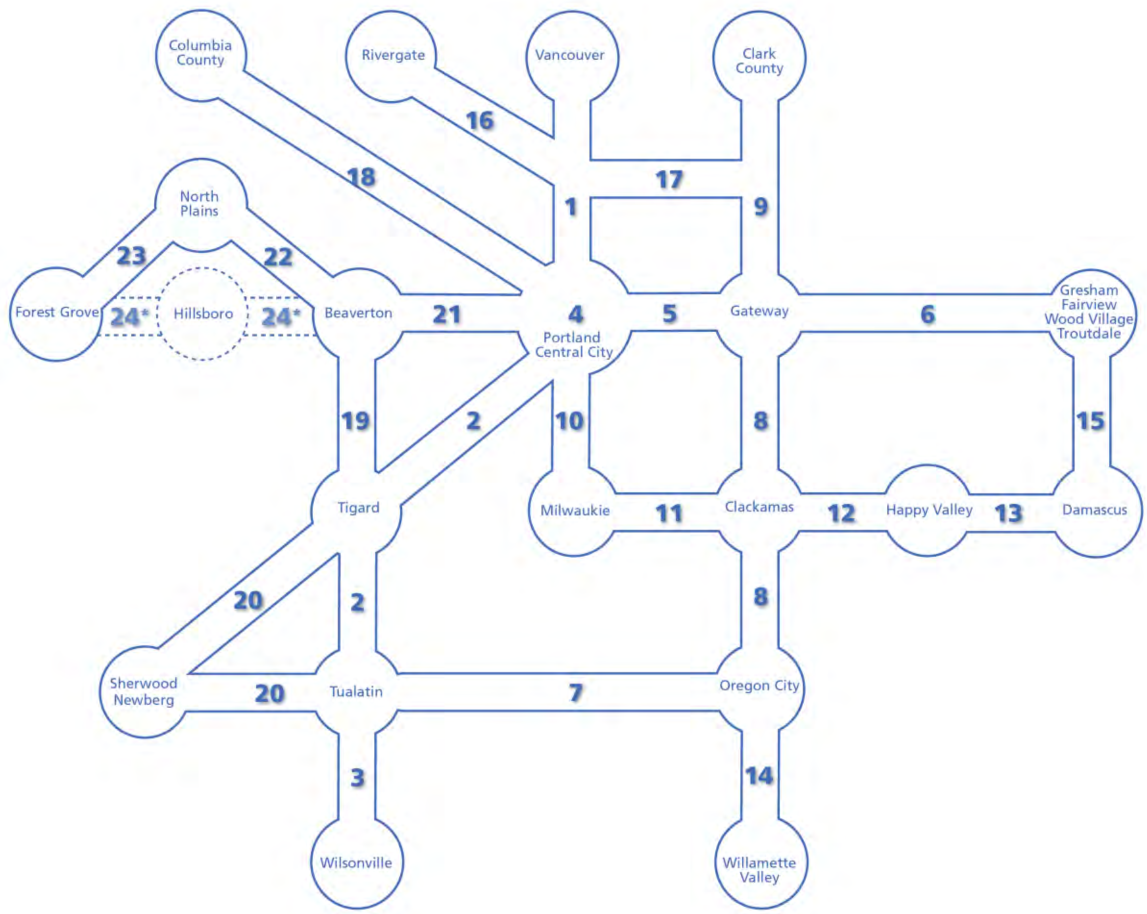

Figure 4: Corridor index map

*Corridor 24 will be added in the future, in this plan facilities in corridor 24 are incorporated in corridors 22 and 23.

Maps of projects

For the corridor specific projects, maps were created to help illustrate project locations. The maps are broken into two categories: transportation system management (TSM) which includes the regional multimodal traffic control, traveler information, and traffic incident management related projects, and transportation demand management (TDM). Each category has its own set of maps to help illustrate the project locations and also show how the Portland region has developed, and will continue to develop in the future with respect to TSM and TDM investments.

There are three maps that illustrate TSM projects in the Portland region:

- Past - A map of TSM investments around the Portland region in 2000 (Figure 5).
- Present - A map of current (2009) TSM investments (Figure 6).

- Future - And a map of the region in 2020 illustrating all the planned TSM investments (Figure 7). This future map incorporates all of the projects listed in the corridor action plans on the following pages. For more information about the project types shown in the legend of this map, the corridor action plans can be referenced.

Then the next four maps illustrate the TDM projects in the Portland region, both existing and planned:

- Existing (2009) map of rideshare efforts such as carpool and vanpool (Figure 8).
- Existing (2009) map of employer services and resulting drive-alone rates (Figure 9).
- Existing (2009) map of collaborative marketing efforts (Figure 10).
- A map of the region in 2020 showing all the planned TDM projects (Figure 11). Similar to the TSMO projects, all of the TDM projects in this map are also detailed in the corridor action plans and can be referenced for more information.

Corridor Project Cost Estimate

Table 3 shows the cost estimate of implementing all of the corridor projects. The operations and maintenance cost is on an annual basis, depending when a project is implemented, that operations and maintenance cost is allocated from that point forward. The primary cost of the transportation system management (TSM) projects is the capital cost (installing equipment and software) whereas the primary cost of TDM projects is the annual operations and maintenance budget (running programs and marketing).

Table 3: Estimate of Corridor Investment Costs

Project Type	1-5 Year Timeframe		6-10 Year Timeframe	
	Capital Cost	Annual O&M Cost	Capital Cost	Annual O&M Cost*
TSM Projects - Regional Multimodal Traffic Management/Traveler Information/ Traffic Incident Management	$89M	$2M	$196M	$6M
Transportation Demand Management	$200K	$14M	$2M	$24M
Overall Cost	**$89.2M**	**$16M**	**$198M**	**$30M**

*The annual .O&M cost for the 6-10 year timeframe includes those projects started in the 1-5 year timeframe and continued through the 6-10 year timeframe.

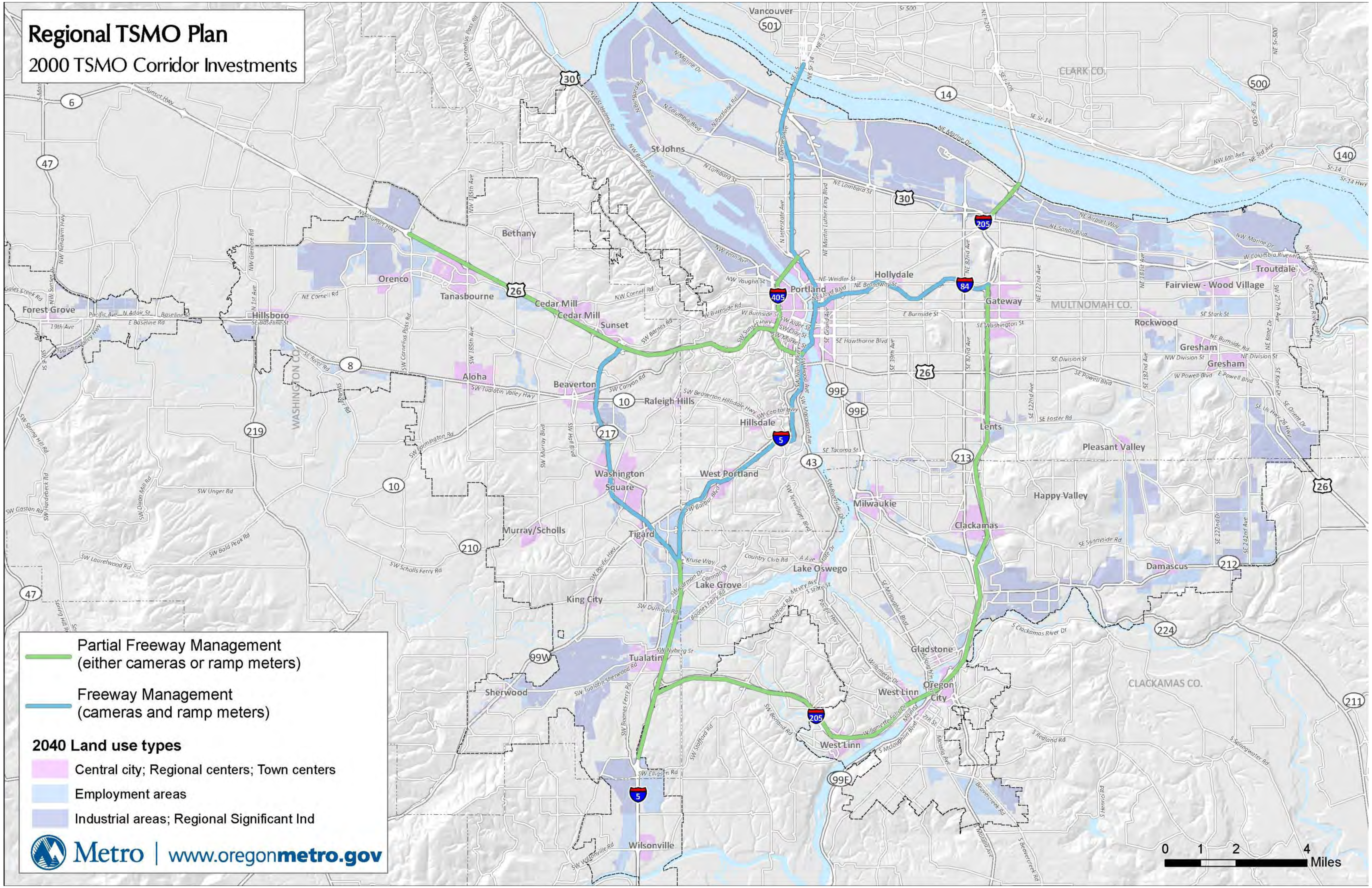

Figure 5: Map of the Portland region and TSM investments in 2000

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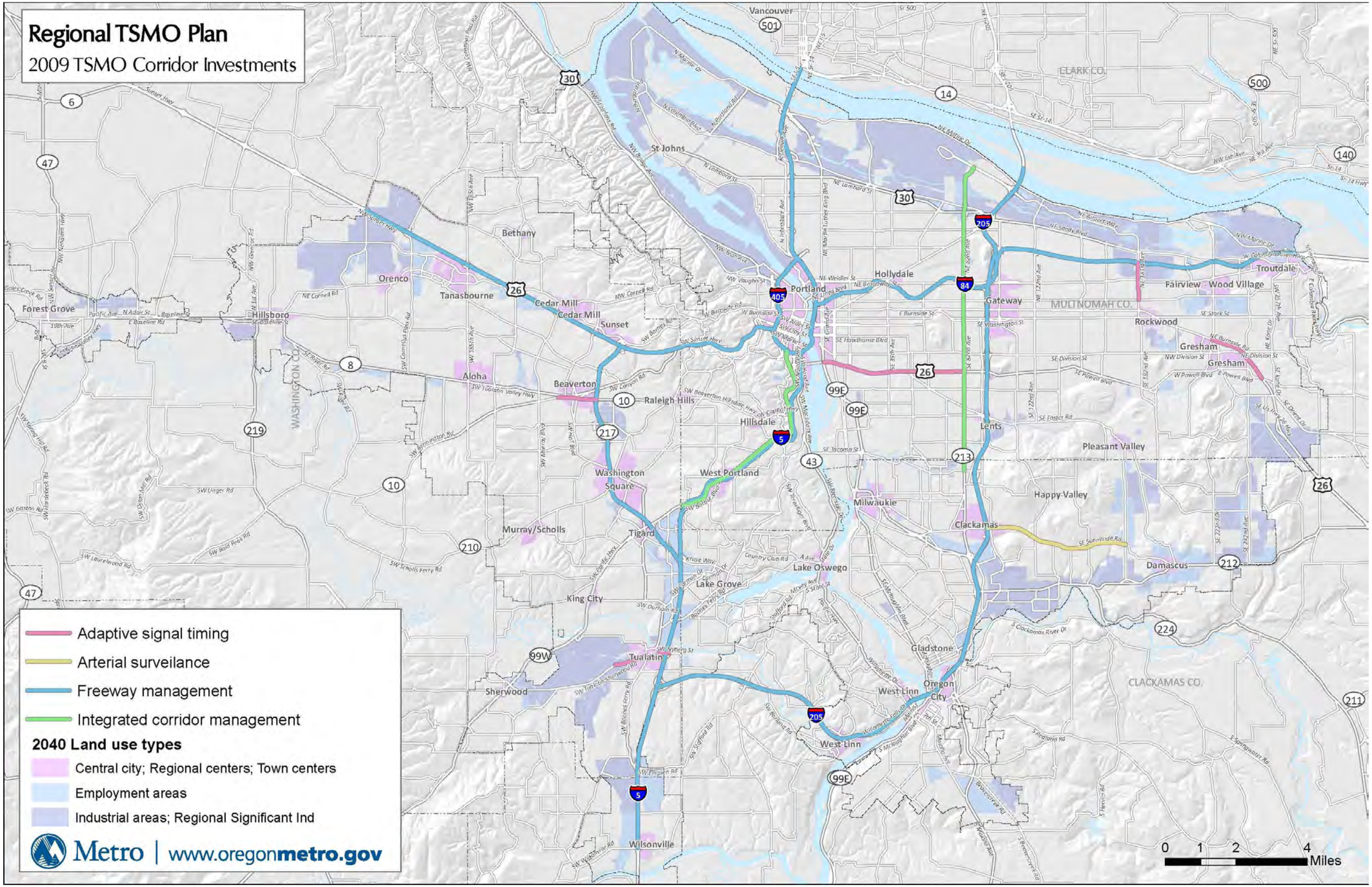

Figure 6: Map of Existing TSM investments in the Portland Region in 2009

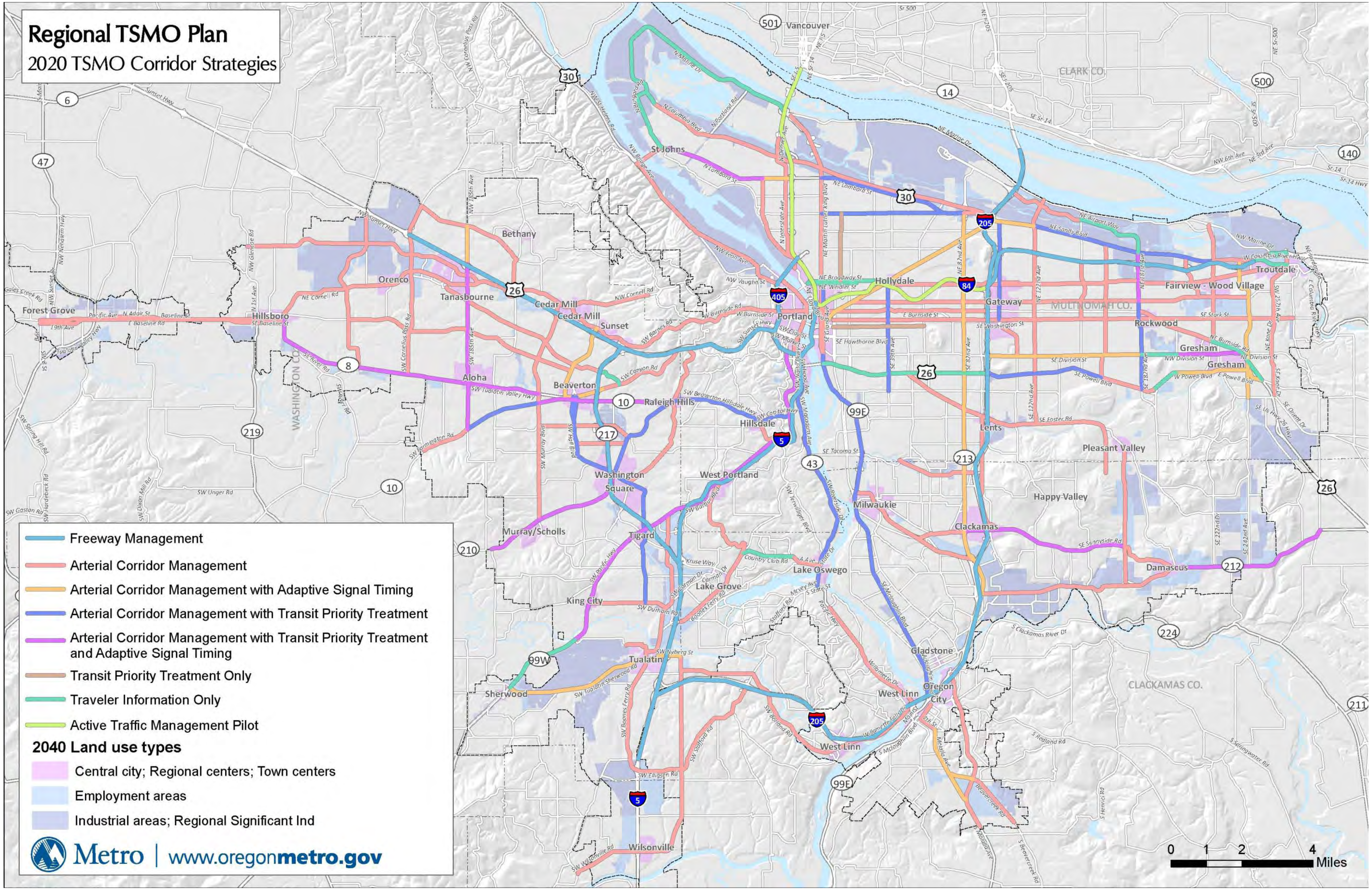

Figure 7: Map of planned TSM investments in the Portland region for 2020

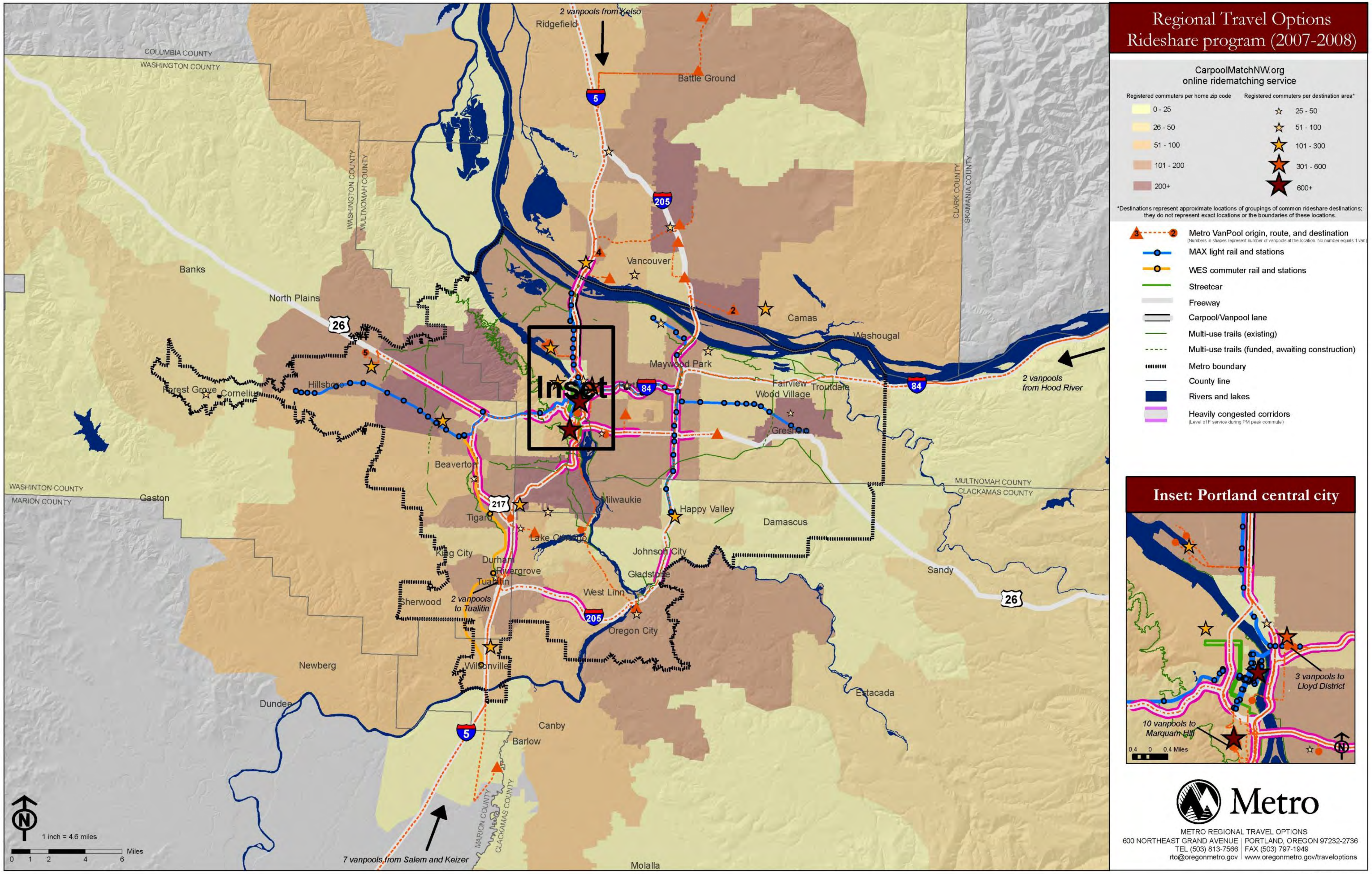

Figure 8: Map of existing (2009) TDM rideshare efforts (carpool and vanpool) in the Portland region.

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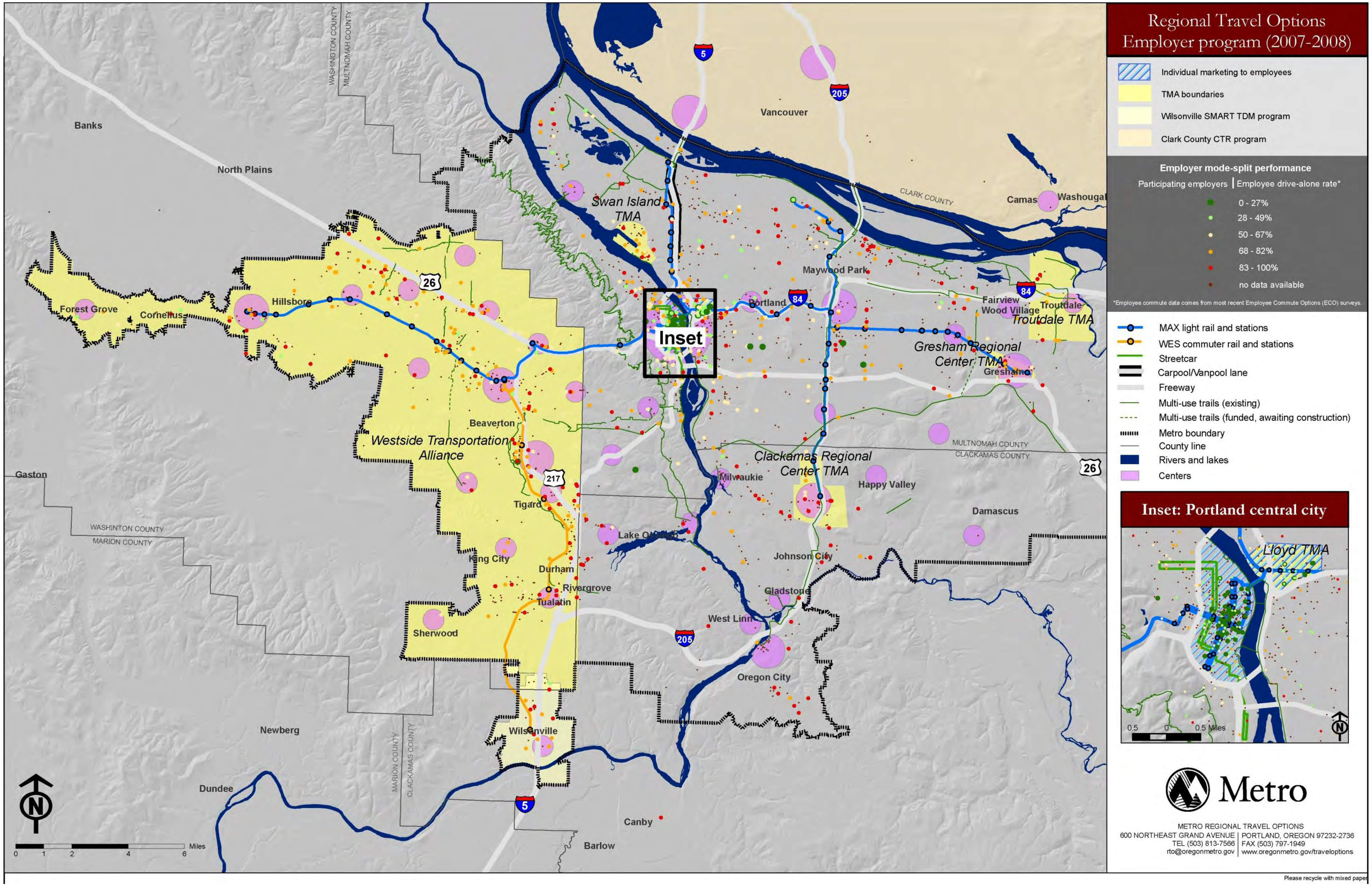

Figure 9: Map of existing (2009) TDM related employer services and resulting drive-alone rates in the Portland region.

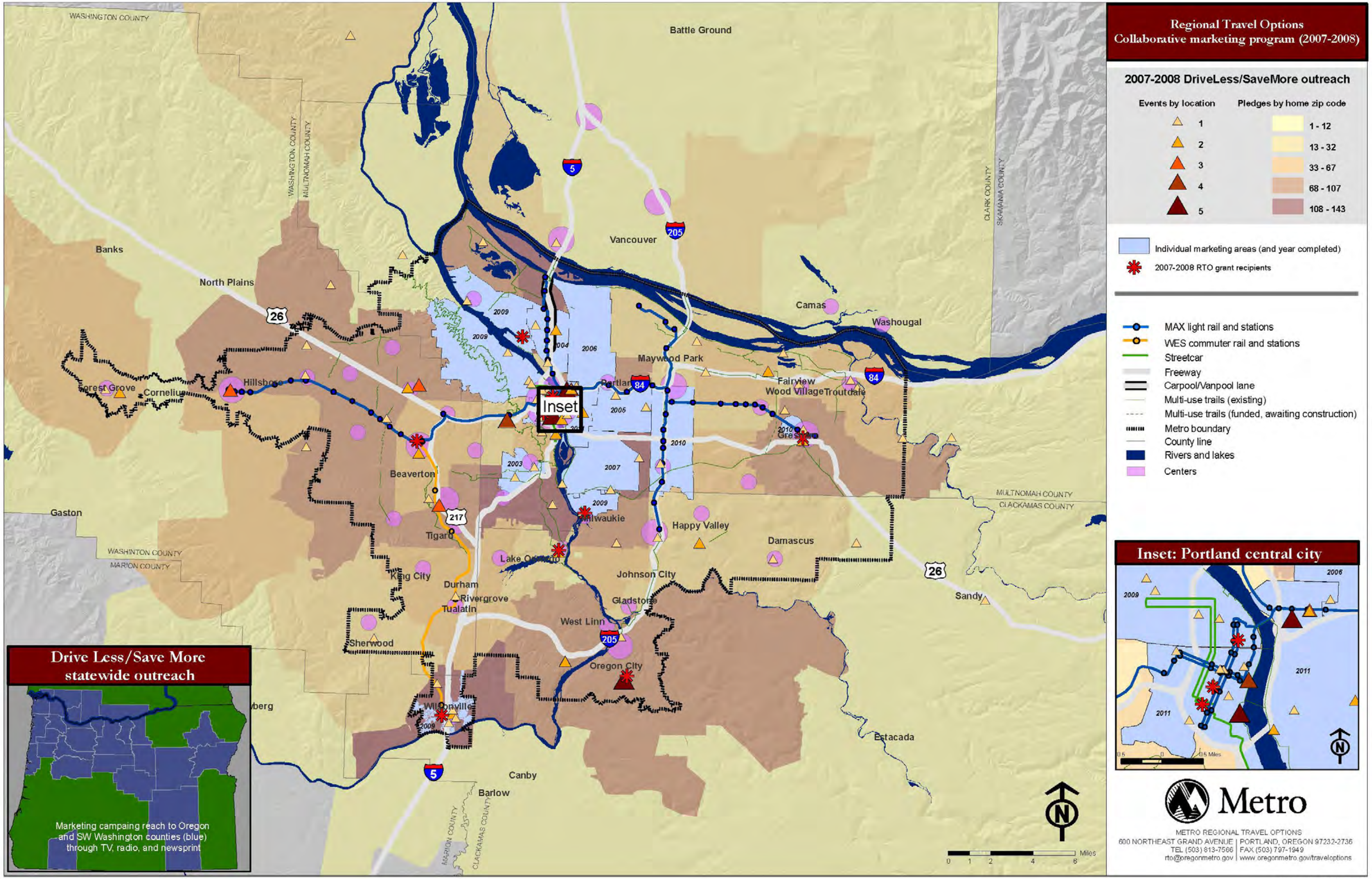

Figure 10: Map of existing (2009) TDM related collaborative marketing efforts in the Portland region.

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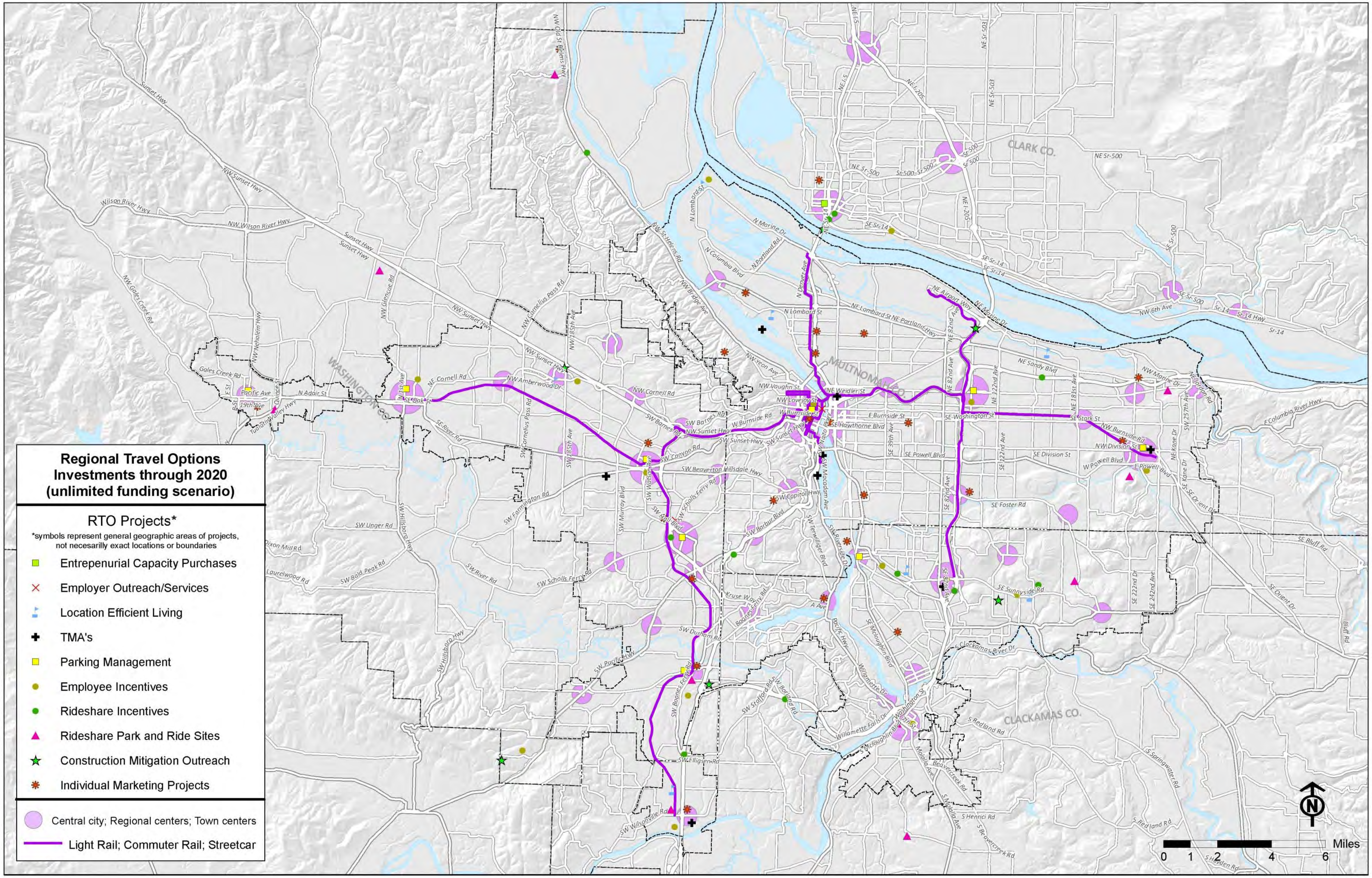

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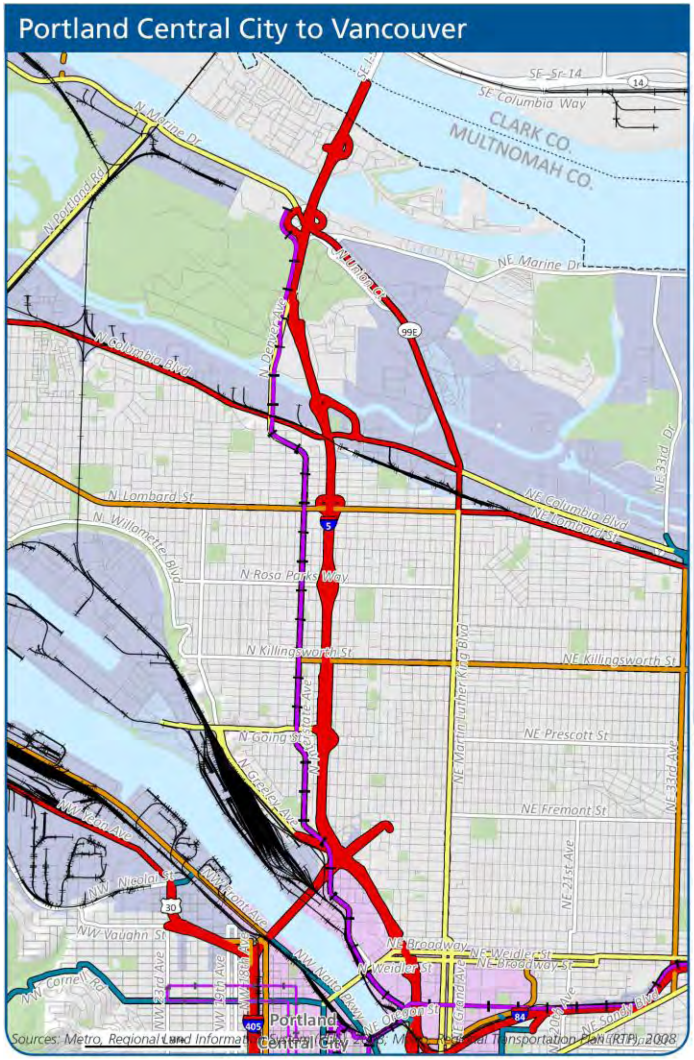
Figure 11: Map of planned TDM projects for implementation by the year 2020 in the Portland region



Corridor Summary

The Portland Central City to Vancouver mobility corridor encompasses I-5, MAX light rail, and several parallel facilities that support auto, truck, transit and bicycle travel. I-5 is a principal arterial freeway that accommodates both interstate and interregional travel. The key parallel arterials include **N Greeley Ave, N Denver Ave, N Interstate Ave, NE Martin Luther King Jr. Blvd, NE Vancouver Ave/NE Williams Ave**. This corridor combines residential, commercial, parks, and industrial areas. In the commercial and residential areas, the street network is well-connected; however, industrial areas are served by a discontinuous street network.

Where Are We Now?

Currently three regional facilities in this corridor have coordinated signal timings updated within the last five years: N Interstate, NE Vancouver and NE Williams. Transit signal priority is located at select traffic signals along NE MLK, NE Vancouver, and NE Williams. Communications infrastructure exists along N Interstate Ave, NE MLK Blvd, and N Denver St. The segment of I-5 through this corridor is generally equipped with cameras, ramp meters, detection, and communication equipment. Also, ODOT and WSDOT share data, cameras and coordinate on freeway operation.

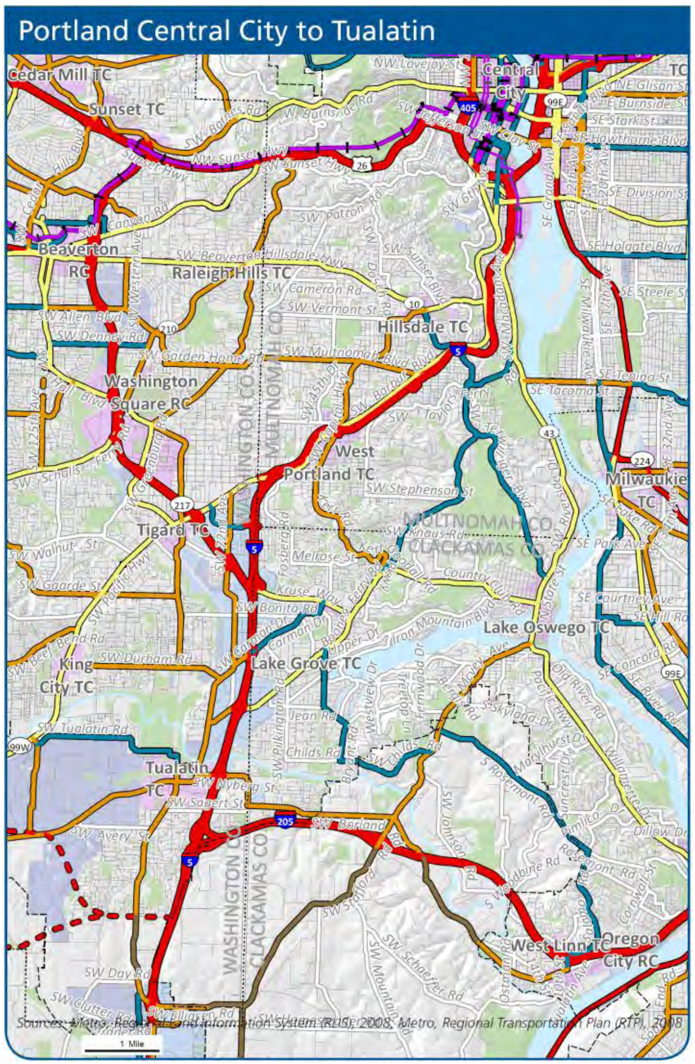
There are programs in place on both the Oregon and Washington sides of the Columbia River to improve mobility in the corridor. On the Washington side, C-TRAN helps subsidize commuter vanpools going through the area, and Clark County coordinates TDM marketing and services to employees through the Southbound Solutions program. In Oregon, the Swan Island TMA and Lloyd TMA work with employers to reduce drive-alone rates among employees. Additionally, the Lloyd TMA offers the Lloyd Links individualized marketing program to district employees who live close to work, while the Swan Island TMA has developed a Location-Efficient Living program to help Swan Island employees and N/NE Portland residents live closer to where they work and work closer to where they live. Finally, the City of Portland sponsors Sunday Parkways events in North Portland to encourage biking and walking.

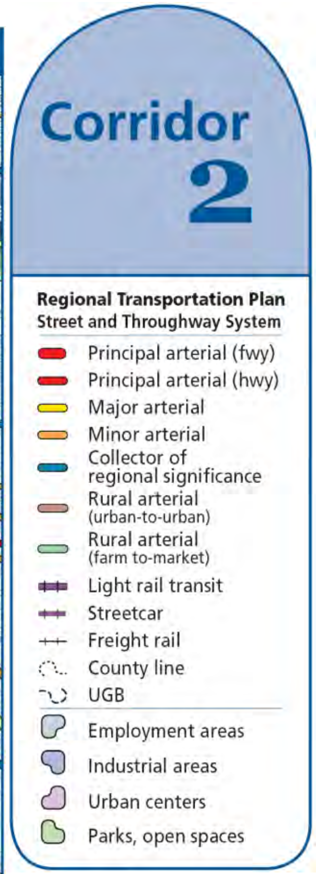
Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Regional Multimodal Traffic Management						
Arterial Corridor Management (ACM)	**Improve arterial corridor operations by expanding traveler information and upgrading traffic signal equipment and timings. Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions. Upgrade and/or add traffic signage. Also includes on-going maintenance and parts replacement.**	**NE Vancouver**	Reliability & Traveler Information	11+ yrs	$1,000,000	$21,000
		NE Williams		11+ yrs	$950,000	$19,000
		N Greeley/Denver		11+ yrs	$1,900,000	$40,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
ACM with Transit Priority Treatment	Includes the ACM project with transit signal priority added to traffic signals along a facility.	NE MLK (Line 6)	Reliability, Traveler Information, & Quality of Life	1-5 yrs	$3,100,000	$60,000
Transit Priority Treatment Only	Install/Expand transit signal priority capabilities at traffic signals.	NE 15th (Line 8)	Quality of Life & Reliability	6-10 yrs	$280,000	$6,000
Freeway Management	Expand freeway vehicle detection to provide comprehensive freeway traveler information including travel speed, travel times, volumes, forecasted information, incident conditions, and weather conditions.	I-5	Reliability, Traveler Information, & Safety	1-5 yrs	$400,000	$8,000
Traveler Information						
	No projects in this corridor					
Transportation Demand Management						
Residential Individualized Marketing	(same as above)	City of Portland N/NE SmartTrips (Chautauqua to 82nd, N of I-84)	Quality of life	1-5 years	$0	$1,000,000
Residential Individualized Marketing	(same as above)	TBD (location based on relative impact on I-5 bridge	Quality of life	6-10 years	$0	$600,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Employer Individualized Marketing	(same as above)	employers in Oregon with high number of employees living in Clark County, WA	Quality of life	6-10 years	$0	$200,000
Construction mitigation campaign	Public awareness campaign using Drive Less/Save More brand, leveraging existing campaign resources, focused on CRC construction, operation.	I-5 bridge	Quality of life	1-5 years	$0	$250,000
Rideshare incentives	Leverage regional rideshare services to encourage greater levels of carpooling and vanpooling by providing financial incentives to commuters.	I-5 bridge	Quality of life	6-10 years	$0	$100,000
Rideshare incentives	Vanpool program (operated by C-TRAN)	I-5 bridge	Quality of life	1-5 years	$3,150,000	$930,000
Rideshare incentives	Vanpool program (operated by C-TRAN)	I-5 bridge	Quality of life	6-10 years	$0	$930,000
Employer Services	Implement and/or support outreach and technical assistance in a collaborative manner with RTO partners to help employers increase non drive-alone travel modes.	employers with high number of employees living in Vancouver, WA	Quality of life	through 10 years	$0	$110,000
Transportation Management Associations	Support public-private partnerships in regional or town centers that assist employees and/or residents increase use of travel options.	Swan Island TMA	Quality of life	through 10 years	$0	$75,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Transportation Management Associations	Support public-private partnerships in regional or town centers that assist employees and/or residents increase use of travel options.	Lloyd TMA	Quality of life	through 10 years	$0	(recorded under corridor 4)
Location-efficient living	Support programs and strategies that promote and advance location-efficient living strategies.	north Portland/Swan Island	Quality of life	currently funded RTO grant	$0	$25,000
Entrepreneurial Capacity Purchases	Provide funding to regional or town centers to reduce drive-alone auto trips. Incentive based - centers earn additional funding for exceeding performance goals. (WSDOT program - GTEC)	Vancouver city center	Quality of life	1-5 years	$0	$920,000
Bike Sharing	Provide funding to implement bikes for loan or rent.	Transit oriented developments, large employers, colleges, hotels and significant transit stops.	Quality of life	6-10 years	$100,000	$50,000





Corridor Summary

The Portland Central City to Tualatin mobility encompasses I-5 and parallel arterials, that support auto, truck, transit and bicycle movement in and through the corridor. I-5 is a principal arterial freeway that accommodates interstate and interregional travel. The key parallel arterials include **SW Barbur Blvd (99W), SW Boones Ferry Rd/SW Terwilliger Blvd, SW Taylors Ferry Rd,** and **SW Macadam Ave (Hwy 43)**. This corridor is largely single-family residential uses and neighborhood-serving commercial with a mix of parks and open spaces. The hilly topography in this corridor is hilly contributes to the winding and discontinuous street network.

Where Are We Now?

No regional facilities in this corridor have coordinated signal timings updated within the last five years. Transit signal priority is located at select traffic signals along SW Barbur Blvd. Communications infrastructure exists along SW Barbur; SW Barbur Blvd is also an incident management route equipped with cameras and vehicle detection. The segment of I-5 through this corridor is generally equipped with cameras, ramp meters, detection, and communication equipment.

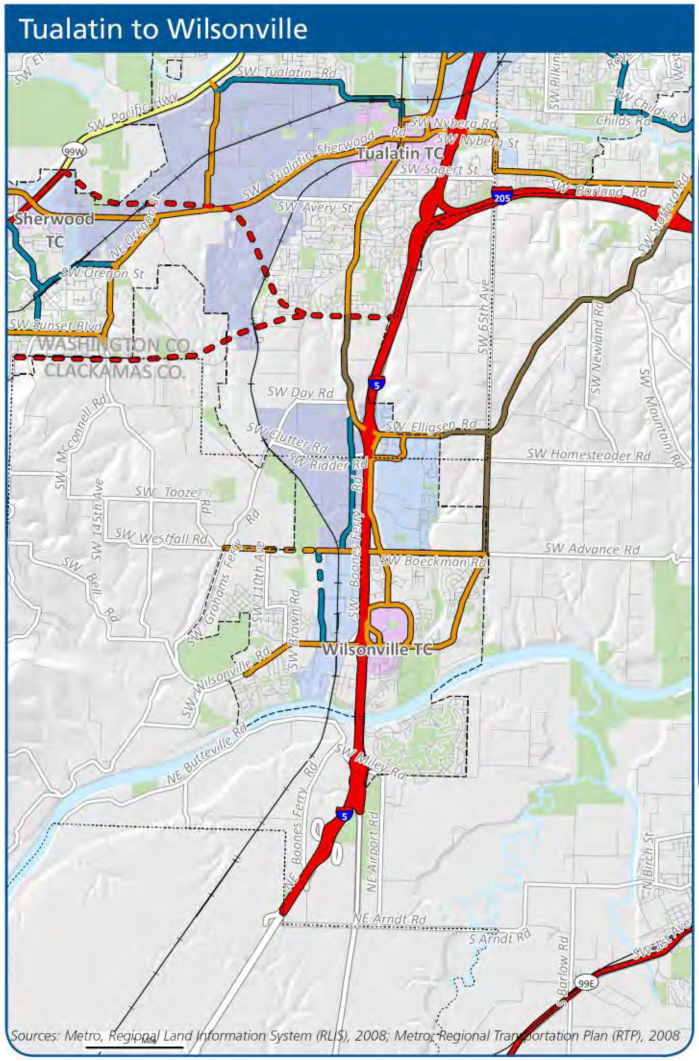
The Westside Transportation Alliance (WTA) works with employers in Tigard and Tualatin (in addition to other Washington County areas) and the Lloyd TMA works with employers in the Lloyd District. Both work to reduce employee drive-alone trips. Additionally, a study has been funded to assess the potential for a new TMA in Portland's South Waterfront. The City of Portland's Smart Trips Downtown program and the Lloyd TMA's Lloyd Links program offer individualized marketing to employees in these areas. There are also several bike-specific projects in the corridor including , a WTA program to install free bike racks for area businesses, and an update of the City of Tigard's 20-year old bike map.

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Regional Multimodal Traffic Management						
Arterial Corridor Management (ACM)	Improve arterial corridor operations by expanding traveler information and upgrading traffic signal equipment and timings. Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions. Upgrade and/or add traffic signage. Also includes on-going maintenance and parts replacement.	Upper Boones Ferry Rd	Reliability & Traveler Information	1-5 yrs	$1,300,000	$25,000
		Kruse Way		1-5 yrs	$60,000	$12,000
		Boones Ferry Rd/Capital Hwy		6-10 yrs	$4,600,000	$90,000
		72nd Ave		11+ yrs	$1,600,000	$30,000
		Durham Rd		11+ yrs	$1,400,000	$30,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
ACM with Transit Priority Treatment	Includes the ACM project with transit signal priority added to traffic signals along a facility.	Hwy 43 (Macadam Ave)	Reliability, Traveler Information, & Quality of Life	6-10 yrs	$3,700,000	$70,000
ACM with Adaptive Signal Timing and Transit Priority Treatment	Includes the ACM with both adaptive signal timing and transit priority treatment.	Hwy 99 (Barbur Blvd from Downtown Portland past Hwy 217)	Reliability, Traveler Information, & Quality of Life	1-5 yrs	$3,400,000	$70,000
Freeway Management	Expand freeway vehicle detection to provide comprehensive freeway traveler information including travel speed, travel times, volumes, forecasted information, incident conditions, and weather conditions.	I-5	Reliability, Traveler Information, & Safety	6-10 yrs	$900,000	$18,000
Traveler Information						
Traveler Information Only	Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions.	Country Club Rd	Traveler Information	6-10 yrs	$700,000	$14,000
		Hwy 99, south of Tualatin		1-5 yrs	$1,100,000	$20,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Transportation Demand Management						
Individualized Marketing	Implement and/or support intensive outreach to targeted neighborhoods that encourages use of travel options through delivery of local travel options information and services to interested residents. (in support of Portland/Multnomah County Climate Change Action Plan)	Supports new transit/trail facility from Central City Portland to Lake Oswego TC	Quality of life	1-5 years	$0	$500,000
Individualized Marketing	Implement and/or support intensive outreach to targeted neighborhoods that encourages use of travel options through delivery of local travel options information and services to interested residents. (in support of Portland/Multnomah County Climate Change Action Plan)	Tigard TC and adjacent neighborhoods	Quality of life	6-10 years	$0	$500,000
Individualized Marketing	(same as above)	Tualatin TC and adjacent neighborhoods	Quality of life	6-10 years	$0	$500,000
Rideshare incentives	Leverage regional rideshare services to encourage greater levels of carpooling and vanpooling by providing financial incentives to commuters.	I-5	Quality of life	1-5 years	$0	$50,000
Rideshare incentives	(same as above)	I-5	Quality of life	6-10 years	$0	$50,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Rideshare Park & Ride	Negotiate shared parking agreements with public and private parking lots, provide signage and, if needed, coordinate registration.	I-5	Quality of life	1-5 years	$0	$4,800
Rideshare Park & Ride	(same as above)	I-5	Quality of life	6-10 years	$0	$4,800
Employee incentives	Targeted investment to add to employer services to incentivize non-SOV commutes.	to be determined	Quality of life	1-5 years	$0	$50,000
Employee incentives	(same as above)	to be determined	Quality of life	6-10 years	$0	$50,000
Transportation Management Associations (TMA)	Support public-private partnerships in regional or town centers that assist employees and/or residents increase use of travel options. Westside Transportation Alliance serves employers.	Tigard, Tualatin and other parts of Washington County	Quality of life	through 10 years	$0	(annual amount recorded in corridor 19)
Transportation Management Associations (TMA)	Lower Macadam/Johns Landing TMA start-up.	Lower Macadam/Johns Landing	Quality of life	6-10 years	$0	$300,000
Car-share operations	Support 3 or more car sharing vehicles in developing centers.	Lake Oswego Town Center	Quality of life	1-5 years	$0	$200,000



Corridor Summary

The Tualatin to Wilsonville corridor supports mostly north-south movement with I-5 as the major through facility. Other transportation elements in this corridor include Westside Express Service (WES) commuter rail, several parallel facilities that support not only auto and truck travel, but also bus service and bicycle facilities. I-5 is a principal arterial freeway that supports interstate and interregional travel. It also provides access to the Sherwood, Tualatin, and Wilsonville town centers, employment areas and industrial areas. The key parallel arterials include **SW Boones Ferry Rd, SW Grahams Ferry Rd, SW Stafford Rd,** and **SW 65th Ave**. East-west mobility in this corridor is limited with few overcrossings of I-5. The land use is mainly rural, however, in the urbanized areas there is significant employment and industry. The roadway network is a mix of farm-to-market roads and discontinuous residential streets.

Where Are We Now?

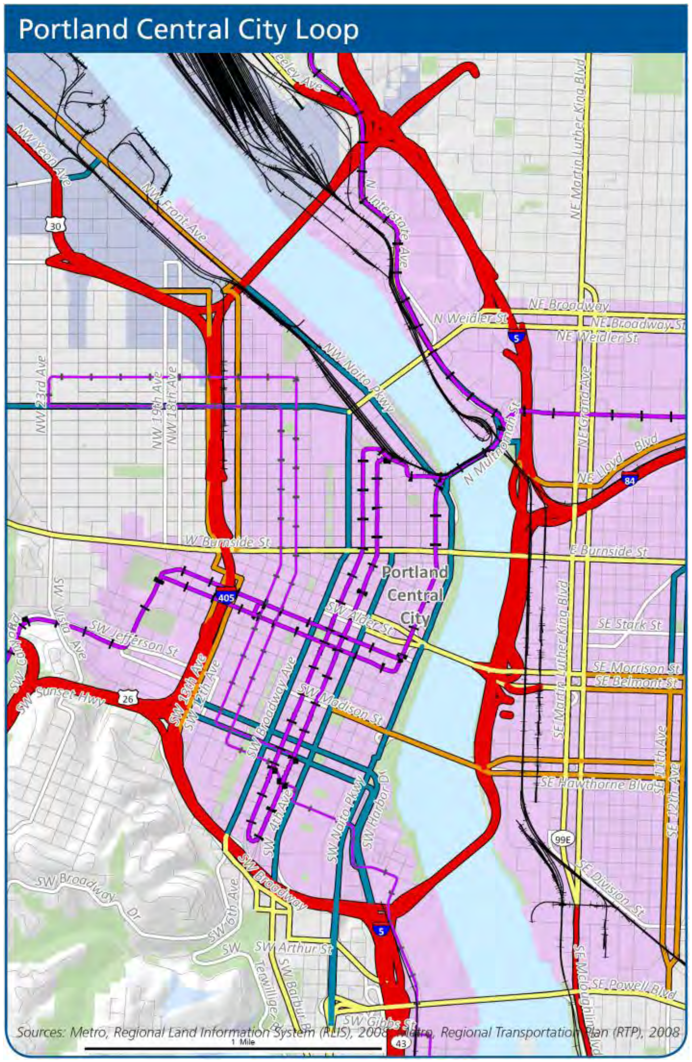
Currently one regional facility in this corridor, SW Stafford Rd, has coordinated signal timing updated within the last five years. There is no transit signal priority installed and no communications infrastructure exists along the regional arterials. The segment of I-5 through this corridor is generally equipped with cameras, ramp meters, detection, and communication equipment.

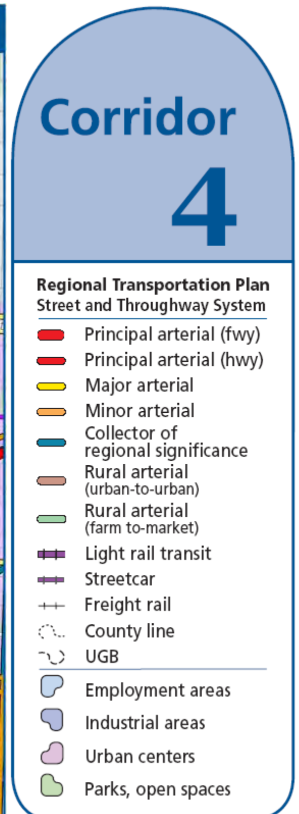
A limited amount of TDM services are available. The City of Wilsonville runs the Wilsonville SMART Options program to encourage citizens to take transit, walk more, and they are hiring a bike/pedestrian coordinator to improve and expand their walking and biking programs.

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Regional Multimodal Traffic Management						
Arterial Corridor Management (ACM)	Improve arterial corridor operations by expanding traveler information and upgrading traffic signal equipment and timings. Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions. Upgrade and/or add traffic signage.Also includes on-going maintenance and parts replacement.	SW Boones Ferry Rd	Reliability & Traveler Information	6-10 yrs	$2,400,000	$50,000
		SW 65th Ave		11+ yrs	$1,000,000	$20,000
		Wilsonville Rd (west of I-5)		11+ yrs	$700,000	$14,000
		SW Stafford Rd		11+ yrs	$1,300,000	$30,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Freeway Management	Expand freeway vehicle detection to provide comprehensive freeway traveler information including travel speed, travel times, volumes, forecasted information, incident conditions, and weather conditions.	I-5	Reliability, Traveler Information, & Safety	1-5 yrs	$500,000	$10,000
Traveler Information						
	No projects in this corridor					
Transportation Demand Management						
Individualized Marketing	Implement and/or support intensive outreach to targeted neighborhoods that encourages use of travel options through delivery of local travel options information and services to interested residents.	Wilsonville (RTO Subcommittee funded this project)	Quality of life	1-5 years (starts 2010)	$0	$278,100
Individualized Marketing	(same as above)	Residents served by frequent transit service, other travel options and near commercial zoning.	Quality of life	6-10 years	$0	$500,000
Rideshare incentives	Leverage regional rideshare services to encourage greater levels of carpooling and vanpooling by providing financial incentives to commuters.	I-5	Quality of life	1-5 years	$0	$25,000
Rideshare incentives	(same as above)	I-5	Quality of life	6-10 years	$0	$25,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Rideshare Park & Ride	Negotiate shared parking agreements with public and private parking lots, provide signage and, if needed, coordinate registration.	I-5	Quality of life	1-5 years	$0	$4,800
Rideshare Park & Ride	(same as above)	I-5	Quality of life	6-10 years	$0	$4,800
Construction mitigation campaign	Apply additional investment in TDM solutions to mitigate impacts to travelers of all modes during construction projects.	Areas impacted by I-5 to I-205 additional merge lane construction.	Quality of life	1-5 years	$0	$100,000
Employee incentives	Targeted investment to add to employer services to incentivize non-SOV commutes.	to be determined	Quality of life	1-5 years	$0	$50,000
Employee incentives	(same as above)	to be determined	Quality of life	6-10 years	$0	$50,000
Wilsonville SMART Options	The City of Wilsonville SMART Options Outreach Program works with Wilsonville area employers and residents to promote transit and other transportation options. The primary goals of the program are to increase awareness of transportation options available in Wilsonville and the region, reduce drive alone trips and increase communication between the City of Wilsonville, local businesses of all sizes, community organizations and regional partners.	Wilsonville		through 10 years	$0	$62,000
Car-share operations	Support 3 or more car-sharing vehicles in developing centers.	Wilsonville Town Center	Quality of life	1-5 years	$0	$200,000





Corridor Summary

The Portland City Central Loop encompasses **I-5** and **I-405**, as well as **key throughway interchanges with I-84, US 26,** and **US 30**. The main parallel facilities in this corridor include **NW Front/SW Naito Parkway** and **NE Grand Ave/Martin Luther King Jr. Blvd**. There are seven freeway and arterial bridges crossing the Willamette River. MAX light rail, bus service and bicycle facilities support movement in and through the corridor. Additionally, streetcar connects between NW Portland and the South Waterfront District, with expansion to the eastside planned for 2011. On the west side of the Willamette, the primary land uses are high density office development, mid-rise residential and mixed use commercial. On the east side, warehouse and commercial uses are abundant. The street network in this corridor is compact, with abundant multi-modal access.

Where Are We Now?

Currently no regional facilities in this corridor have coordinated signal timings updated within the last five years. Transit signal priority is located at select traffic signals along NE/SE MLK Blvd, NE/SE Grand Ave, SE 11th Ave, and NW Glisan St just west of the Steel Bridge. Communications infrastructure exists along the main parallel facilities as well as several additional roadways in this corridor, with most traffic signals connected to the central signal system. The segment of I-5 and I-405 through this corridor are generally equipped with cameras, detectors, ramp meters, and communication equipment. The Lloyd TMA works with employers and employees to reduce drive-alone trips. Additionally, a study has been funded to assess the potential for a new TMA in the South Waterfront. The City of Portland's Smart Trips Downtown program and the Lloyd TMA's Lloyd Links program offer individualized marketing to employees. Finally, Portland State University is currently building a new long-term bike storage facility.

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<tr><th rowspan="2">Project Name</th><th rowspan="2">Description</th><th rowspan="2">Facility</th><th rowspan="2">Goal/ Objective</th><th rowspan="2">Time-frame</th><th colspan="2">Cost</th></tr>
<tr><th>Capital</th><th>Annual O&M</th></tr>
<tr><td colspan="7">Regional Multimodal Traffic Management</td></tr>
<tr><td rowspan="3">Arterial Corridor Management (ACM)</td><td rowspan="3">Improve arterial corridor operations by expanding traveler information and upgrading traffic signal equipment and timings. Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions. Upgrade and/or add traffic signage. Also includes on-going maintenance and parts replacement.</td><td>SW/NW Naito Pkwy</td><td rowspan="3">Reliability & Traveler Information</td><td>6-10 yrs</td><td>$1,900,000</td><td>$40,000</td></tr>
<tr><td>SE/NE MLK Blvd</td><td>6-10 yrs</td><td>$2,360,000</td><td>$50,000</td></tr>
<tr><td>NE/SE Grand (south of I-84)</td><td>6-10 yrs</td><td>$1,400,000</td><td>$30,000</td></tr>
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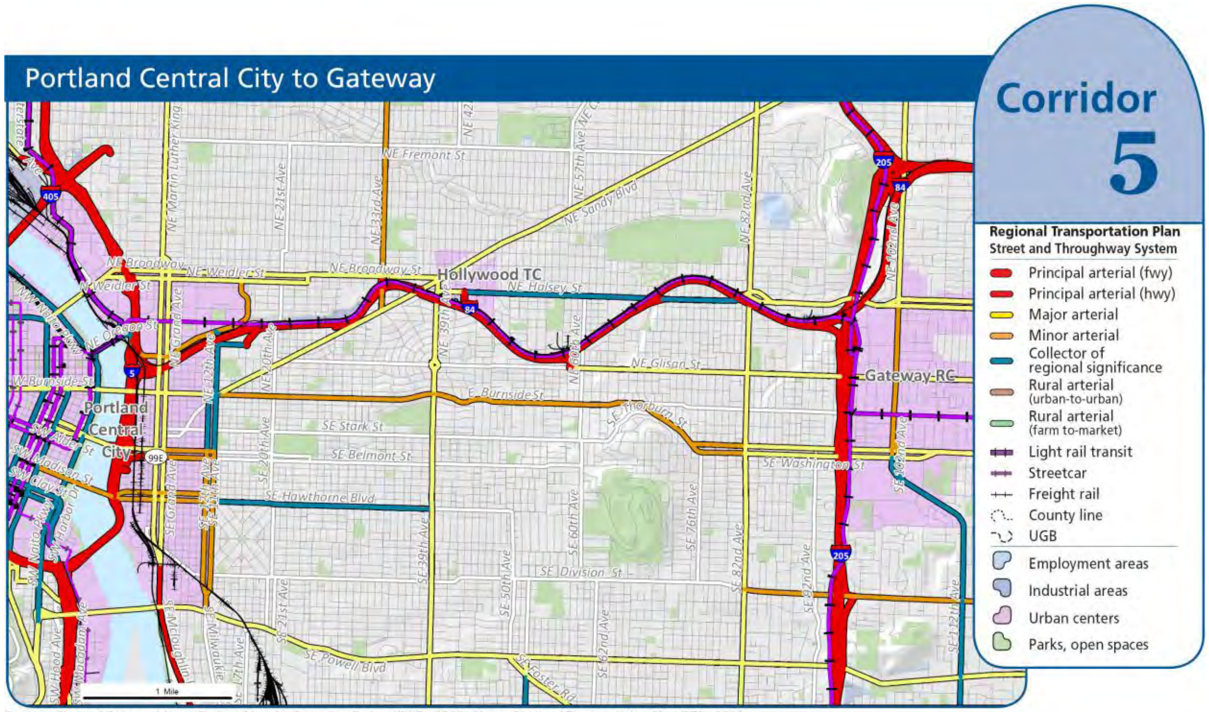
Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
ACM with Transit Priority Treatment	Includes the ACM project with transit signal priority added to traffic signals along a facility.	NE Grand Ave (north of I-84)	Reliability, Traveler Information, & Quality of Life	1-5 yrs	$1,200,000	$25,000
Freeway Management	Expand freeway vehicle detection to provide comprehensive freeway traveler information including travel speed, travel times, volumes, forecasted information, incident conditions, and weather conditions.	I-5	Reliability, Traveler Information, & Safety	1-5 yrs	$240,000	$5,000
		I-405		6-10 yrs	$240,000	$5,000
Traveler Information						
Railroad Crossing Information System	Implement communications between the at-grade railroad crossing and the traffic operations center and emergency management centers to inform emergency responders and general travelers when service will be interrupted.	SE Division St/8th Ave	Reliability, Traveler Information, & Safety	6-10 yrs	$75,000	$2,000
Transportation Demand Management						
Individualized Marketing	Implement and/or support intensive outreach to targeted neighborhoods that encourages use of travel options through delivery of local travel options information and services to interested residents.	Neighborhoods along Portland Streetcar Loop (RTO Subcommittee funded this project)	Quality of life	1-5 years	$0	$726,090
Employee incentives	Targeted investment to add to employer services to incentivize non-SOV commutes.	to be determined	Quality of life	1-5 years	$0	$50,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Employee incentives	(same as above)	to be determined	Quality of life	6-10 years	$0	$50,000
Transportation Management Associations (TMA)	Implement and/or support intensive outreach to targeted neighborhoods that encourages use of travel options through delivery of local travel options information and services to interested residents.	Lloyd District	Quality of life	through 10 years	$0	$51,000
Transportation Management Associations (TMA)	TMA start-up	South Waterfront or another Central City area.	Quality of life	1-5 years	$0	$300,000
Parking management	Convene stakeholders to plan and implement parking management strategies. Ideally this action raises revenue to expand TDM solutions.	To be determined	Quality of life	1-5 years	$0	$100,000
Parking management	(same as above)	To be determined	Quality of life	6-10 years	$0	$100,000
Bike Sharing	Provide funding to implement bikes for loan or rent.	Transit oriented developments, large employers, colleges, hotels and significant transit stops.	Quality of life	6-10 years	$100,000	$50,000
End-of-trip bike facilities	Bike parking (short term and/or long term), bike stations, related bike services	Central City	Quality of life	6-10 years	$100,000	$100,000



Sources: State of Oregon; Metro, Regional Land Information System (RLIS), 2008; Metro, Regional Transportation Plan (RTP), 2008

Corridor Summary

The Portland Central City to Gateway mobility corridor encompasses **I-84,** MAX light rail, parallel arterials, as well as bus service and bicycle routes that support movement in and through the corridor. I-84 supports interstate and interregional travel and connects with both I-205 and I-5. The key parallel arterials include **Broadway St, Halsey St, Weidler St, Sandy Blvd, Glisan St, Burnside St,** and **Powell Blvd**. The roadway network in this corridor is dense and serves a diverse land use pattern.

Where Are We Now?

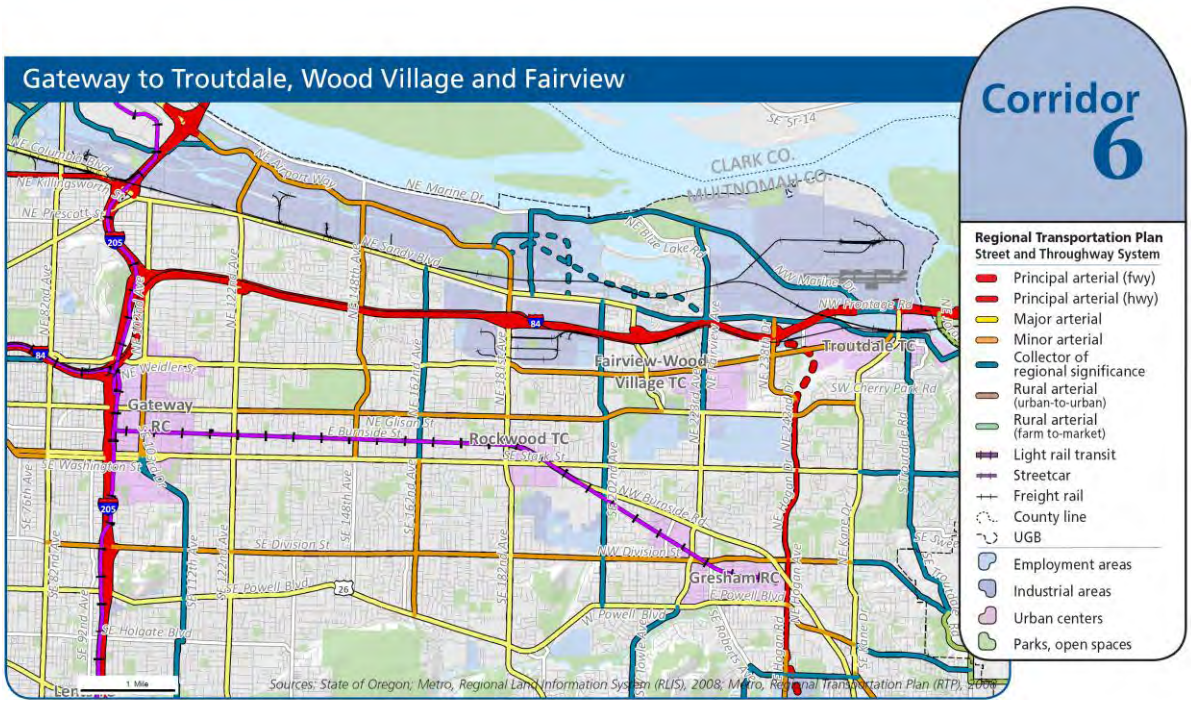
Currently one regional facility in this corridor, NE Glisan St, has coordinated signal timings updated within the last five years. SE Powell Blvd is in the process of converting to adaptive signal timing. Transit signal priority is located at select traffic signals along SE Powell Blvd, SE Division St, SE Hawthorne Blvd, NE Sandy Blvd, NE Weidler St, and NE Broadway St. Communication infrastructure exists along segments of NE Sandy Blvd, SE Powell Blvd, NE Glisan St, NE Halsey St, and NE Broadway St, as well as some non-regional roadways in this corridor. The segment of I-84 through this corridor is generally equipped with cameras, ramp meters, detection, and communication equipment.

The Lloyd TMA works with employers and employees to reduce drive-alone trips, and they offer the Lloyd Links individualized marketing program to district employees who live close to work. Also, the City of Portland runs a Sunday Parkways event in Southeast and Northeast Portland to encourage use of alternative modes for all trips.

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Regional Multimodal Traffic Management						
Arterial Corridor Management (ACM)	Improve arterial corridor operations by expanding traveler information and upgrading traffic signal equipment and timings. Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions. Upgrade and/or add traffic signage. Also includes on-going maintenance and parts replacement.	NE Halsey St	Reliability & Traveler Information	11+ yrs	$2,000,000	$40,000
		NE Glisan St		6-10 yrs	$180,000	$35,000
		SE Stark St		11+ yrs	$2,700,000	$55,000
		NE Burnside St		6-10 yrs	$3,100,000	$60,000
ACM with Adaptive Signal Timing	Includes the ACM project with signal systems that automatically adapt to current arterial roadway conditions.	NE Sandy Blvd	Reliability & Traveler Information	1-5 yrs	$5,000,000	$100,000
Transit Priority Treatment Only	Install/Expand transit signal priority capabilities at traffic signals.	SE Belmont St	Quality of Life & Reliability	11+ yrs	$1,700,000	$35,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Freeway Management	Expand freeway vehicle detection to provide comprehensive freeway traveler information including travel speed, travel times, volumes, forecasted information, incident conditions, and weather conditions.	I-84	Reliability, Traveler Information, & Safety	1-5 yrs	$450,000	$9,000
Active Traffic Management Pilot Project	Install active traffic management devices such as variable speed limit signs, lane use devices, and other ATM equipment, as a pilot project for the Portland region.	I-84	Reliability, Traveler Information, & Safety	6-10 yrs	$5,000,000	$100,000
Traveler Information						
Traveler Information Only	Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions.	SE Powell Blvd (Ross Island Bridge to I-205)	Traveler Information	1-5 yrs	$400,000	$8,000
		NE Weidler St		6-10 yrs	$1,500,000	$30,000
		NE Broadway St		6-10 yrs	$2,100,000	$40,000
Transportation Demand Management						
Individualized Marketing	Implement and/or support intensive outreach to targeted neighborhoods that encourages use of travel options through delivery of local travel options information and services to interested residents.	NE Portland along North side of I-84	Quality of life	1-5 years	$0	$333,333
Employee incentives	Targeted investment to add to employer services to incentivize non-SOV commutes.	to be determined	Quality of life	1-5 years	$0	$50,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Employee incentives	(same as above)	to be determined	Quality of life	6-10 years	$0	$50,000
Parking management	Convene stakeholders to plan and implement parking management strategies. Ideally this action raises revenue to expand TDM solutions.	To be determined - likely commercial areas along corridors parallel to I-84	Quality of life	1-5 years	$0	$100,000
Parking management	(same as above)	(same as above)	Quality of life	6-10 years	$0	$100,000
Parking management	Convene stakeholders to plan and implement parking management strategies. Ideally this action raises revenue to expand TDM solutions.	Gateway Regional Center	Quality of life	1-5 years	$0	$100,000
Parking management	(same as above)	Gateway Regional Center	Quality of life	6-10 years	$0	$100,000
Bike Sharing	Provide funding to implement bikes for loan or rent.	Transit oriented developments, large employers, colleges, hotels and significant transit stops.	Quality of life	6-10 years	$100,000	$50,000



Corridor Summary

The Gateway to Troutdale mobility corridor includes sections of **I-84** and MAX light rail. I-84 provides interstate travel and interregional access to the Portland International Airport, the Columbia Gorge, and points beyond. The MAX blue line connects Gateway regional center and Portland central city to Gresham regional center. The key parallel arterials include **Marine Dr, Sandy Blvd, Halsey St, Glisan St, Division St,** and **Powell Blvd**. The local street network is generally discontinuous, with many dead end streets.

Where Are We Now?

Currently three regional facilities in this corridor have coordinated signal timings updated within the last five years: SE Division St, SE Powell Blvd and NE Sandy Blvd. Transit signal priority is located at select traffic signals along SE Division St and SE Powell Blvd. Communications infrastructure exists along segments of SE Division St, SE Powell Blvd, NE Airport Way, and E Burnside St. The segment of I-84 through this corridor is generally equipped with cameras, ramp meters, detection, and communication equipment.

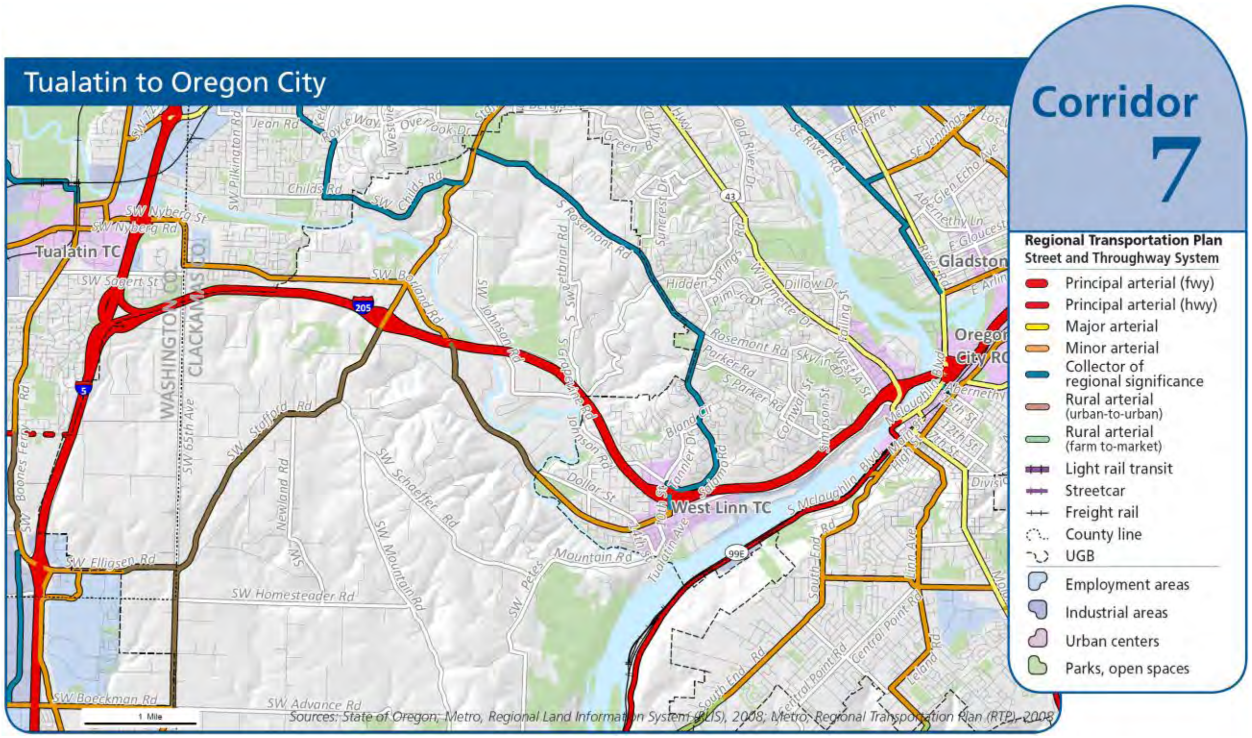
The Gresham Regional Center TMA works with employers, employees, and residents to reduce drive-alone trips. Additionally, the TMA runs a Bike Program which conducts safety outreach, gives away helmets and installs bike racks. The City of Gresham has begun to implement a city-wide bicycle way-finding program.

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Regional Multimodal Traffic Management						
Arterial Corridor Management (ACM)	Improve arterial corridor operations by expanding traveler information and upgrading traffic signal equipment and timings. Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions. Upgrade and/or add traffic signage. Also includes on-going maintenance and parts replacement.	NE Halsey St	Reliability & Traveler Information	11+ yrs	$4,900,000	$100,000
		SE Stark St		1-5 yrs	$3,600,000	$70,000
		NE Glisan St		6-10 yrs	$4,500,000	$90,000
		SE Division St (160th to 190th)		1-5 yrs	$700,000	$14,000
		Airport Way (I-205 to 158th)		6-10 yrs	$1,500,000	$30,000
ACM with Adaptive Signal Timing	Includes the ACM project with signal systems that automatically adapt to current arterial roadway conditions.	SE Division St (I-205 to 160th)	Reliability & Traveler Information	6-10 yrs	$1,000,000	$20,000
		SE Powell Blvd (Birdsdale to US 26)		6-10 yrs	$1,900,000	$40,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
ACM with Transit Priority Treatment	Includes the ACM project with transit signal priority added to traffic signals along a facility.	NE Sandy Blvd (east of 122nd)	Reliability, Traveler Information, & Quality of Life	6-10 yrs	$3,200,000	$60,000
		SE Powell Blvd (I-205 to 160th)		1-5 yrs	$1,500,000	$30,000
ACM with Adaptive Signal Timing and Transit Priority Treatment	Includes the ACM with both adaptive signal timing and transit priority treatment.	Division (Birdsdale to Burnside)	Reliability, Traveler Information, & Quality of Life	6-10 yrs	$1,400,000	$30,000
Freeway Management	Expand freeway vehicle detection to provide comprehensive freeway traveler information including travel speed, travel times, volumes, forecasted information, incident conditions, and weather conditions.	I-84	Reliability, Traveler Information, & Safety	6-10 yrs	$700,000	$14,000
Traveler Information						
Traveler Information Only	Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions.	SE Powell Blvd (190th to Birdsdale)	Traveler Information	6-10 yrs	$200,000	$40,000
		SE Division (182nd to Birdsdale)		6-10 yrs	$250,000	$5,000
		Airport Way (158th to Sandy)		11+ yrs	$1,100,000	$20,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Transportation Demand Management						
Individualized Marketing	Implement and/or support intensive outreach to targeted neighborhoods that encourages use of travel options through delivery of local travel options information and services to interested residents.	Gresham Civic Station neighborhood (RTO Subcommittee funded this project)	Quality of life	1-5 years	$0	$130,000
Individualized Marketing	(same as above)	East Portland		1-5 years	$0	$500,000
Individualized Marketing	(same as above)	Fairview / Gresham		6-10 years	$0	$500,000
Rideshare incentives	Leverage regional rideshare services to encourage greater levels of carpooling and vanpooling by providing financial incentives to commuters.	I-84	Quality of life	1-5 years	$0	$50,000
Rideshare incentives	(same as above)	I-84	Quality of life	6-10 years	$0	$50,000
Rideshare Park & Ride	Negotiate shared parking agreements with public and private parking lots, provide signage and, if needed, coordinate registration.	I-84	Quality of life	1-5 years	$0	$4,800
Rideshare Park & Ride	(same as above)	I-84	Quality of life	6-10 years	$0	$4,800
Transportation Management Associations	Support public-private partnerships in regional or town centers that assist employees and/or residents increase use of travel options.	Gresham Regional Center		through 10 years		$75,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Parking management	Convene stakeholders to plan and implement parking management strategies. Ideally this action raises revenue to expand TDM solutions.	Gresham Regional Center	Quality of life	1-5 years	$0	$100,000
Parking management	(same as above)	Gresham Regional Center	Quality of life	6-10 years	$0	$100,000
Location-efficient living	Support programs and strategies that promote and advance location-efficient living strategies.	Match industrial/employment area north if I-84 with housing opportunities to the south.	Quality of life	through 10 years	$0	$50,000
Bike Sharing	Provide funding to implement bikes for loan or rent.	Transit oriented developments, large employers, colleges, hotels and significant transit stops.	Quality of life	6-10 years	$100,000	$50,000
Park & Ride Management	Implement parking management elements such as time limits, fees or changing spaces to carpool-only.	Gateway Transit Center	Quality of life	1-5 years	$100,000	$10,000
Car-share operations	Support 3 or more car-sharing vehicles in developing centers.	Gresham Regional Center	Quality of life	1-5 years	$0	$200,000



Corridor Summary

The Tualatin to Oregon City corridor encompasses **I-205,** parallel arterials, some bus service and bicycle routes. I-205 supports interstate, interregional, and intraregional travel and provides access to Oregon City, West Linn and Tualatin town centers. The key parallel arterials are **Willamette Falls Dr/Borland Rd**. North-south mobility is limited due to few overcrossings of I-205 and the Tualatin River. This corridor is mostly undeveloped with a mix of farm-to-market and discontinuous residential streets.

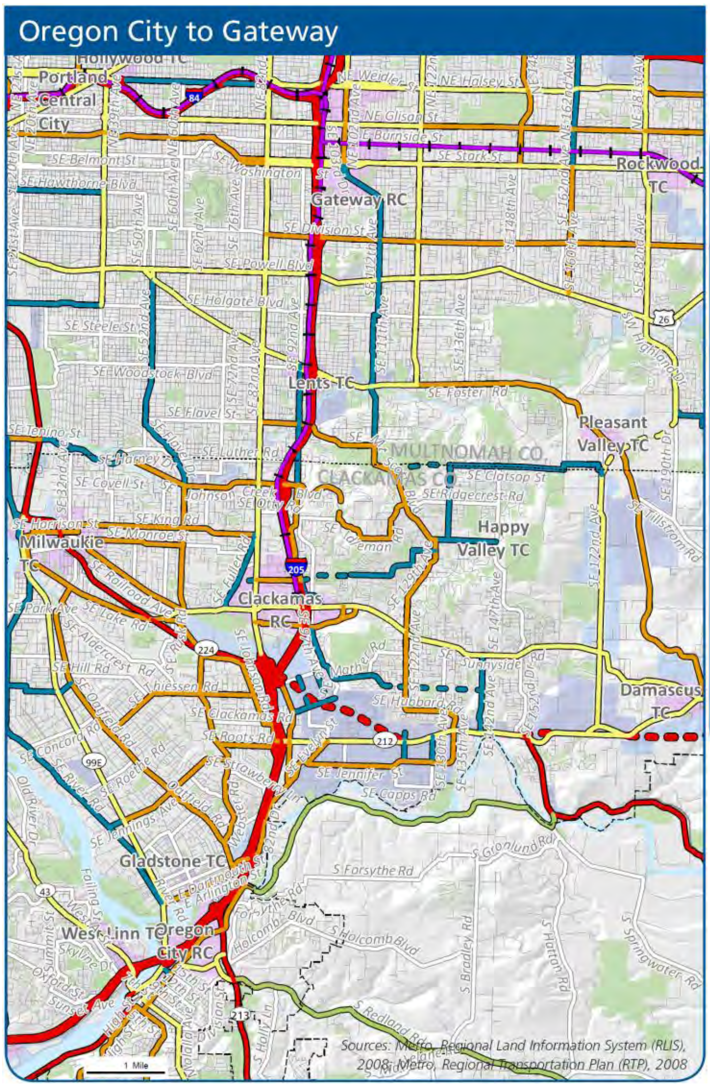
Where Are We Now?

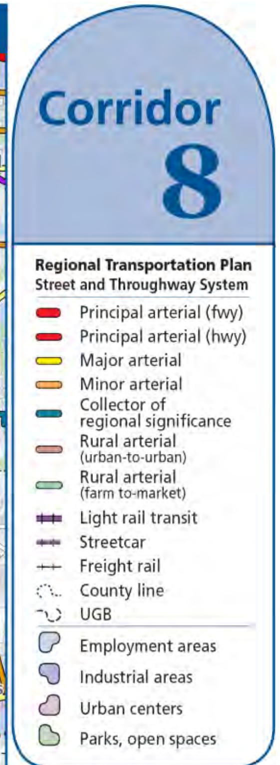
Currently no regional facilities in this corridor have coordinated signal timings updated within the last five years, and no facilities are equipped with transit signal priority or communications infrastructure. The segment of I-205 through this corridor is generally equipped with cameras, ramp meters, detection, and communication equipment.

The Westside Transportation Alliance (WTA) works with employers and employees in the Tualatin area (in addition to other Washington County areas) to reduce drive-alone trips, and, runs a program to install free bike racks for area businesses. Also, Clackamas County updated and is distributing their bicycle map.

Project Name	Description	Facility	Goal/ Objectives	Time-frame	Cost	
					Capital	Annual O&M
Regional Multimodal Traffic Management						
Arterial Corridor Management (ACM)	Improve arterial corridor operations by expanding traveler information and upgrading traffic signal equipment and timings. Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions. Upgrade and/or add traffic signage. Also includes on-going maintenance and parts replacement.	Borland Rd	Reliability & Traveler Information	11+ yrs	$2,000,000	$40,000
		Willamette Falls Dr		11+ yrs	$1,600,000	$30,000
Freeway Management	Expand freeway vehicle detection to provide comprehensive freeway traveler information including travel speed, travel times, volumes, forecasted information, incident conditions, and weather conditions.	I-205	Reliability, Traveler Information, & Safety	6-10 yrs	$650,000	$13,000

Project Name	Description	Facility	Goal/ Objectives	Time-frame	Cost	
					Capital	Annual O&M
Traveler Information						
	No projects in this corridor					
Transportation Demand Management						
Rideshare incentives	Leverage regional rideshare services to encourage greater levels of carpooling and vanpooling by providing financial incentives to commuters.	I-5	Quality of life	1-5 years	$0	$25,000
Rideshare incentives	(same as above)	I-5	Quality of life	6-10 years	$0	$25,000
Rideshare Park & Ride	Negotiate shared parking agreements with public and private parking lots, provide signage and, if needed, coordinate registration.	I-5	Quality of life	1-5 years	$0	$4,800
Rideshare Park & Ride	(same as above)	I-5	Quality of life	6-10 years	$0	$4,800
Employee incentives	Targeted investment to add to employer services to incentivize non-SOV commutes.	to be determined	Quality of life	1-5 years	$0	$50,000
Employee incentives	(same as above)	to be determined	Quality of life	6-10 years	$0	$50,000
Transportation Management Associations (TMA)	Support public-private partnerships in regional or town centers that assist employees and/or residents increase use of travel options. Westside Transportation Alliance serves employers.	Tigard, Tualatin and other parts of Washington County	Quality of life	through 10 years	$0	(annual amount recorded in corridor 19)





Corridor Summary

The Oregon City to Gateway corridor provides access between Oregon City, Clackamas, and Gateway regional centers. The main freeway through this corridor is **I-205**, which supports interstate and intraregional travel. In 2009, a new MAX light rail line opens to connect the Clackamas and Gateway regional centers with the Portland central city. The main parallel arterials through this corridor are **82nd Ave, 92nd Ave, 122nd/132nd Ave** and **Bob Schumacher Rd**. The area is largely urbanized, with a diverse mix of residential, commercial and industrial land uses. Many north-south arterial and collector streets move people and goods through and to local destinations; although topography and land use patterns lead to circuitous travel in some areas. The local street network is a blend of well-connected and discontinuous streets.

Where Are We Now?

Currently two regional facilities in this corridor have coordinated signal timings updated within the last five years: SE 82nd Ave, and Foster Rd. Transit signal priority is located at select traffic signals along SE 82nd Ave, and Foster Rd. Communications infrastructure exists along segments of SE 92nd Ave/Bob Schumacher Rd, and SE 82nd Ave. The segment of I-205 through this corridor is generally equipped with cameras, ramp meters, detection, and communication equipment.

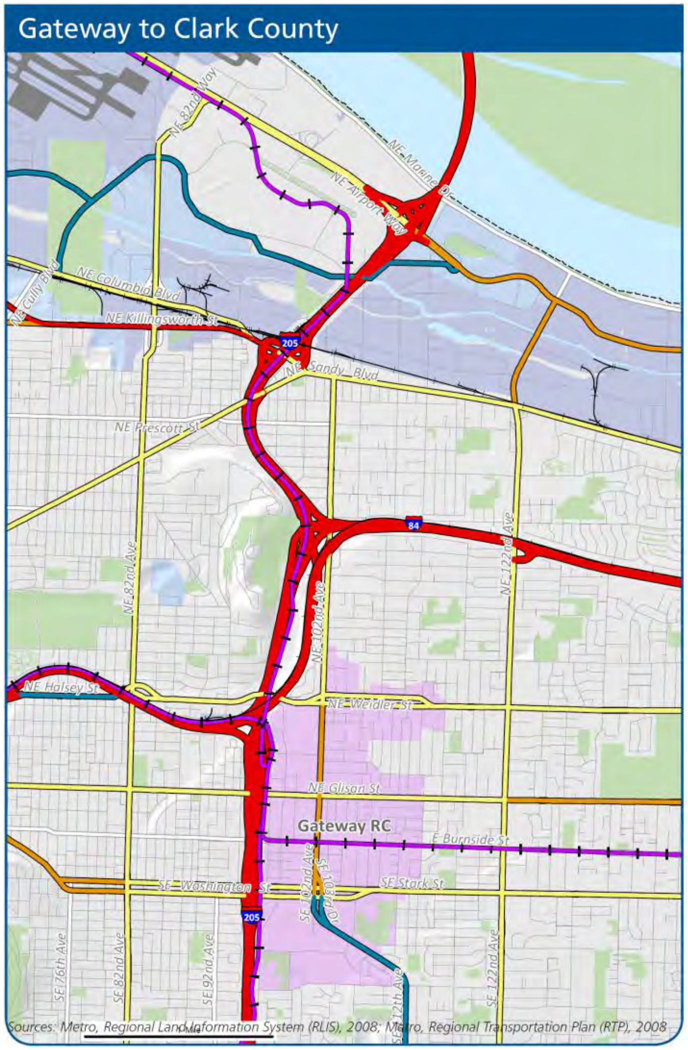
The Clackamas Regional Center TMA works with employers and employees to reduce drive-alone trips. Additionally, Clackamas County updated and is distributing their bicycle map. Finally, the City of Portland is beginning a SmartTrips individualized marketing program for the residents and businesses surrounding the MAX Green Line in east Portland.

Project Name	Description	Facility	Goal/ Objectives	Time-frame	Cost	
					Capital	Annual O&M
Regional Multimodal Traffic Management						
Arterial Corridor Management (ACM)	Improve arterial corridor operations by expanding traveler information and upgrading traffic signal equipment and timings. Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions. Upgrade and/or add traffic signage. Also includes on-going maintenance and parts replacement.	NE 148th Ave (I-84 to Stark)	Reliability & Traveler Information	11+ yrs	$950,000	$19,000
		SE 92nd Ave/Stevens Way/Bob Schumacher		1-5 yrs	$1,300,000	$30,000
		SE 172nd (Foster to Hwy 212)		11+ yrs	$2,000,000	$40,000
		SE Foster Rd/SE 162nd		6-10 yrs	$4,500,000	$90,000
ACM with Adaptive Signal Timing	Includes the ACM project with signal systems that automatically adapt to current arterial roadway conditions.	SE 82nd Ave	Reliability & Traveler Information	1-5 yrs	$6,500,000	$120,000

Project Name	Description	Facility	Goal/ Objectives	Time-frame	Cost	
					Capital	Annual O&M
Freeway Management	Expand freeway vehicle detection to provide comprehensive freeway traveler information including travel speed, travel times, volumes, forecasted information, incident conditions, and weather conditions.	I-205	Reliability, Traveler Information, & Safety	6-10 yrs	$1,000,000	$20,000
Traveler Information						
	No projects in this corridor					
Transportation Demand Management						
Individualized Marketing	Implement and/or support intensive outreach to targeted neighborhoods that encourages use of travel options through delivery of local travel options information and services to interested residents.	Neighborhoods adjacent MAX Green line alignment from Gateway south to Portland city limits. (RTO Subcommittee funded this project)	Quality of life	1-5 years	$0	$1,000,000
Individualized Marketing	(same as above)	Residents served by frequent transit service, other travel options and near commercial zoning.	Quality of life	6-10 years	$0	$500,000

Project Name	Description	Facility	Goal/ Objectives	Time-frame	Cost	
					Capital	Annual O&M
Rideshare incentives	Leverage regional rideshare services to encourage greater levels of carpooling and vanpooling by providing financial incentives to commuters.	I-205	Quality of life	1-5 years	$0	$25,000
Rideshare incentives	(same as above)	I-205	Quality of life	6-10 years	$0	$25,000
Rideshare Park & Ride	Negotiate shared parking agreements with public and private parking lots, provide signage and, if needed, coordinate registration.	I-205	Quality of life	1-5 years	$0	$4,800
Rideshare Park & Ride	(same as above)	I-205	Quality of life	6-10 years	$0	$4,800
Employee incentives	Targeted investment to add to employer services to incentivize non-SOV commutes.	to be determined	Quality of life	1-5 years	$0	$50,000
Employee incentives	(same as above)	to be determined	Quality of life	6-10 years	$0	$50,000
Transportation Management Associations	Support public-private partnerships in regional or town centers that assist employees and/or residents increase use of travel options.	Clackamas Regional Center		through 10 years		$75,000
Bike Sharing	Provide funding to implement bikes for loan or rent.	Transit oriented developments, large employers, colleges, hotels and significant transit stops.	Quality of life	6-10 years	$100,000	$50,000

Project Name	Description	Facility	Goal/ Objectives	Time-frame	Cost	
					Capital	Annual O&M
Last-mile services	Provide shuttles or demand-responsive transit to connect transit stops with significant destinations one to two miles away, especially at hours not served by current transit service.	MAX Green Line and Oregon City	Quality of life	6-10 years	$500,000	$500,000
Car-share operations	Support 3 or more car-sharing vehicles in developing centers.	Clackamas Regional Center and Oregon City Town Center	Quality of life	1-5 years	$0	$200,000



Corridor Summary

The Gateway to Clark County Corridor focuses on north-south travel with access to the Gateway, Clackamas, and Oregon City regional centers. The freeway through this corridor is **I-205** and the key parallel arterials are **NE 82nd Ave and NE 122nd Ave**. MAX light rail connects Gateway regional center to Portland central city, the Portland International Airport and Cascade Station area. Bus service and bicycle routes also support movement through this corridor. The corridor is largely urbanized with a diverse mix of residential, commercial and industrial land uses. A well-connected grid of arterial and collector streets move people and goods through the corridor and to local destinations. The local street network is a blend of well-connected and discontinuous streets.

Where Are We Now?

Currently NE 82nd Ave is the only regional facility in this corridor to update coordinated signal timings in the last five years. Transit signal priority is located at select traffic signals along NE 82nd Ave. Communications infrastructure exists along segments of NE 102nd and NE 82nd Ave. The segment of I-205 through this corridor is generally equipped with cameras, ramp meters, detection, and communication equipment. Also, ODOT and WSDOT share data, cameras and coordinate on freeway operation. C-TRAN subsidizes commuter vanpools in the area, and Clark County coordinates TDM marketing and services to employees through the Southbound Solutions program.

<table>
<tr><th rowspan="2">Project Name</th><th rowspan="2">Description</th><th rowspan="2">Facility</th><th rowspan="2">Goal/ Objective</th><th rowspan="2">Time-frame</th><th colspan="2">Cost</th></tr>
<tr><th>Capital</th><th>Annual O&M</th></tr>
<tr><td colspan="7">Regional Multimodal Traffic Management</td></tr>
<tr><td rowspan="2">Arterial Corridor Management (ACM)</td><td rowspan="2">Improve arterial corridor operations by expanding traveler information and upgrading traffic signal equipment and timings. Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions. Upgrade and/or add traffic signage. Also includes on-going maintenance and parts replacement.</td><td>NE/SE 122nd Ave</td><td rowspan="2">Reliability & Traveler Information</td><td>6-10 yrs</td><td>$2,600,000</td><td>$50,000</td></tr>
<tr><td>SE 112th Ave</td><td>11+ yrs</td><td>$550,000</td><td>$11,000</td></tr>
<tr><td>ACM with Adaptive Signal Timing</td><td>Includes the ACM project with signal systems that automatically adapt to current arterial roadway conditions.</td><td>NE 82nd Ave</td><td>Reliability & Traveler Information</td><td>1-5 yrs</td><td>$3,300,000</td><td>$70,000</td></tr>
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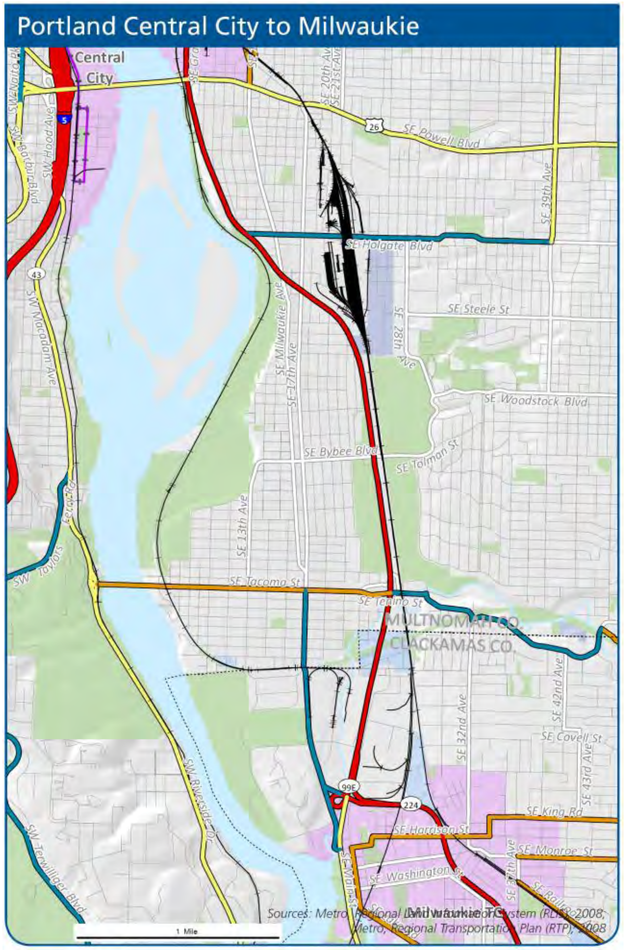
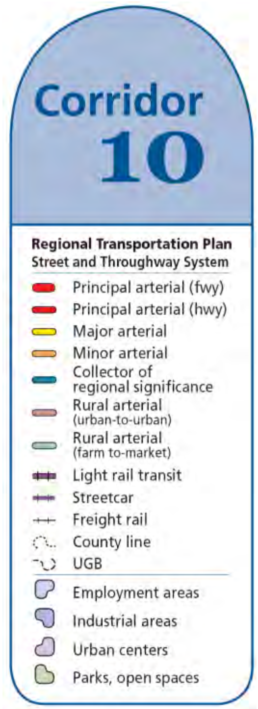
Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
ACM with Transit Priority Treatment	Includes the ACM project with transit signal priority added to traffic signals along a facility.	NE 102nd Ave	Reliability, Traveler Information, & Quality of Life	11+ yrs	$1,800,000	$35,000
Freeway Management	Expand freeway vehicle detection to provide comprehensive freeway traveler information including travel speed, travel times, volumes, forecasted information, incident conditions, and weather conditions.	I-205	Reliability, Traveler Information, & Safety	1-5 yrs	$320,000	$6,000
Traveler Information						
	No projects in this corridor					
Transportation Demand Management						
Construction mitigation campaign	Apply additional investment in TDM solutions to mitigate impacts to travelers of all modes during construction projects.	I-205 interchange with Airport Way	Quality of life	1-5 years	$0	$100,000
Employee incentives	Targeted investment to add to employer services to incentivize non-SOV commutes.	to be determined	Quality of life	1-5 years	$0	$50,000
Employee incentives	(same as above)	to be determined	Quality of life	6-10 years	$0	$50,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Bike Sharing	Provide funding to implement bikes for loan or rent.	Transit oriented developments, large employers, colleges, hotels and significant transit stops.		6-10 years	$100,000	$50,000
End-of-trip bike facilities	Bike parking (short term and/or long term), bike stations, related bike services	PDX		6-10 years	$100,000	$100,000





Corridor Summary

The Portland Central City to Milwaukie mobility corridor encompasses **99E** (McLoughlin Blvd), parallel facilities, transit and bicycle routes that support movement in and through the corridor. 99E accommodates mostly intraregional travel between Beaverton, Portland, and Milwaukie/Clackamas. The key parallel arterial is **Milwaukie Ave/17th Ave.** East-west mobility in this corridor is limited by lack of crossings of 99E and the Union Pacific Railroad that parallels 99E . The corridor has a very diverse land use pattern with a well-connected local street network.

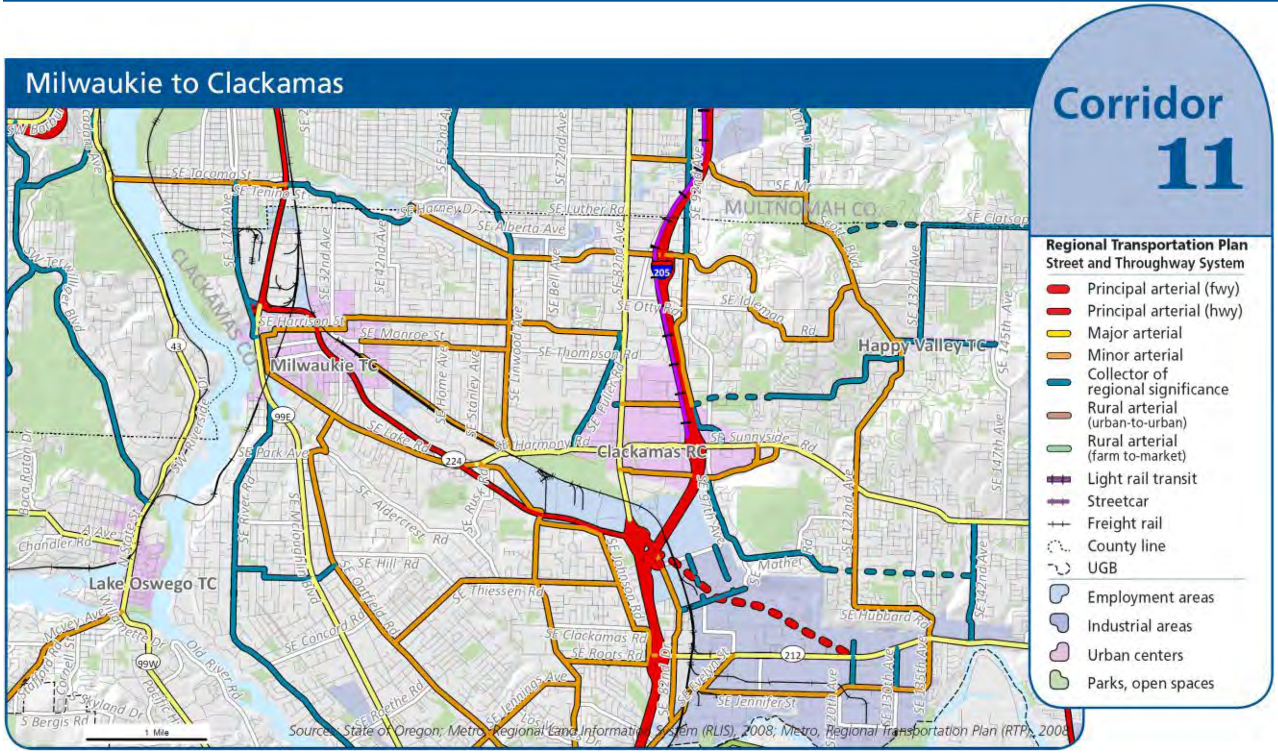
Where Are We Now?

Currently two regional facilities in this corridor have coordinated signal timings updated within the last five years: a segment of SE McLoughlin Blvd, and SE 39th Ave. Transit signal priority is located at one traffic signal along SE McLoughlin Blvd, and at select traffic signals along SE 39th Ave. Communications infrastructure exists along SE McLoughlin Blvd, and a section of SE 17th Ave.

The City of Milwaukie recently completed an individualized marketing program for residents of the Ardenwald neighborhood.

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Regional Multimodal Traffic Management						
Arterial Corridor Management (ACM)	Improve arterial corridor operations by expanding traveler information and upgrading traffic signal equipment and timings. Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions. Upgrade and/or add traffic signage. Also includes on-going maintenance and parts replacement.	SE 17th (south of Tacoma)	Reliability & Traveler Information	6-10 yrs	$480,000	$10,000
		NE/SE 39th Ave		6-10 yrs	$1,200,000	$25,000
ACM with Transit Priority Treatment	Includes the ACM project with transit signal priority added to traffic signals along a facility.	SE McLoughlin Blvd	Reliability, Traveler Information, & Quality of Life	1-5 yrs	$2,700,000	$50,000
Traveler Information						
	No projects in this corridor					

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Transportation Demand Management						
Individualized Marketing	Implement and/or support intensive outreach to targeted neighborhoods that encourages use of travel options through delivery of local travel options information and services to interested residents.	Neighborhoods near Portland/Milwaukie light rail.	Quality of life	1-5 years	$0	$500,000
Employee incentives	Targeted investment to add to employer services to incentivize non-SOV commutes.	to be determined	Quality of life	1-5 years	$0	$50,000
Employee incentives	(same as above)	to be determined	Quality of life	6-10 years	$0	$50,000
Parking management	Convene stakeholders to plan and implement parking management strategies. Ideally this action raises revenue to expand TDM solutions.	(write in center)	Quality of life	6-10 years	$0	$100,000
Bike Sharing	Provide funding to implement bikes for loan or rent.	Transit oriented developments, large employers, colleges, hotels and significant transit stops.	Quality of life	6-10 years	$100,000	$50,000
Car-share operations	Support 3 or more car-sharing vehicles in developing centers.	Milwaukie Town Center	Quality of life	1-5 years	$0	$200,000



Corridor Summary

The Milwaukie to Clackamas corridor encompasses **Hwy 224** and provides intraregional travel and access to the Clackamas regional center, Milwaukie town center and industrial/employment lands located along its length. The key parallel arterials include **Johnson Creek Blvd and Lake Rd**. North-south access is limited due to the lack of crossings of Hwy 224 and the Union Pacific rail mainline. Bus service and bicycle routes also support movement through this corridor. The local street network is generally discontinuous, with many cul-de-sac and dead-end streets, reflecting the largely suburban residential land use pattern in this corridor.

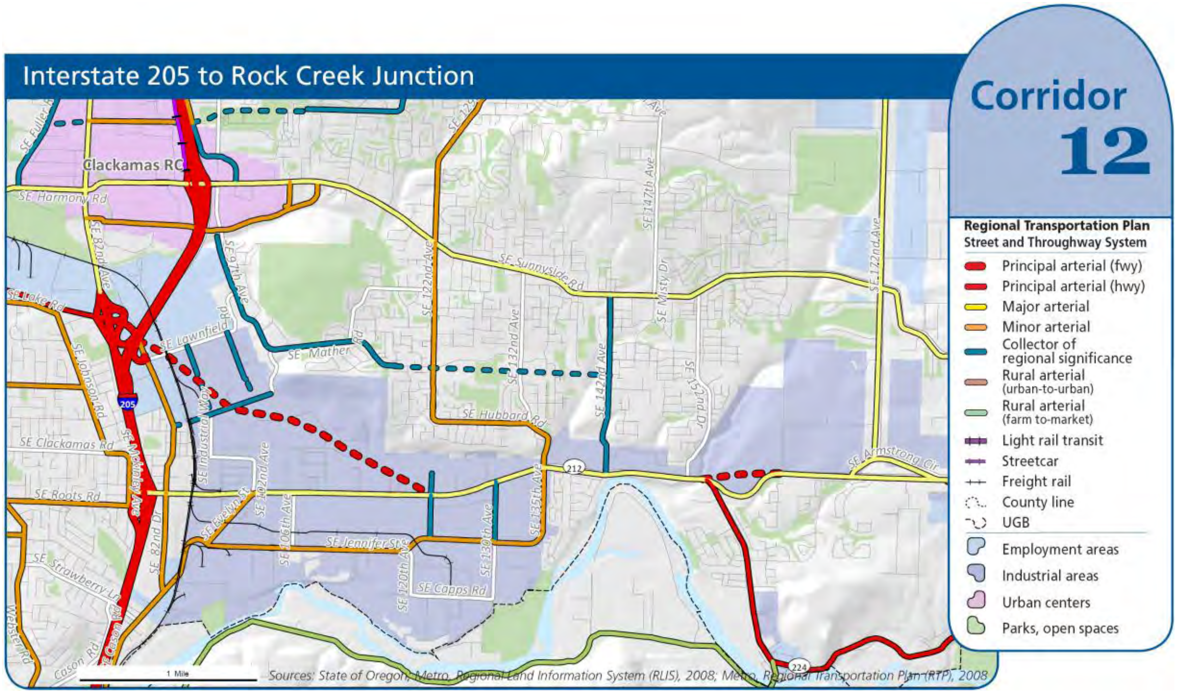
Where Are We Now?

McLoughlin Blvd is the only regional facility in this corridor to have coordinated signal timings updated within the last five years. No facilities in have transit signal priority. Communications infrastructure exists along Hwy 224, and radio interconnect exists along McLoughlin Blvd.

The Clackamas Regional Center TMA works with employers and employees to reduce drive-alone trips. Additionally, the City of Milwaukie is beginning an individualized marketing program for residents of the Ardenwald neighborhood.

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Regional Multimodal Traffic Management						
Arterial Corridor Management (ACM)	Improve arterial corridor operations by expanding traveler information and upgrading traffic signal equipment and timings. Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions. Upgrade and/or traffic signage. Also includes on-going maintenance and parts replacement.	Johnson Creek Blvd	Reliability & Traveler Information	6-10 yrs	$1,400,000	$30,000
		Lake Rd		11+ yrs	$45,000	$1,000
		Hwy 224		11+ yrs	$1,600,000	$30,000
		Harmony Rd		11+ yrs	$8,200,000	$160,000
Traveler Information						
	No projects in this corridor					
Transportation Demand Management						

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Individualized Marketing	Implement and/or support intensive outreach to targeted neighborhoods that encourages use of travel options through delivery of local travel options information and services to interested residents.	Residents served by frequent transit service, other travel options and near commercial zoning.	Quality of life	6-10 years	$0	$500,000
Rideshare incentives	Leverage regional rideshare services to encourage greater levels of carpooling and vanpooling by providing financial incentives to commuters.	Hwy 224, 99E, I-205	Quality of life	1-5 years	$0	$25,000
Rideshare incentives	(same as above)	Hwy 224, 99E, I-205	Quality of life	6-10 years	$0	$25,000
Rideshare Park & Ride	Negotiate shared parking agreements with public and private parking lots, provide signage and, if needed, coordinate registration.	Hwy 224, 99E, I-205	Quality of life	1-5 years	$0	$4,800
Rideshare Park & Ride	(same as above)	Hwy 224, 99E, I-205	Quality of life	6-10 years	$0	$4,800
Employee incentives	Targeted investment to add to employer services to incentivize non-SOV commutes.	to be determined	Quality of life	6-10 years	$0	$50,000
Location-efficient living	Support programs and strategies that promote and advance location-efficient living strategies.	Area in-between Milwaukie TC and Clackamas RC	Quality of life	through 10 years	$0	$50,000



Corridor Summary

The I-205 to Rock Creek Junction corridor encompasses the existing **Hwy 212** and **future Sunrise Corridor** limited access facility. Hwy 212 supports interregional travel to central and eastern Oregon, intraregional travel for neighboring communities, and access between Clackamas industrial area and I-205. The only parallel arterial along this corridor is **SE Sunnyside Rd**. Transit service and bicycle routes also support movement in and through the corridor. North-south access is limited by topography and development patterns. Local streets are discontinuous, with many cul-de-sac and dead-end industrial and residential streets.

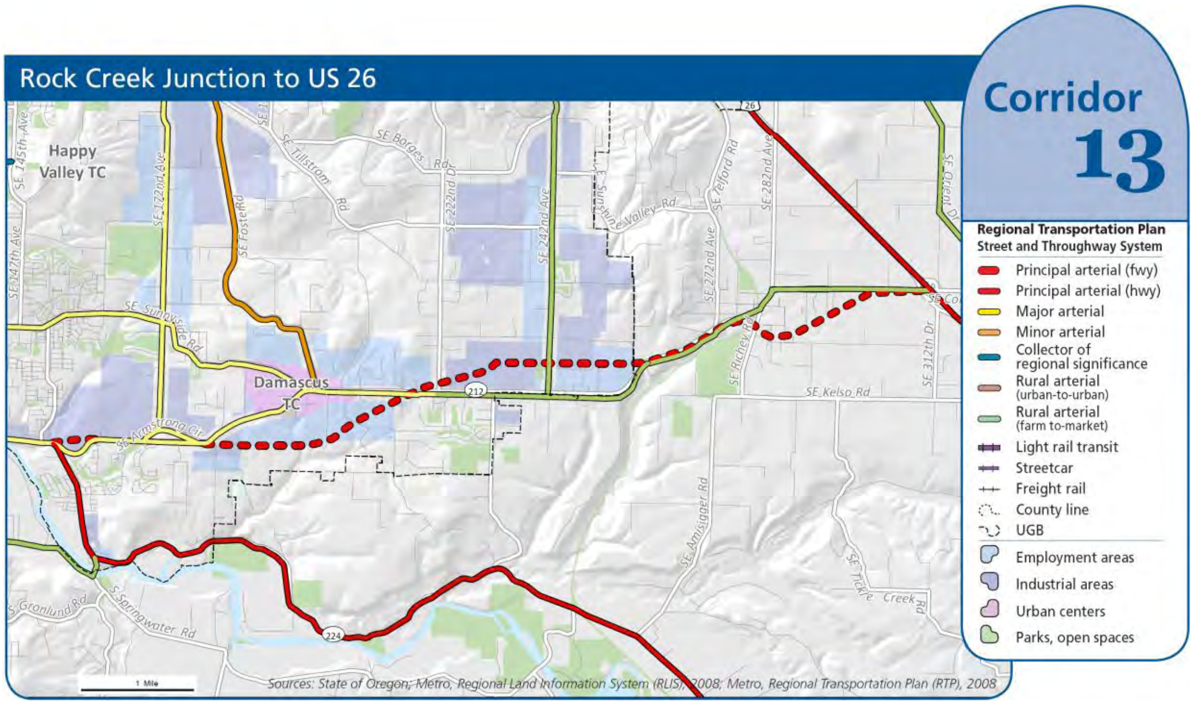
Where Are We Now?

Traffic signals along SE Sunnyside Rd were upgraded to responsive signal timing within the last five years. There is no transit signal priority located in this corridor. Communications infrastructure exists along SE Sunnyside Rd, SE Sunnybrook Rd, and Hwy 212/224. Also, cameras are located along SE Sunnyside Rd between SE 82nd Ave and SE 162nd Ave.

The Clackamas Regional Center TMA works with employers and employees to reduce drive-alone trips. Additionally, Clackamas County updated and is distributing their bicycle map.

	Project Name	Description	Facility	Goal/ Objectives	Time-frame	Cost	
						Capital	Annual O&M
Regional Multimodal Traffic Management							
Arterial Corridor Management (ACM)		Improve arterial corridor operations by expanding traveler information and upgrading traffic signal equipment and timings. Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions. Also includes on-going maintenance and parts replacement.	Hwy 212/224	Reliability & Traveler Information	6-10 yrs	$2,600,000	$50,000
ACM with Adaptive Signal Timing and Transit Priority Treatment		Includes the ACM with both adaptive signal timing and transit priority treatment.	Sunnyside Rd (82nd to 122nd)	Reliability, Traveler Information, & Quality of Life	6-10 yrs	$1,560,000	$30,000
Traveler Information							
		No projects in this corridor					
Transportation Demand Management							
Rideshare incentives		Leverage regional rideshare services to encourage greater levels of carpooling and vanpooling by providing financial incentives to commuters.	Hwy 212, Sunnyside Rd.,	Quality of life	1-5 years	$0	$25,000

Project Name	Description	Facility	Goal/ Objectives	Time-frame	Cost: Capital	Cost: Annual O&M
Rideshare incentives	(same as above)	Hwy 212, Sunnyside Rd.,	Quality of life	6-10 years	$0	$25,000
Rideshare Park & Ride	Negotiate shared parking agreements with public and private parking lots, provide signage and, if needed, coordinate registration.	Hwy 212, Sunnyside Rd.,	Quality of life	1-5 years	$0	$4,800
Rideshare Park & Ride	(same as above)	Hwy 212, Sunnyside Rd.,	Quality of life	6-10 years	$0	$4,800
Construction mitigation campaign	Apply additional investment in TDM solutions to mitigate impacts to travelers of all modes during construction projects.	I-205 to Hwy 212 construction	Quality of life	1-5 years	$0	$100,000
Construction mitigation campaign	(same as above)	Sunrise Hwy	Quality of life	1-5 years	$0	$100,000
Employee incentives	Targeted investment to add to employer services to incentivize non-SOV commutes.	to be determined	Quality of life	1-5 years	$0	$50,000
Employee incentives	(same as above)	to be determined	Quality of life	6-10 years	$0	$50,000
Location-efficient living	Support programs and strategies that promote and advance location-efficient living strategies.	Match industrial/employment area along corridor with nearby housing opportunities.	Quality of life	through 10 years	$0	$50,000



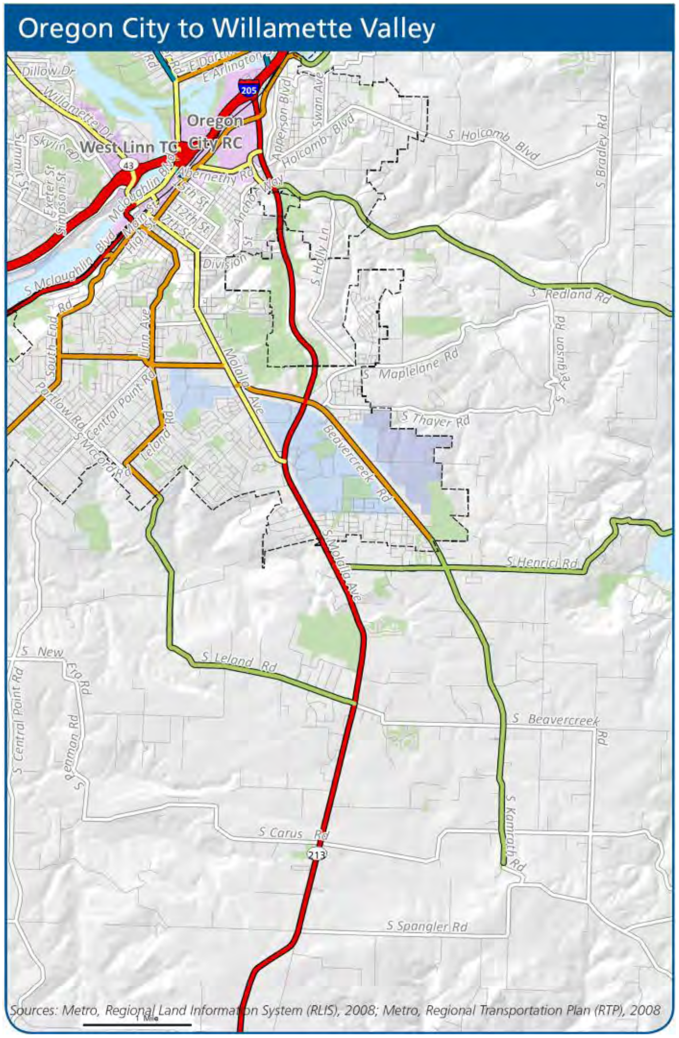
Corridor Summary

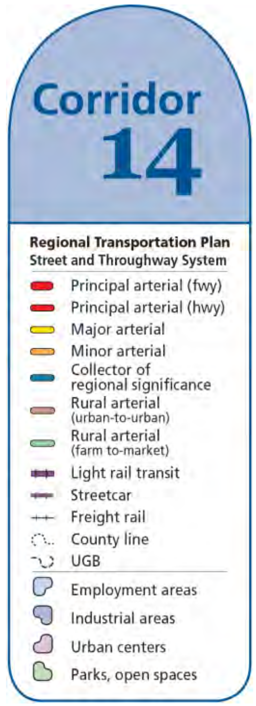
Rock Creek to US 26 corridor encompasses the existing **Hwy 212** and **future Sunrise Corridor** limited access facility. Hwy 212 supports interregional travel to central and eastern Oregon, intraregional travel for neighboring communities, and access to I-205. There are **no parallel arterials** along this corridor. Once the Sunrise limited access facility is built, it will provide primary mobility and Hwy 212 will become a parallel arterial. Transit service and bicycle routes also support movement in and through the corridor. Land use is a mix of low density residential and farmland with mobility provided by a farm-to-market street network.

Where Are We Now?

Currently no regional facilities in this corridor have coordinated signal timings updated within the last five years. And there are no transit signal priority locations or communications infrastructure in this corridor. Clackamas County updated and is distributing their bicycle map.

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Regional Multimodal Traffic Management						
ACM with Adaptive Signal Timing and Transit Priority Treatment	Includes the ACM with both adaptive signal timing and transit priority treatment.	Hwy 212, east of Damascus	Reliability, Traveler Information, & Quality of Life	6-10 yrs	$3,400,000	$70,000
Traveler Information						
No projects in this corridor						
Transportation Demand Management						
Rideshare Park & Ride	Negotiate shared parking agreements with public and private parking lots, provide signage and, if needed, coordinate registration.	Hwy 212, US 26	Quality of life	1-5 years	$0	$4,800
Rideshare Park & Ride	(same as above)	Hwy 212, US 26	Quality of life	6-10 years	$0	$4,800
Employee incentives	Targeted investment to add to employer services to incentivize non-SOV commutes.	to be determined	Quality of life	1-5 years	$0	$50,000
Employee incentives	(same as above)	to be determined	Quality of life	6-10 years	$0	$50,000





Corridor Summary

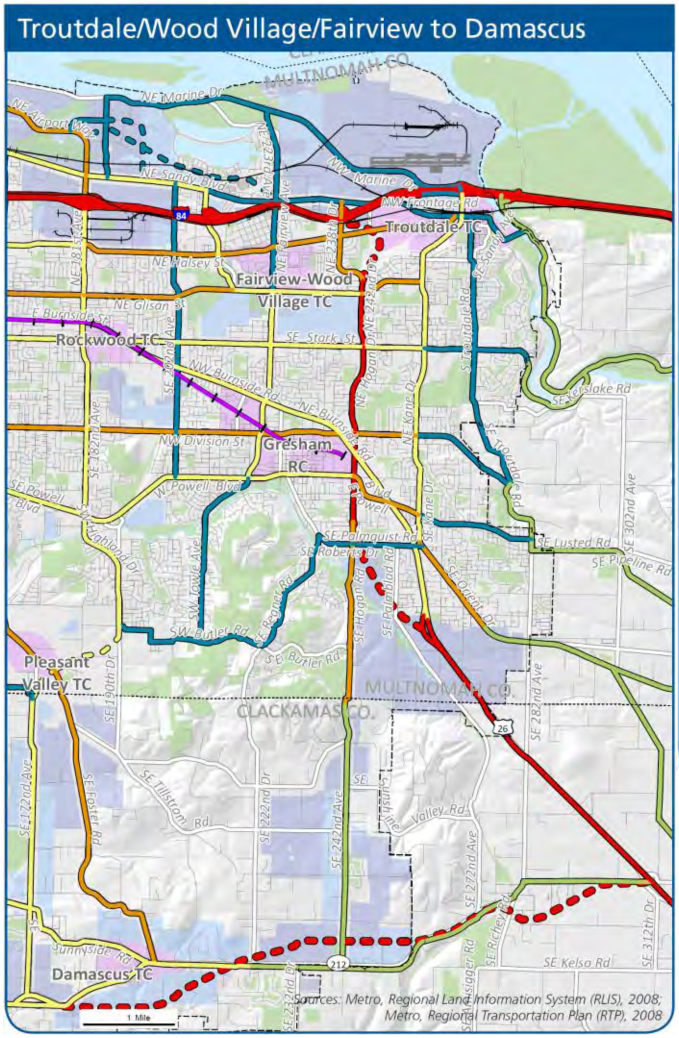
The Oregon City to Willamette Valley encompasses **Hwy 213** south of I-205, parallel arterials as well as bus service and bicycle routes that support movement in and through the corridor. Hwy 213 supports intraregional and interregional travel between Oregon City and neighboring communities. The key parallel arterials are **Beavercreek Rd** and **Mollala Ave**. Land use in this corridor is both urban and rural. Within the urban area, the corridor has a diverse mix of land uses including commercial areas, institutional, and residential. The corridor outside the urban area is a mix of low density residential and farmland; its mobility provided by a farm-to-market street network. The local streets are well connected in the historic sections of Oregon City and discontinuous in the more recently developed sections.

Where Are We Now?

No regional facilities in this corridor have coordinated signal timings updated within the last five years. There are no transit signal priority locations in this corridor. Communications infrastructure exists along sections of Beavercreek Rd, Hwy 213, and Molalla Ave. Clackamas County updated and is distributing their bicycle map.

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Regional Multimodal Traffic Management						
Arterial Corridor Management (ACM)	Improve arterial corridor operations by expanding traveler information and upgrading traffic signal equipment and timings. Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions. Upgrade and/or add traffic signage. Also includes on-going maintenance and parts replacement.	Hwy 213	Reliability & Traveler Information	6-10 yrs	$2,500,000	$50,000
		Beavercreek Rd (south of Hwy 213		11+ yrs	$950,000	$19,000
		Molalla Ave/Hwy 213 (to Henrici)		11+ yrs	$600,000	$12,000
		Washington St		6-10 yrs	$550,000	$11,000
		7th Ave		6-10 yrs	$200,000	$4,000
ACM with Adaptive Signal Timing	Includes the ACM project with signal systems that automatically adapt to current arterial roadway conditions.	Molalla Ave (7th to Hwy 213)	Reliability & Traveler Information	1-5 yrs	$1,700,000	$35,000
		Beavercreek Rd (between Molalla and Hwy 213)		6-10 yrs	$440,000	$9,000
Traveler Information						
No projects in this corridor						

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Transportation Demand Management						
Rideshare Park & Ride	Negotiate shared parking agreements with public and private parking lots, provide signage and, if needed, coordinate registration.	Hwy 213	Quality of life	1-5 years	$0	$4,800
Rideshare Park & Ride	(same as above)	Hwy 213	Quality of life	6-10 years	$0	$4,800



Corridor Summary

The Troutdale/Wood Village/Fairview to Damascus mobility corridor encompasses the arterials and collector streets that provide access between I-84 and US 26, as well as transit and bicycle routes that support movement in and through the corridor. There are no freeways included within this corridor. The key arterials in this corridor include **SE 181st Ave, SE 202nd Ave, SE 238th/242nd/Hogan Dr** and **SE 257th/Kane Dr**. Although the corridor has a well-connected arterial and collector street grid, the local street network is generally discontinuous with many cul-de-sac and dead end streets. The majority of land use in this area is considered rural. The urbanized area has a mix of commercial and industrial uses.

Where Are We Now?

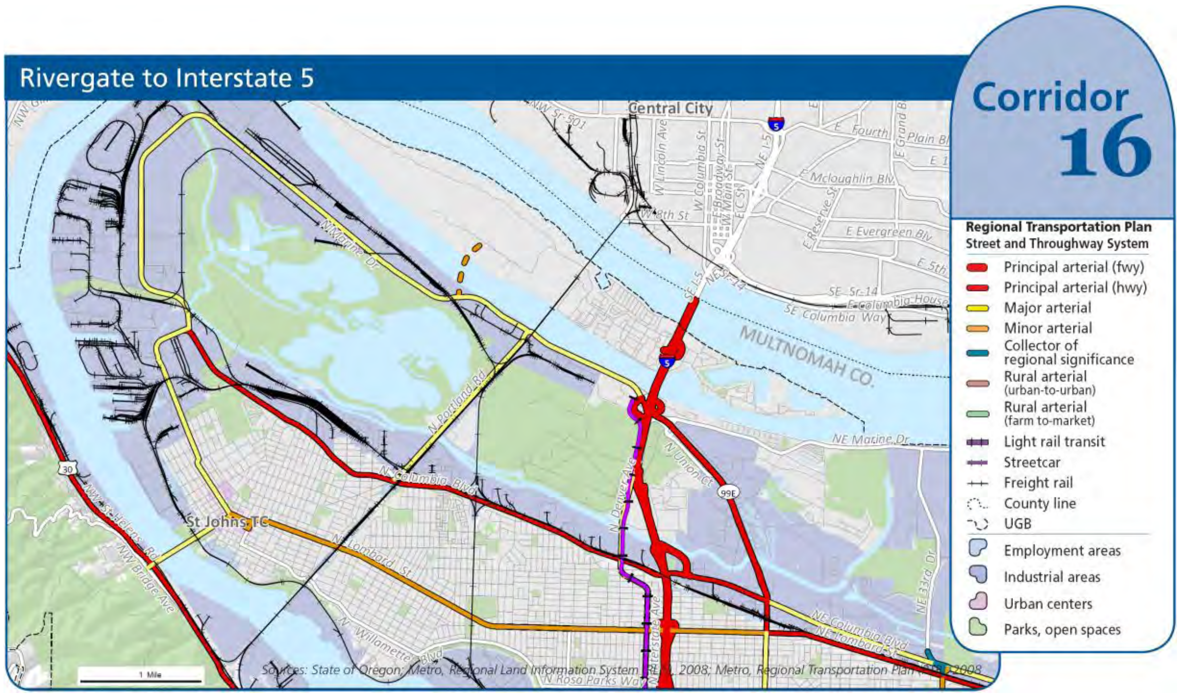
Currently one regional facility in this corridor has coordinated signal timings updated within the last five years, NE 242nd; and sections of Burnside Rd and 181st are equipped with adaptive signal timing. There is no transit signal priority located in this corridor. Communications infrastructure exists along 257th Ave, Glisan St, and 223rd as well as along the facilities with coordinated and adaptive signal timing.

The Gresham Regional Center TMA works with employers, employees, and residents to reduce drive-alone trips. Additionally, the TMA runs a Bike Program which conducts safety outreach, gives away helmets, and installs bike racks. The City of Gresham has begun to implement a city-wide bicycle way-finding program.

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Regional Multimodal Traffic Management						
Arterial Corridor Management (ACM)	Improve arterial corridor operations by expanding traveler information and upgrading traffic signal equipment and timings. Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions. Upgrade and/or add traffic signage. Also includes on-going maintenance and parts replacement.	160th/162nd Ave	Reliability & Traveler Information	6-10 yrs	$2,100,000	$40,000
		Burnside (122nd to 223rd)		6-10 yrs	$1,200,000	$25,000
		NE 207th Ave (Sandy to Glisan)		6-10 yrs	$850,000	$17,000
		223rd Ave		6-10 yrs	$1,200,000	$25,000
		257th/Kane Dr		6-10 yrs	$2,800,000	$60,000
ACM with Adaptive Signal Timing	Includes the ACM project with signal systems that automatically adapt to current arterial roadway conditions.	238th/242nd Ave/Hogan Dr (Sandy to Palmquist)	Reliability & Traveler Information	1-5 yrs	$3,600,000	$70,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
ACM with Transit Priority Treatment	Includes the ACM project with transit signal priority added to traffic signals along a facility.	NE 181st/182nd Ave (Glisan to Powell)	Reliability, Traveler Information, & Quality of Life	6-10 yrs	$2,000,000	$40,000
ACM with Adaptive Signal Timing and Transit Priority Treatment	Includes the ACM with both adaptive signal timing and transit priority treatment.	NE 181st Ave(I-84 to Glisan)	Reliability, Traveler Information, & Quality of Life	6-10 yrs	$600,000	$12,000
Traveler Information						
Traveler Information Only	Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions.	Burnside (223rd to Powell) - Adaptive signal timing is in place along this segment, traveler information will be added.	Traveler Information	1-5 yrs	$950,000	$19,000
Roadside Travel Time Information	Provide real-time traveler information on westbound US 26 for different routes (arterial and freeway) between Portland and Gresham.	US 26	Traveler Information	6-10 yrs	$100,000	$15,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Transportation Demand Management						
Transportation Management Associations	Support public-private partnerships in regional or town centers that assist employees and/or residents increase use of travel options.	Gresham Regional Center	Quality of Life	through 10 years	$0	(annual cost recorded under corridor 6)



Corridor Summary

The Rivergate to I-5 corridor encompasses **N Columbia Blvd**, parallel arterials as well as bus service and bicycle routes the support movement in and through the corridor. The key parallel arterials are **N Lombard/St John's Bridge** and **N Marine Dr**. The corridor includes a combination of marine-dependant industrial activities, nature reserves, mixed used commercial and residential uses. Due to the industrial and marine port uses, this corridor carries high volumes of heavy vehicle traffic. In the residential and commercial areas the local network is dense and well-connected. The local street network in the industrial and open space areas provides accessibility to large lots and tends to be discontinuous.

Where Are We Now?

Currently no regional facilities in this corridor have coordinated signal timings updated within the last five years. Transit signal priority is located at select traffic signals along N Lombard St. Communications infrastructure exists along the St John's Bridge, N Oswego Ave/N Smith St/N Columbia Way/N Portland Rd, and N Marine Dr.

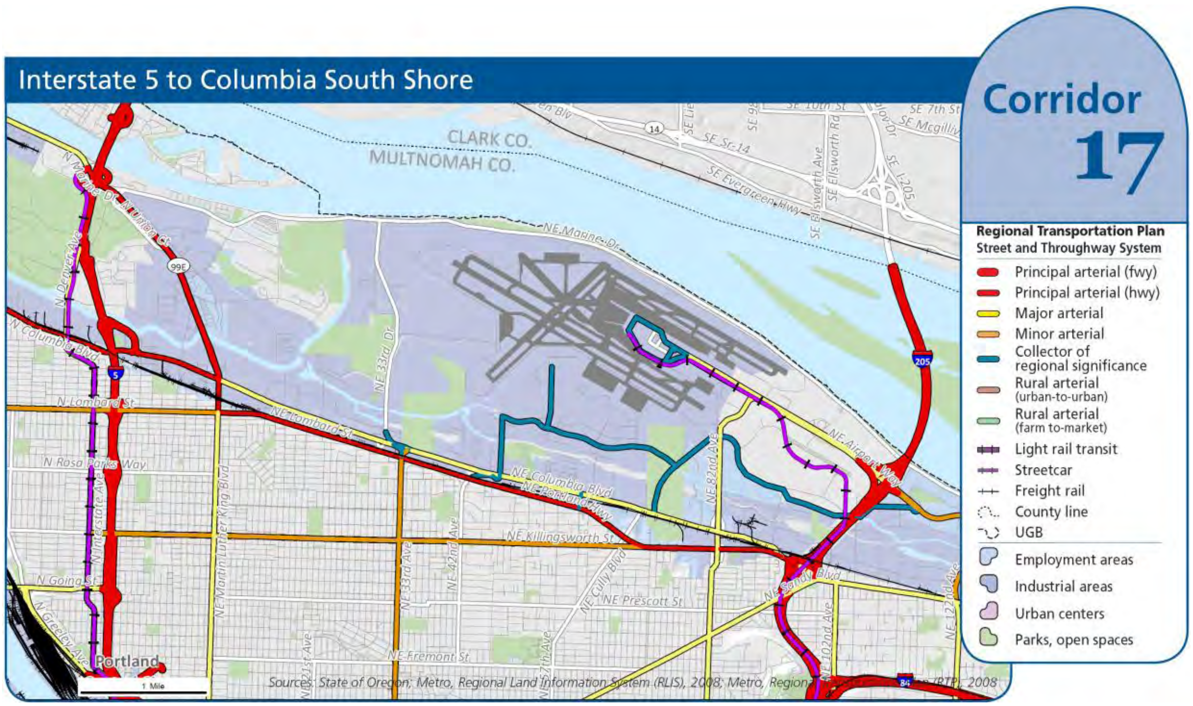
The City of Portland SmartTrips program began an individualized marketing program for residents of the N/NW Portland area. Also, the City of Portland sponsors Sunday Parkways events in North Portland to encourage use of biking and walking for all trips.

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Regional Multimodal Traffic Management						
Arterial Corridor Management (ACM)	Improve arterial corridor operations by expanding traveler information and upgrading traffic signal equipment and timings. Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions. Upgrade and/or add traffic signage. Also includes on-going maintenance and parts replacement.	N Columbia Blvd	Reliability & Traveler Information	6-10 yrs	$2,300,000	$45,000
ACM with Adaptive Signal Timing	Includes the ACM project with signal systems that automatically adapt to current arterial roadway conditions.	N Lombard St (Greeley to I-5)	Reliability & Traveler Information	11+ yrs	$750,000	$15,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
ACM with Adaptive Signal Timing and Transit Priority Treatment	Includes the ACM with both adaptive signal timing and transit priority treatment.	N Lombard St (Richmond to Greeley)	Reliability, Traveler Information, & Quality of Life	6-10 yrs	$3,200,000	$60,000
Traveler Information						
Traveler Information Only	Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions.	N Lombard St (north of St Johns Bridge)	Traveler Information	6-10 yrs	$2,200,000	$45,000
		Marine Dr		6-10 yrs	$2,200,000	$45,000
Railroad Crossing Information System	Implement communications between the at-grade railroad crossing and the traffic operations center and emergency management centers to inform emergency responders and general travelers when service will be interrupted.	Marine Dr	Reliabilty, Traveler Information, & Safety	6-10 yrs	$75,000	$2,000
Transportation Demand Management						
Employee incentives	Targeted investment to add to employer services to incentivize non-SOV commutes.	to be determined	Quality of life	1-5 years	$0	$50,000
Employee incentives	(same as above)	to be determined	Quality of life	6-10 years	$0	$50,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Location-efficient living	Support programs and strategies that promote and advance location-efficient living strategies.	Rivergate industrial/employment area with nearby housing opportunities.	Quality of life	through 10 years	$0	$50,000
Last-mile services	Provide shuttles or demand-responsive transit to connect transit stops with significant destinations one to two miles away, especially at hours not served by current transit service.	Rivergate	Quality of life	6-10 years	$500,000	$500,000

Mobility Corridor 17: Interstate 5 to Columbia South Shore



Corridor Summary

The I-5 to Columbia South Shore corridor encompasses **N/NE Columbia Blvd** and **N/NE Lombard St,** parallel arterials as well as bus service and bicycle routes the support movement in and through the corridor. The key parallel arterials through this corridor are **NE Marine Dr** and **NE Killingsworth St**. Land use is primarily industrial with the Portland International Airport (PDX) occupying a substantial portion of acreage. The MAX Red line connects between PDX and Beaverton town center. South of N/NE Lombard St is primarily residential. In the residential area, the local street network is dense and well-connected. The local street network in the industrial area provides accessibility to large lots and is discontinuous.

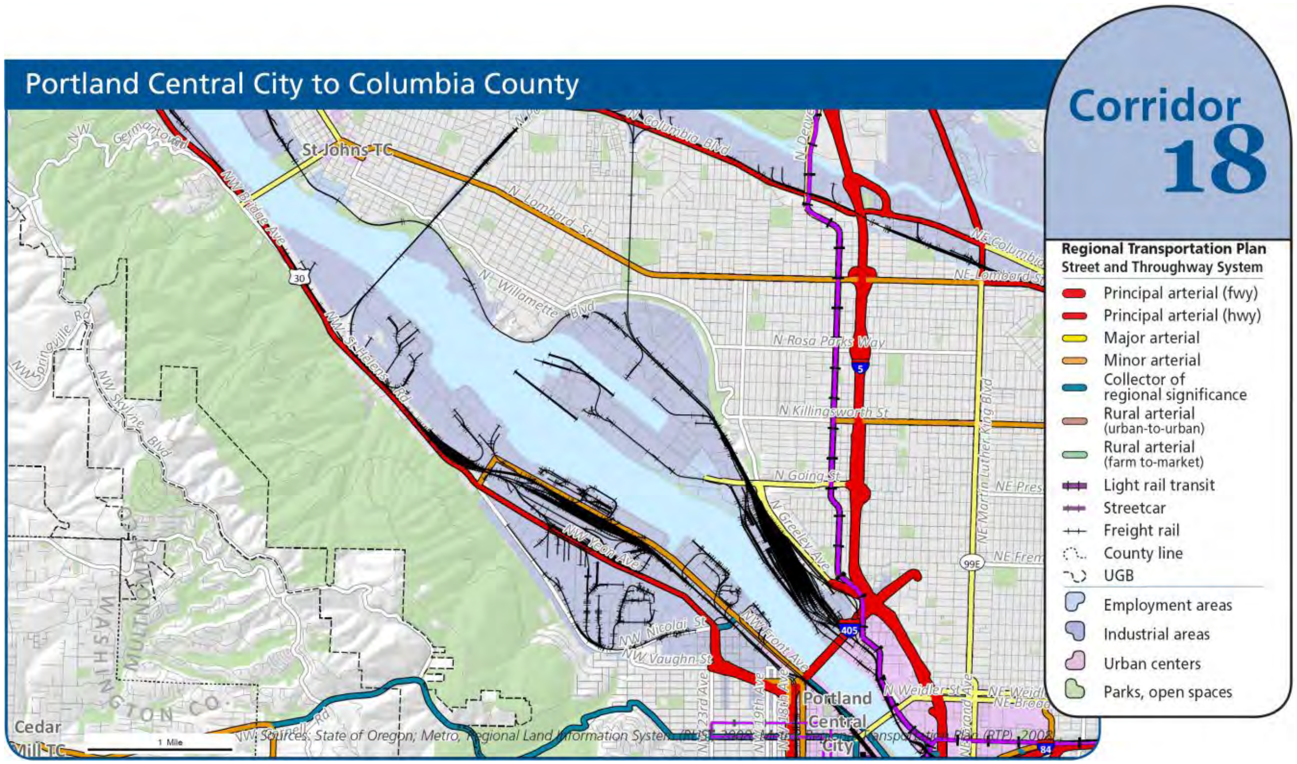
Where Are We Now?

Currently two regional facilities in this corridor have coordinated signal timings updated within the last five years: NE Lombard St/NE Portland Hwy and NE Columbia Blvd. Transit signal priority is located at select traffic signals along NE Killingsworth St. Communications infrastructure exists along a segment of NE Killingsworth St.

The City of Portland sponsors Sunday Parkways events in Northeast Portland to encourage use of biking and walking for all trips. Additionally, the Community Cycling Center has been awarded a grant to reduce barriers for bicycling for historically under-represented populations.

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Regional Multimodal Traffic Management						
Arterial Corridor Management (ACM)	Improve arterial corridor operations by expanding traveler information and upgrading traffic signal equipment and timings. Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions. Upgrade and/or add traffic signage. Also includes on-going maintenance and parts replacement.	N/NE Columbia Blvd	Reliability & Traveler Information	1-5 yrs	$3,100,000	$60,000
ACM with Transit Priority Treatment	Includes the ACM project with transit signal priority added to traffic signals along a facility.	N/NE Lombard St/NE Portland Hwy	Reliability, Traveler Information, & Quality of Life	6-10 yrs	$2,600,000	$50,000
		N/NE Killingsworth St		6-10 yrs	$2,600,000	$50,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Traveler Information						
	No projects in this corridor					
Transportation Demand Management						
Individualized Marketing	City of Portland SmartTrips will reach N/NE Portland residents between Chautauqua and NE 82nd Ave. Consider 1/3rd of the project will impact Corridor 5. The action is to implement and/or support intensive outreach to targeted neighborhoods or demographics that encourages travel options through delivery of local travel options information and services to interested residents.	NE Portland along North side of I-84	Quality of life	1-5 years	$0	$333,333
Employee incentives	Targeted investment to add to employer services to incentivize non-SOV commutes.	to be determined	Quality of life	1-5 years	$0	$50,000
Employee incentives	(same as above)	to be determined	Quality of life	6-10 years	$0	$50,000



Corridor Summary

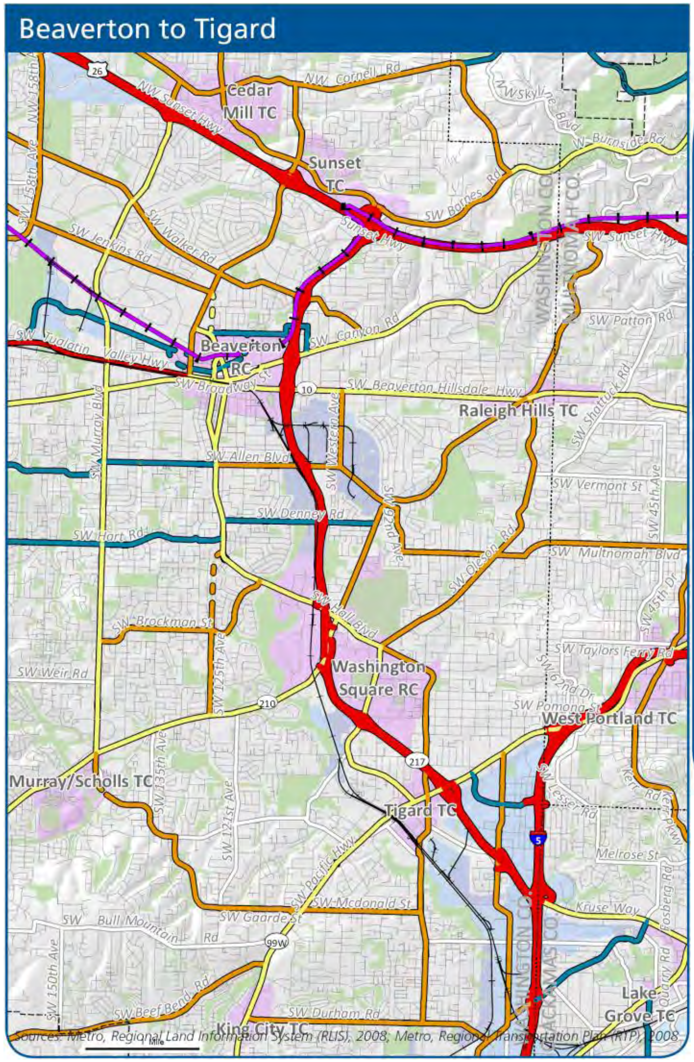
The Portland Central City to Columbia County corridor encompasses **US 30,** parallel arterials as well as bus service and bicycle routes that support movement in and through the corridor. US 30 provides interregional travel between the Willamette Valley, Portland and Astoria. It also serves intraregional travel, particularly between Portland, Beaverton and Hillsboro. The key parallel facilities include **NW Front St/NW Naito Pkwy, NW Nicolai, N Lombard St,** and **NW Yeon Ave**. This corridor is home to heavy industrial uses including petroleum tank farms, manufacturing, warehouse/distribution, BNSF Lake Yard intermodal terminal, the Port of Portland/s Terminal 2 and Metro Council waste transfer station.

Where Are We Now?

Currently NW Naito Parkway/NW Front St is the only regional facility in this corridor to have coordinated signal timings updated within the last five years. Transit signal priority is located at select traffic signals along NW Vaughn St. Communications infrastructure exists along US 30 (St Helens Rd) NW Naito Parkway/NW Front St, and NW 29th Ave.

	Project Name	Description	Facility	Goal/Obj	Time-frame	Cost	
						Capital	Annual O&M
Regional Multimodal Traffic Management							
Arterial Corridor Management (ACM)		Improve arterial corridor operations by expanding traveler information and upgrading traffic signal equipment and timings. Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions. Upgrade and/or add traffic signage. Also includes on-going maintenance and parts replacement.	Hwy 30/St Helens Rd	Reliability & Traveler Information	6-10 yrs	$600,000	$11,000
Traveler Information							
		No projects in this corridor					

Transportation Demand Management						
Individualized Marketing	Implement and/or support intensive outreach to targeted neighborhoods that encourages use of travel options through delivery of local travel options information and services to interested residents.	Residents served by frequent transit service, other travel options and near commercial zoning.	Quality of life	6-10 years	$0	$500,000
Rideshare incentives	Leverage regional rideshare services to encourage greater levels of carpooling and vanpooling by providing financial incentives to commuters.	US 30	Quality of life	1-5 years	$0	$25,000
Rideshare incentives	(same as above)	US 30	Quality of life	6-10 years	$0	$25,000
Rideshare Park & Ride	Negotiate shared parking agreements with public and private parking lots, provide signage and, if needed, coordinate registration.	US 30	Quality of life	1-5 years	$0	$4,800
Rideshare Park & Ride	(same as above)	US 30	Quality of life	6-10 years	$0	$4,800
Employee incentives	Targeted investment to add to employer services to incentivize non-SOV commutes.	to be determined	Quality of life	1-5 years	$0	$50,000
Employee incentives	(same as above)	to be determined	Quality of life	6-10 years	$0	$50,000



Corridor Summary

The Beaverton to Tigard corridor encompasses **Hwy 217,** MAX light rail, Westside Express Service (WES) commuter rail, parallel arterials as well as bus service and bicycle routes that support movement in and through the corridor. Hwy 217 supports intraregional travel between Beaverton, Hillsboro, Portland, Tigard, Tualatin, and Wilsonville. The key parallel arterials include **SW Hall Blvd, SW Murray Blvd, SW Oleson Rd** and **SW Scholls Ferry Blvd**. Land use in this corridor is diverse and includes several commercial centers, employment and industrial area. The local street network is a patchwork of well-connected and discontinuous streets.

Where Are We Now?

Currently three regional facilities in this corridor have coordinated signal timings updated within the last five years: SW Murray Blvd, SW Scholls Ferry Rd, and SW Hall Blvd (2 signals). There are no transit signal priority locations in this corridor. Communications infrastructure exists along SW Cedar Hills Blvd, SW Murray Blvd, SW Hall Blvd, and Scholls Ferry Rd. Highway 217 is generally equipped with cameras, ramp meters, detection, and communication equipment.

The Westside Transportation Alliance (WTA) works with employers and employees in Beaverton and Tigard (in addition to other Washington County areas) to reduce drive-alone trips. There are also several bike-specific projects in the corridor including the WTA program to install free bike racks for area businesses, the City of Tigard's update of their 20-year old bike map, and TriMet installation of E-Access Bike Lockers at several transit facilities in the area.

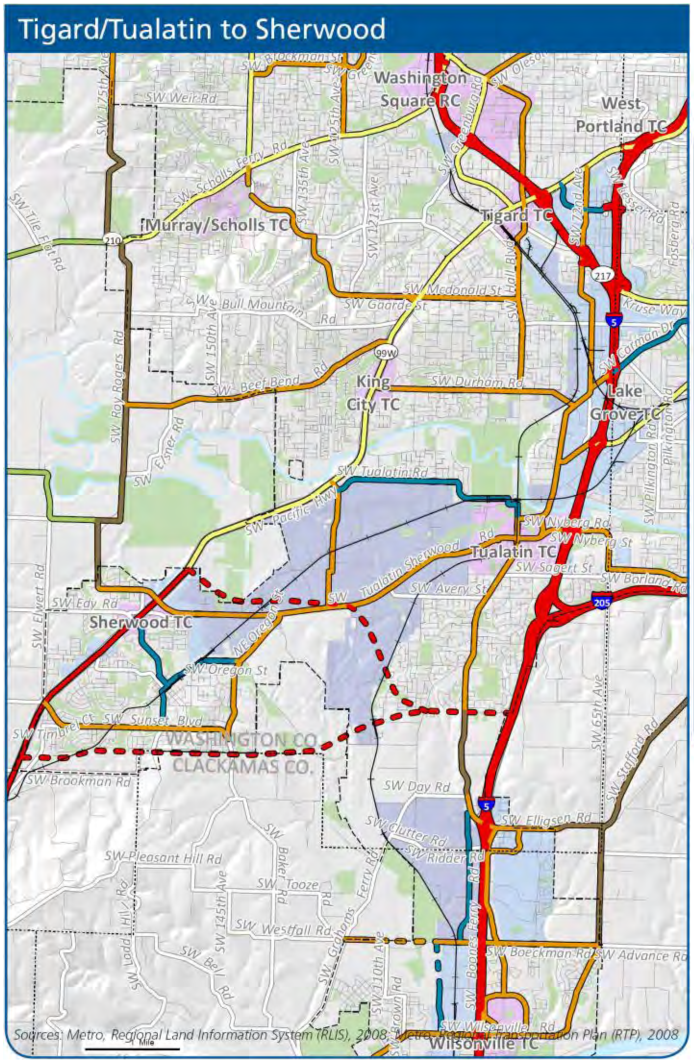
Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Regional Multimodal Traffic Management						
Arterial Corridor Management (ACM)	Improve arterial corridor operations by expanding traveler information and upgrading traffic signal equipment and timings. Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions. Upgrade and/or add traffic signage. Also includes on-going maintenance and parts replacement.	SW Murray Blvd	Reliability & Traveler Information	6-10 yrs	$2,900,000	$60,000
		SW Oleson Rd		11+ yrs	$2,600,000	$50,000
ACM with Adaptive Signal Timing	Includes the ACM project with signal systems that automatically adapt to current arterial roadway conditions.	Cedar Hills Blvd	Reliability & Traveler Information	6-10 yrs	$2,200,000	$45,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost: Capital	Cost: Annual O&M
ACM with Transit Priority Treatment	Includes the ACM project with transit signal priority added to traffic signals along a facility.	SW Hall Blvd	Reliability, Traveler Information, & Quality of Life	6-10 yrs	$3,700,000	$70,000
		Scholls Ferry Rd (Hall to BH Hwy)		1-5 yrs	$1,700,000	$35,000
Freeway Management	Expand freeway vehicle detection to provide comprehensive freeway traveler information including travel speed, travel times, volumes, forecasted information, incident conditions, and weather conditions.	Hwy 217	Reliability, Traveler Information, & Safety	1-5 yrs	$600,000	$12,000
Traveler Information						
	No projects in this corridor					
Transportation Demand Management						
Individualized Marketing	Implement and/or support intensive outreach to targeted neighborhoods that encourages use of travel options through delivery of local travel options information and services to interested residents.	Neighborhood served by frequent transit service, other travel options and near commercial zoning.	Quality of life	1-5 years	$0	$500,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Individualized Marketing	(same as above)	Neighborhood served by frequent transit service, other travel options and near commercial zoning.	Quality of life	6-10 years	$0	$500,000
Rideshare incentives	Leverage regional rideshare services to encourage greater levels of carpooling and vanpooling by providing financial incentives to commuters.	For commuters on 217.	Quality of life	1-5 years	$0	$100,000
Rideshare incentives	(same as above)	For commuters on 217.	Quality of life	6-10 years	$0	$100,000
Employer outreach - additional resources	Leverage existing regional investment in employer services and TMAs to work with employers near corridor.	Employment sites near Highway 217		1-5 years		$200,000
Employer outreach - additional resources	(same as above)	Employment sites near Highway 217		6-10 years		$200,000
Employee incentives	Targeted investment to add to employer services to incentivize non-SOV commutes.	to be determined	Quality of life	1-5 years	$0	$50,000
Employee incentives	(same as above)	to be determined	Quality of life	6-10 years	$0	$50,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Transportation Management Associations (TMA)	Support public-private partnerships in regional or town centers that assist employees and/or residents increase use of travel options. Westside Transportation Alliance (WTA) provides employer services in Washington County, including this corridor.	Beaverton, Washington Square, Tigard and other parts of Washington County	Quality of life	through 10 years	$0	$300,000
Transportation Management Associations (TMA)	Support public-private partnerships in regional or town centers that assist employees and/or residents increase use of travel options. Westside Transportation Alliance (WTA) provides employer services in Washington County, including this corridor.	Beaverton, Washington Square, Tigard and other parts of Washington County	Quality of life	through 10 years	$0	$75,000
Parking management	Convene stakeholders to plan and implement parking management strategies. Ideally this action raises revenue to expand TDM solutions.	Beaverton Regional Center	Quality of life	1-5 years	$0	$100,000
Parking management	(same as above)	Beaverton Regional Center	Quality of life	6-10 years	$0	$100,000
Parking management	Convene stakeholders to plan and implement parking management strategies. Ideally this action raises revenue to expand TDM solutions.	Washington Square Regional Center	Quality of life	1-5 years	$0	$100,000
Parking management	(same as above)	Washington Square Regional Center	Quality of life	6-10 years	$0	$100,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Parking management	Convene stakeholders to plan and implement parking management strategies. Ideally this action raises revenue to expand TDM solutions.	Tigard Town Center	Quality of life	1-5 years	$0	$100,000
Parking management	(same as above)	Tigard Town Center	Quality of life	6-10 years	$0	$100,000
Bike Sharing	Provide funding to implement bikes for loan or rent.	Transit oriented developments, large employers, colleges, hotels and significant transit stops.	Quality of life	6-10 years	$100,000	$50,000



Corridor Summary

The Tualatin to Sherwood corridor encompasses **99W,** parallel arterials, as well as bus service and bicycle routes that support movement in and through the corridor. 99E supports inter- and intraregional travel inside the region and through the Willamette Valley. The key parallel arterials include **SW 72nd Ave/Boones Ferry Rd/Tualatin-Sherwood Rd, SW Hall Blvd,** and **SW Scholls Ferry Rd/Roy Rogers Rd.** These facilities provide access to Washington Square regional center, five town centers, and significant industrial and employment areas. Originally the arterial and collector street network were built as farm-to-market roads. As the area developed the roadway network lacks the continuous grid of more urbanized areas.

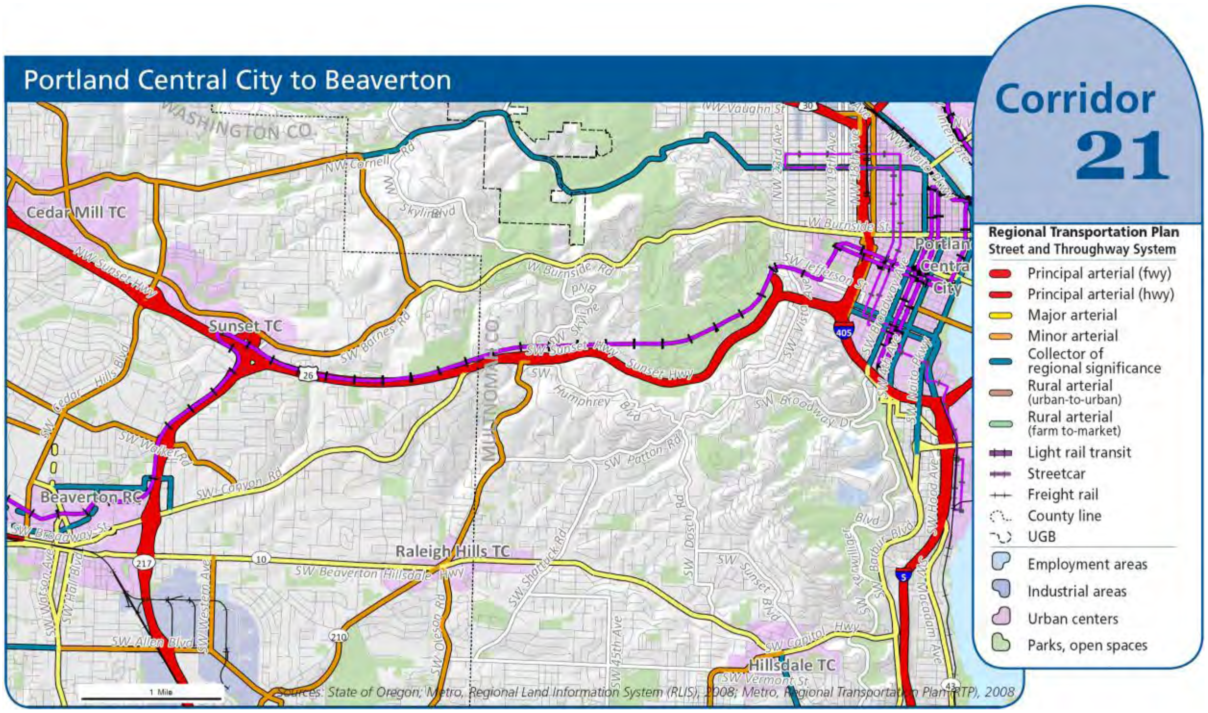
Where Are We Now?

Currently no regional facilities in this corridor have coordinated signal timings updated within the last five years; however, a section of Tualatin Sherwood Rd is equipped with adaptive signal timing. There are no transit signal priority locations in this corridor. Communications infrastructure exists along sections of Scholls Ferry Rd and SW Tualatin Sherwood Rd. The Westside Transportation Alliance (WTA) works with employers and employees in Tualatin (in addition to other Washington County areas) to reduce drive-alone trips. There are also several bike-specific projects in the corridor including a WTA program to install free bike racks for area businesses and the City of Tigard's update of their 20-year old bike map.

<table>
<tr><th rowspan="2">Project Name</th><th rowspan="2">Description</th><th rowspan="2">Facility</th><th rowspan="2">Goal/ Objective</th><th rowspan="2">Time-frame</th><th colspan="2">Cost</th></tr>
<tr><th>Capital</th><th>Annual O&M</th></tr>
<tr><td colspan="7">Regional Multimodal Traffic Management</td></tr>
<tr><td rowspan="3">Arterial Corridor Management (ACM)</td><td rowspan="3">Improve arterial corridor operations by expanding traveler information and upgrading traffic signal equipment and timings. Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions. Upgrade and/or add traffic signage. Also includes on-going maintenance and parts replacement.</td><td>SW 72nd Ave</td><td rowspan="3">Reliability & Traveler Information</td><td>11+ yrs</td><td>$1,700,000</td><td>$35,000</td></tr>
<tr><td>Upper Boones Ferry Rd</td><td>11+ yrs</td><td>$1,300,000</td><td>$25,000</td></tr>
<tr><td>Durham Rd</td><td>11+ yrs</td><td>$1,500,000</td><td>$30,000</td></tr>
<tr><td>ACM with Adaptive Signal Timing</td><td>Includes the ACM project with signal systems that automatically adapt to current arterial roadway conditions.</td><td>Tualatin Sherwood Rd</td><td>Reliability & Traveler Information</td><td>1-5 yrs</td><td>$1,500,000</td><td>$30,000</td></tr>
</table>

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
ACM with Transit Priority Treatment	Includes the ACM project with transit signal priority added to traffic signals along a facility.	SW Hall Blvd	Reliability, Traveler Information, & Quality of Life	1-5 yrs	$1,900,000	$40,000
ACM with Adaptive Signal Timing and Transit Priority Treatment	Includes the ACM with both adaptive signal timing and transity priority treatment.	SW Scholls Ferry Rd (River to Hall)	Reliability, Traveler Information, & Quality of Life	1-5 yrs	$4,200,000	$80,000
		Hwy 99W (from 217 to 124th)		1-5 yrs	$4,200,000	$80,000
Traveler Information						
Traveler Information Only	Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions.	Hwy 99W (124th to Tualatin Sherwood Rd)	Traveler Information	1-5 yrs	$1,200,000	$25,000
Transportation Demand Management						
Construction mitigation campaign	Apply additional investment in TDM solutions to mitigate impacts to travelers of all modes during construction projects.	99W construction to Newberg (per HB 2001 legislation)	Quality of life	1-5 years	$0	$100,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Employee incentives	Targeted investment to add to employer services to incentivize non-SOV commutes.	to be determined	Quality of life	1-5 years	$0	$50,000
Employee incentives	(same as above)	to be determined	Quality of life	6-10 years	$0	$50,000
Location-efficient living	Support programs and strategies that promote and advance location-efficient living strategies.	Tualatin industrial/employment area west of I-5 and housing west of I-5.	Quality of life	through 10 years	$0	$50,000



Corridor Summary

The Portland to Beaverton corridor encompasses **US 26,** MAX light rail, parallel arterials, as well as bus service and bicycle routes that support movement in and through the corridor. US 26 supports intraregional travel between Beaverton, Gresham, Hillsboro, Milwaukie, Portland, Tigard and Vancouver. The key parallel facilities include **SW Beaverton-Hillsdale Hwy, W Burnside/SW Barnes Rd, SW Canyon Rd, and SW Cornell Rd/SW Miller Rd.** North-south mobility is limited due to few overcrossings of US 26, rugged topography and large areas of parkland. Land use in this corridor is mainly residential with a relatively high percentage of land dedicated to parks and open space. The local street network is discontinuous with many cul-de-sac and dead end streets.

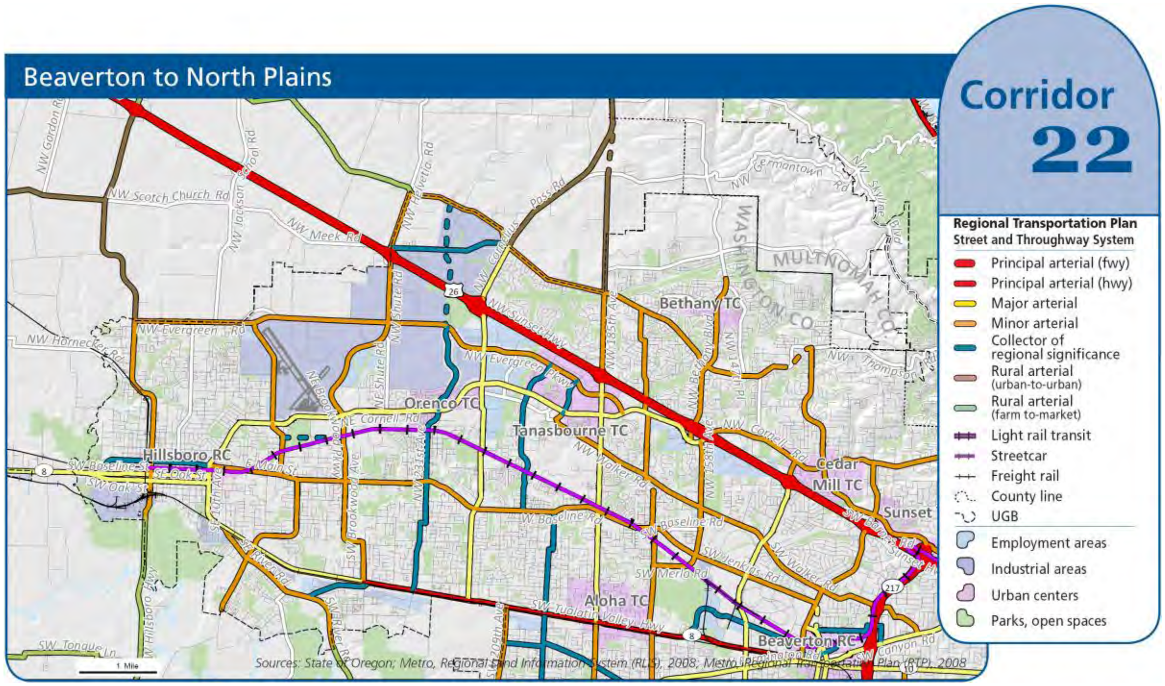
Where Are We Now?

Currently three regional facilities in this corridor have coordinated signal timings updated within the last five years: Beaverton Hillsdale Hwy (BH Hwy) Canyon Rd, and sections of Cornell Rd. Additionally, an adaptive signal timing project is underway for a segment of BH Hwy. Transit signal priority is located at select traffic signals along BH Hwy. Communications infrastructure exists along BH Hwy, Canyon Rd, and SW Allen Blvd. The segment of US 26 through this corridor is generally equipped with cameras, ramp meters, detection, and communication equipment. The Westside Transportation Alliance (WTA) works with employers in Beaverton (in addition to other Washington County areas) to reduce employee drive-alone trips. The City of Portland's Smart Trips Downtown program offers individualized marketing to employees in their service areas. There are several bike-specific projects in the corridor as well, with a WTA program to install free bike racks for area businesses, Portland State University currently building a new long-term bike storage facility, and TriMet installing E-Access Bike Lockers at several transit facilities in the area.

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Regional Multimodal Traffic Management						
Arterial Corridor Management (ACM)	Improve arterial corridor operations by expanding traveler information and upgrading traffic signal equipment and timings. Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions. Upgrade and/or add traffic signage. Also includes on-going maintenance and parts replacement.	Canyon Rd (north of Walker)	Reliability & Traveler Information	6-10 yrs	$1,600,000	$30,000
		Walker Rd (west of Hwy 217)		6-10 yrs	$700,000	$14,000
		Barnes Rd/Burnside		6-10 yrs	$2,100,000	$43,000
		Bertha		11+ yrs	$700,000	$13,000
		Allen Rd		11+ yrs	$2,300,000	$45,000
		Denny Rd		11+ yrs	$950,000	$19,000
		Cornell Rd		6-10 yrs	$1,700,000	$35,000
		Scholls Ferry Rd		6-10 yrs	$750,000	$15,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
ACM with Adaptive Signal Timing	Includes the ACM project with signal systems that automatically adapt to current arterial roadway conditions.	Canyon Rd (near Walker to Cedar Hills)	Reliability & Traveler Information	6-10 yrs	$1,500,000	$30,000
ACM with Transit Priority Treatment	Includes the ACM project with transit signal priority added to traffic signals along a facility.	Beaverton Hillsdale Hwy (Barbur Blvd to Scholls Ferry Rd)	Reliability, Traveler Information, & Quality of Life	6-10 yrs	$3,700,000	$70,000
ACM with Adaptive Signal Timing and Transit Priority Treatment	Includes the ACM with both adaptive signal timing and transit priority treatment.	Beaverton Hillsdale Hwy (Scholls Ferry Rd to Murray Blvd)	Reliability, Traveler Information, & Quality of Life	1-5 yrs	$2,500,000	$50,000
Freeway Management	Expand freeway vehicle detection to provide comprehensive freeway traveler information including travel speed, travel times, volumes, forecasted information, incident conditions, and weather conditions.	US 26	Reliability, Traveler Information, & Safety	6-10 yrs	$400,000	$8,000
Traveler Information						
Traveler Information Only	Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions.	Walker Rd (east of Hwy 217)	Traveler Information	6-10 yrs	$460,000	$9,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Transportation Demand Management						
Individualized Marketing	Implement and/or support intensive outreach to targeted neighborhoods that encourages use of travel options through delivery of local travel options information and services to interested residents.	Residents served by frequent transit service, other travel options and near commercial zoning.	Quality of life	1-5 years	$0	$500,000
Individualized Marketing	(same as above)	Residents served by frequent transit service, other travel options and near commercial zoning.	Quality of life	6-10 years	$0	$500,000
Employee incentives	Targeted investment to add to employer services to incentivize non-SOV commutes.	to be determined	Quality of life	1-5 years	$0	$50,000
Employee incentives	(same as above)	to be determined	Quality of life	6-10 years	$0	$50,000



Corridor Summary

The Beaverton to North Plains corridor encompasses **US 26,** MAX light rail, Westside Express Service (WES), parallel arterials, as well as bus service and bicycle routes that support movement in and through the corridor. US 26 supports intraregional travel between Beaverton, Gresham, Hillsboro, Milwaukie, Portland, Tigard and Vancouver. The key parallel facilities include **NW Barnes Rd/Cornell Rd, NW Evergreen Pkwy, SW Jenkins Rd/Walker Rd, NW Union Rd, W Baseline Rd, and SW Tualatin Valley Hwy**. The corridor is a diverse mix of urban and rural land uses, with several commercial centers, employment and industrial areas in the urbanized sections. The local street network is a patchwork of well-connected and discontinuous streets. Farm-to-market roads provide mobility outside the urbanized areas.

Where Are We Now?

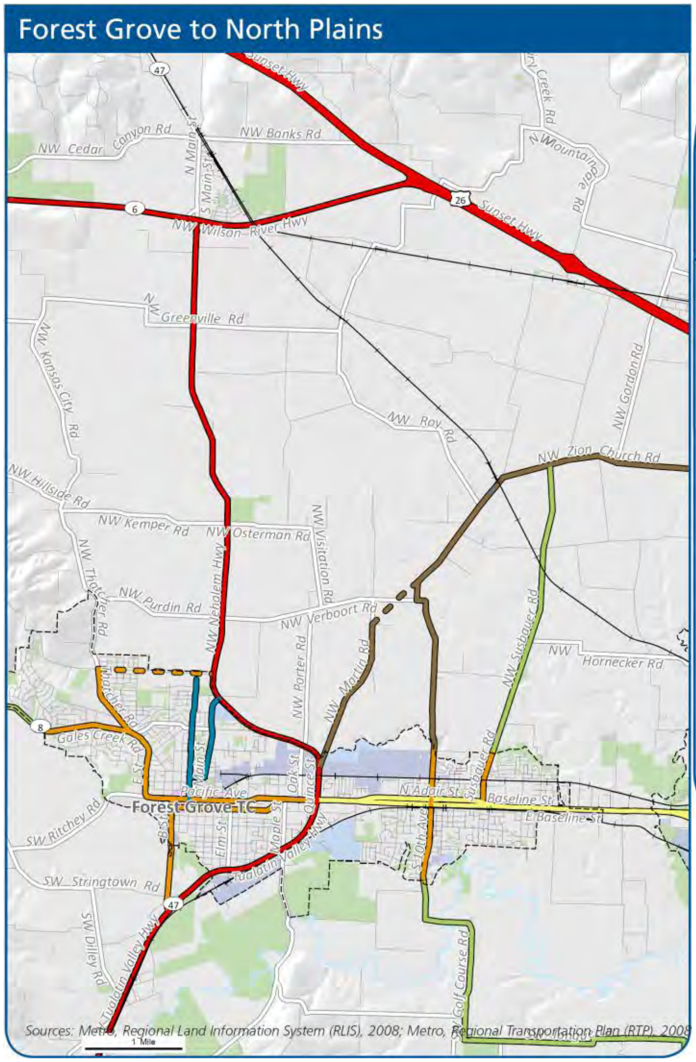
Currently two regional facilities in this corridor have coordinated signal timings updated within the last five years: Cornelius Pass and Cornell Rd. There are no transit signal priority locations in this corridor. Communications infrastructure exists along segments of Cornell Rd, Baseline St and Oak St. The segment of US 26 through this corridor is generally equipped with cameras, ramp meters, detection, and communication equipment. The Westside Transportation Alliance (WTA) works with employers and employees in

Beaverton (in addition to other Washington County areas) to reduce drive-alone trips. There are several bike-specific projects in the corridor including a WTA program to install free bike racks for area businesses and TriMet installation of E-Access Bike Lockers at several transit facilities in the area.

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Regional Multimodal Traffic Management						
Arterial Corridor Management (ACM)	Improve arterial corridor operations by expanding traveler information and upgrading traffic signal equipment and timings. Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions. Upgrade and/or add traffic signage. Also includes on-going maintenance and parts replacement.	Jenkins/ Baseline	Reliability & Traveler Information	11+ yrs	$3,300,000	$70,000
		Walker Rd		11+ yrs	$2,600,000	$50,000
		Cornell Rd		1-5 yrs	$6,800,000	$140,000
		Evergreen		11+ yrs	$4,700,000	$90,000
		Cornelius Pass		6-10 yrs	$3,500,000	$70,000
		Brookwood		11+ yrs	$2,800,000	$60,000
		Shute Rd		11+ yrs	$9,300,000	$180,000
		Farmington (185th to 209th)		6-10 yrs	$800,000	$16,000
ACM with Adaptive Signal Timing	Includes the ACM project with signal systems that automatically adapt to current arterial roadway conditions.	185th Ave (US 26 to Union Rd)	Reliability & Traveler Information	6-10 yrs	$1,200,000	$25,000

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
ACM with Transit Priority Treatment	Includes the ACM project with transit signal priority added to traffic signals along a facility.	Farmington (Murray to 185th)	Reliability, Traveler Information, & Quality of Life	6-10 yrs	$1,800,000	$35,000
ACM with Adaptive Signal Timing and Transit Priority Treatment	Includes the ACM with both adaptive signal timing and transit priority treatment.	185th Ave (US 26 to BH Hwy)	Reliability, Traveler Information, & Quality of Life	1-5 yrs	$4,500,000	$90,000
		Farmington (Western to Murray)		1-5 yrs	$2,500,000	$50,000
		Tualatin Valley Hwy (Murray to Baseline)		1-5 yrs	$7,300,000	$140,000
Freeway Management	Expand freeway vehicle detection to provide comprehensive freeway traveler information including travel speed, travel times, volumes, forecasted information, incident conditions, and weather conditions.	US 26	Reliability, Traveler Information, & Safety	6-10 yrs	$650,000	$13,000
Traveler Information						
	No projects in this corridor					
Transportation Demand Management						
Rideshare Park & Ride	Negotiate shared parking agreements with public and private parking lots, provide signage and, if needed, coordinate registration.	US 26	Quality of life	1-5 years	$0	$4,800

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Rideshare Park & Ride	(same as above)	US 26	Quality of life	6-10 years	$0	$4,800
Construction mitigation campaign	Apply additional investment in TDM solutions to mitigate impacts to travelers of all modes during construction projects.	Hwy 26 near Amberglen	Quality of life	1-5 years	$0	$100,000
Employee incentives	Targeted investment to add to employer services to incentivize non-SOV commutes.	to be determined	Quality of life	1-5 years	$0	$50,000
Employee incentives	(same as above)	to be determined	Quality of life	6-10 years	$0	$50,000
Transportation Management Associations (TMA)	Support public-private partnerships in regional or town centers that assist employees and/or residents increase use of travel options. Westside Transportation Alliance (WTA) provides employer services in Washington County, including this corridor.	Beaverton and other parts of Washington County	Quality of life	through 10 years	$0	(annual cost recorded under corridor 19)
Location-efficient living	Support programs and strategies that promote and advance location-efficient living strategies.	Industrial/employment area with nearby housing	Quality of life	through 10 years	$0	$50,000
Park & Ride Management	Implement parking management elements such as time limits, fees or changing spaces to carpool-only.	Sunset Transit Center	Quality of life	1-5 years	$100,000	$10,000



Corridor Summary

The Beaverton to North Plains corridor encompasses **Hwy 47,** parallel arterials, as well as bus service and bicycle routes that support movement in and through the corridor. Hwy 47 supports intraregional travel between Forest Grove, Hillsboro and Beaverton. The key parallel facilities include **NW Martin Rd/Cornelius-Schefflin Rd, Kerkman/Dersham Rd, and Zion Church/Glencoe Rd.** The corridor is mostly rural farmland, with urban/suburban development tightly contained in the city of Forest Grove. The street network is a mix of farm-to-market roads and well-connected urban streets in the urbanized area.

Where Are We Now?

No regional facilities in this corridor have coordinated signal timing updated within the last five years. Additionally, there are no transit signal priority locations nor communications infrastructure. The Westside Transportation Alliance (WTA) works with employers and employees in Forest Grove (in addition to other Washington County areas) to reduce drive-alone trips. Additionally, the WTA offers a program to install free bike racks for area businesses.

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Regional Multimodal Traffic Management						
Arterial Corridor Management (ACM)	Improve arterial corridor operations by expanding traveler information and upgrading traffic signal equipment and timings. Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide real-time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions. Upgrade and/or add traffic signage. Also includes on-going maintenance and parts replacement.	TV Hwy	Reliability & Traveler Information	6-10 yrs	$950,000	$19,000
Traveler Information						
	No projects in this corridor					
Transportation Demand Management						
Rideshare Park & Ride	Negotiate shared parking agreements with public and private parking lots, provide signage and, if needed, coordinate registration.	US 26	Quality of life	1-5 years	$0	$4,800
Rideshare Park & Ride	(same as above)	US 26	Quality of life	6-10 years	$0	$4,800

Project Name	Description	Facility	Goal/ Objective	Time-frame	Cost	
					Capital	Annual O&M
Transportation Management Associations (TMA)	Support public-private partnerships in regional or town centers that assist employees and/or residents increase use of travel options. Westside Transportation Alliance (WTA) provides employer services in Washington County, including this corridor.	Forest Grove and other parts of Washington County	Quality of life	through 10 years	$0	(annual cost recorded under corridor 19)
Parking management	Convene stakeholders to plan and implement parking management strategies. Ideally this action raises revenue to expand TDM solutions.	Forest Grove Town Center	Quality of life	6-10 years	$0	$100,000
Car-share operations	Support 3 or more car-sharing vehicles for large student populations.	Forest Grove	Quality of life	1-5 years	$0	$200,000

V. Implementation

The purpose of this section is to identify steps that partner agencies need to take to ensure successful implementation of TSMO strategies. This component of the TSMO plan includes the description of non-capital actions necessary to compliment capital investments.

Because TSMO is different than traditional transportation engineering and construction activities, it is imperative that partner agencies carefully coordinate its implementation The TSMO Plan identifies new practices or modifications to existing practices and procedures that are needed to ensure success and achieve the operations objectives. A desired outcome of the Regional TSMO Plan is for local agencies to modify existing practices as needed to support the TSMO solutions. This section presents organizational, policy and finance recommendations necessary for implementation of TSMO strategies.

Organization and policy recommendations

Implementation of specific projects must consider the institutional relationships necessary to achieve the operation objectives. Institutional arrangements have not been a significant issue for many of the projects completed to date because of the nature of informal relationships within TransPort and a separate structure for Regional Travel Options. However, as additional efforts proceed, institutional relationships will be a key component determining success or failure. While engineers are able to overcome most technical challenges, developing and maintaining relationships (including intergovernmental agreements) are often challenging aspects of a project, especially when competing goals or agency policies exist. Table 4 identifies recommendations related to institutional relationships to achieve successful implementation of TSMO projects. Metro will lead the effort to implement these actions.

Table 4: Organization and Policy Measure Recommendations

Item	Action	Descriptions	Year 1	Year 1-5	Long Term
1	TSMO Policy Committee (TSMO-PC)	Metro will form a TSMO Policy Committee to include representatives from Regional Travel Options (RTO), TransPort, Regional Freight TAC, TPAC, and other private sector stakeholders. TSMO-PC will primarily advise TPAC on TSMO investment priorities and governance/service delivery issues. An example of this is the update of signal timing plans funded by the federal stimulus program, where Metro led the effort to submit an application and the signal timing plans were developed by member agencies. The RTO subcommittee and TransPort will continue to act on transportation demand management and ITS program coordination, respectively.	√		
2	Inclusion in Regional	TSMO will use RTP and Functional Plan to leverage results through local policies, codes and Capital Improvement		√	

Item	Action	Descriptions	Year 1	Year 1-5	Long Term
	Transportation Plan (RTP) and Functional Plan requirements of local Transportation System Plans (TSPs) related to TSMO in RTP	Project (CIP) investment decisions. TSMO policies will take affect incrementally as local TSPs are updated, and Metro would provide guidance and support to local governments during the TSP update process.			
3	Public-private partnerships for TSMO projects	The TSMO PC will explore barriers and opportunities for use of public-private partnerships for TSMO projects and identify a process for supporting and funding new ideas. However, before public-private partnerships can be implemented, it is necessary to address issues related to the sale and use of public information to private entities, shared risk on investment outcomes, use/disclosure of proprietary information, privacy concerns, capital purchased with federal funds, maintenance, and more.		√	
4	Formalization of TSMO implementation roles and relationships	Formal relationships through intergovernmental agreements and memorandums of understanding as necessary. For example, this will occur when setting up incident management teams. It is necessary to realize economy of scale benefits while recognizing intra-regional political and institutional differences that vary across geographic and programmatic boundaries (e.g., cities may be ready to integrate ITS operational platforms but not incident response teams). A good example is the Cooperative Telecommunications Infrastructure Committee (CTIC), which brings technical staff together who are dedicated to planning and operating the communication systems.		√	
5	Development of corridor management associations	The TSMO PC will explore the development of corridor management associations to guide on-going implementation of system and demand management strategies. It will need both to recognize differential levels of investment by the region in some corridors over others and that integrating corridor management solutions is affected by political factors		√	
6	Support TSMO staff/institutional development	The TSMO PC will be responsible to develop a best management practices for operations, staff training/workforce development through higher education institutions, coordinate peer exchanges, implement certification programs, cost accounting systems, and common performance/benefit measures. Both public agencies as well as private concerns need all these to build capacity in the region to sustain TSMO investment and ensure it delivers benefits to its full potential.		√	
7	Tie TSMO to regional climate action plan	In the longer term, Metro will tie TSMO to a regional climate action plan. This could be done, for example, by tapping Cap and Trade resources and including TSMO in cost/benefit analysis. Metro will also assess TSMO's role in meeting greenhouse gas (GHG) reduction goals.			√
8	Joint operating agreements	Set up joint operating agreements to allow more efficient allocation of resources and properly define roles and	√		

Item	Action	Descriptions	Year 1	Year 1-5	Long Term
		responsibilities of agencies. As an example, the City of Portland already operates several ODOT traffic signals throughout the system. This allows ODOT to focus on issues more consistent with its goals of maintaining mobility on key facilities within the service area of Region 1. As another example, ODOT established a multi-agency freeway management system with open coordination and contributions from several stakeholder groups, allowing access to cameras for local purposes. Furthermore, statewide and regional signal system procurement and ITS on-call consulting services contracts exist that allow multiple agencies to procure ITS equipment through a common procurement effort.			
9	Regular TSMO reports	Publish regular reports documenting the implementation of TSMO projects. In order to follow the progression of the TSMO Refinement Plan, annual reports need to document implemented projects and performance outcomes.	√		
10	Focus on 24/7 customer service provision	A Transportation Management Center (TMC) requires 24/7 operations to allow for fast response to transportation incidents and emergencies, even during midnight. Support of 24/7 operations would need staff resources.			√
12	Operations and management accounted for in formal planning process	This allows transportation systems to be efficiently utilized from the beginning of construction. It is also more cost-effective to discuss TSMO in the early stage of the planning process than if it was to be integrated later as an added feature.	√		

Finance recommendations

Addressing funding needs and barriers is also an important step to ensure successful implementation of TSMO strategies. Funding will continue to come from a variety of sources at the federal, state, regional, and local levels. The challenge is to increase funding for TSMO solutions and maintain a consistent funding stream. The Regional TSMO Plan identifies operations-oriented projects that the Metropolitan Transportation Improvement Program (MTIP) should include or that agencies can pursue through future initiatives like the ODOT Operations Innovation Grant Program. The MTIP provides an opportunity to include specific projects that will offer measurable, operational benefits. Stakeholder agencies recognize that coming together to coordinate management of the transportation system provides advantages to acquiring highly competitive MTIP funds for TSMO Plan initiatives. Multi-agency programs, such as those identified through the RCTO process, are seen as high priorities across the region. Table 5 list recommended actions to advance funding objectives.

Table 5: Fiscal Measure Recommendations

Item	Action	Year 1	Year 1-5	Long Term
1	Work to increase use of federal funds for TSMO (both capital and operations)	√	√	√
2	Develop TSMO funding strategy to support regional systems like traveler information, rideshare matching, ITS network, PORTAL		√	
3	Tie operations capital to on-going Operations & Maintenance funding – establish MTIP review criteria for on-going O&M support of TDM/TSM capital investments		√	
4	Work with finance managers in partner agencies to adopt outcomes-focused budgeting		√	
5	Request separate RTO and TSMO funds for program and capital infrastructure funds in MTIP process		√	
7	Identify and develop new funding sources for TSMO capital and operations		√	
8	Investigate regional and sub-regional opportunities for group purchasing agreements		√	
9	Continually align regional TSMO priorities with regional policies to make the case of additional funding		√	
11	Work with regional partners to gain commitment for funding ongoing operations		√	
12	Consider operations and management as separate and sustainable budget category		√	

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Metro | *People places. Open spaces.*

Clean air and clean water do not stop at city limits or county lines. Neither does the need for jobs, a thriving economy and good transportation choices for people and businesses in our region. Voters have asked Metro to help with the challenges that cross those lines and affect the 25 cities and three counties in the Portland metropolitan area.

A regional approach simply makes sense when it comes to protecting open space, caring for parks, planning for the best use of land, managing garbage disposal and increasing recycling. Metro oversees world-class facilities such as the Oregon Zoo, which contributes to conservation and education, and the Oregon Convention Center, which benefits the region's economy.

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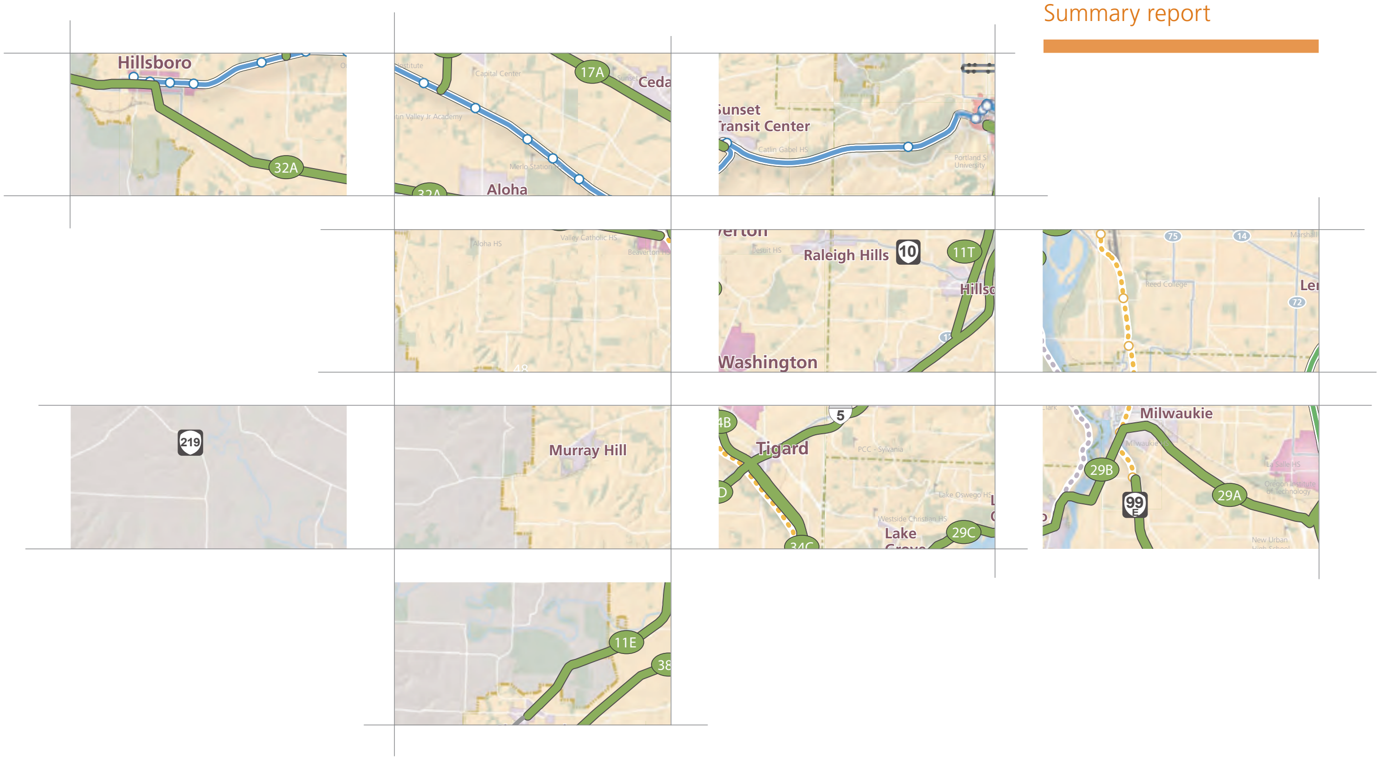
June 2010
Summary report



REGIONAL HIGH CAPACITY TRANSIT SYSTEM PLAN

2035

Summary report

June 2010

Metro | *Joint Policy Advisory Committee on Transportation*

5788

Metro is the federally mandated metropolitan planning organization designated by the governor to develop an overall transportation plan and to allocate federal funds for the region.

The Joint Policy Advisory Committee on Transportation (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 assures a well-balanced regional transportation system and involves local elected officials directly in decisions that help the Metro Council develop regional transportation policies, including allocating transportation funds.

Project web site: www.oregonmetro.gov/goingplaces

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

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METRO COUNCILOR MESSAGE

The Metro Council is collaborating with our region's cities and counties to create vibrant, compact, connected communities in a distinctive fashion. In planning for future high capacity transit routes, we're building on a legacy of citizen involvement, elected leadership, and coordinated land use and transportation policy. Over 30 years ago, elected leaders and citizens rallied against the construction of freeways through developed neighborhoods and, instead, directed resources to a light rail project from Portland to Gresham along I-84. In 1995, the region adopted the 2040 Growth Concept to serve as a vision to guide growth and development over the coming decades. The existing and planned high capacity transit system functions to support the 2040 Growth Concept and the Regional Transportation Plan to protect the region's farm and forestland and to make great places.

The Portland metro region continues to lead the way in providing the region with a state-of-the-art transit system. The region has constructed over 50 miles of light rail and 14.7 miles of commuter rail. These high capacity lines connect the far reaches of the urban area from Hillsboro to Gresham and from north Portland to Clackamas – and many neighborhoods in between. In the wake of our success at building the first chapter of an exceptional high capacity transit system, the following document details the next phase of planning for high capacity transit to serve great places in the region over upcoming decades.

The Metro Council strives to create a region with sustained economic competitiveness and prosperity, transportation choices, minimized contributions to global warming, healthy ecosystems and equitably distributed benefits and burdens of growth. Therefore, the Metro Council adopted goals focusing on environment, communities and the economy to reflect that vision. Intensive public outreach and evaluation and analysis of high capacity transit options according to those goals and vision led to the Metro Council adopting Resolution No. 09-4052, which provides the region with high capacity transit projects and policy direction for the next decade.

We are thrilled to present you with following Regional High Capacity Transit System Plan summary report. The document encapsulates the planning process and results which led to the adoption of Resolution No. 09-4052 and the brilliant ideas captured from the public, scholars and experts, and elected officials on high capacity transit options in the region.

— Carlotta Collette, Metro Councilor

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1. INTRODUCTION

> "Our region is a place that rewards those who commit themselves to keeping it a great place to live. It is a place where people act to meet the future, rather than wait to cope with its eccentricities. History teaches the often cruel lesson that a community that does not possess a clear vision of the kind of future it wants is not likely to be satisfied with the one it gets. Making the effort to identify what we want, and then acting purposefully and collectively to achieve it, is critical."—*Your Future Vision Commission, final report, Metro, 1993.*

The Portland metropolitan area is an incredible place to live. Our region has vibrant communities, neighborhoods with distinctive personalities and a world class transit system. Residents value access to nature, trails, parks and wild places. The area is rich with lively community events and festivals, an active arts scene and a rich array of cultural activities. The communities that make up the Portland metro region have worked together tirelessly over the past decades to create one of the most livable regions of the county and consistently strive to be the greatest place to live, work and play.

As the Portland metro region aspires to be the greatest place, it must address 21st century challenges of energy independence, carbon neutrality, population growth, sustainable economic development and human health. Continued development of a world class, high capacity transit system is one part of an integrated strategy to accommodate the region's rapidly increasing population while reducing the negative impacts of that population on land, air and water quality. More than any single factor, regional land use policy has positioned the Portland metro area to take advantage of transit-supportive development policy and implementation. Dramatic future population growth and a renewed energy toward infill development will provide new opportunities to build upon this legacy. Furthermore, raw geometry and rising construction costs demand a focus on moving people efficiently and rapidly within existing corridors and rights of way. Economic growth in the region will depend on continued investment in a transit system that can move people efficiently. Achievement of other land use, financial and equity goals also rely heavily on a well formed high capacity transit system.

This High Capacity Transit System Plan report summarizes the results of outreach and data analysis intended to provide guidance for the region's long-term investments in high capacity transit. The prioritized high capacity transit corridors and discussion of improvements to the existing system are based on planned land uses, community values, environmental benefits, economic potential and deliverability. In addition, the report covers the main components addressed during the High Capacity Transit System Plan process, including public outreach, high capacity transit corridor evaluation, system considerations and best practices for high capacity transit in the United States and around the world. Further information about the technical evaluation of corridors and public outreach results are available in the technical documents Regional High Capacity Transit System Plan detailed evaluation (Nelson\Nygaard, July 2009) and Regional High Capacity Transit System Plan public involvement outreach summary (Metro, May 2009).

The Regional High Capacity Transit System Plan is a component of the Regional Transportation Plan. The RTP is the region's blueprint to guide projects, programs and policies related to all transportation modes, including bikes, pedestrians, autos, freight and transit. The Regional HCT System Plan is designed to focus on the frequent, fast and high capacity element of the public transit system; other transit system functions, including local bus, paratransit, streetcar and frequent bus are included in the RTP. High capacity transit is characterized by exclusive right of way and routes with fewer stops. The Regional HCT System Plan is not intended as a review of the regional transit structure or its management, or a complete service analysis of the existing HCT system. Rather, the plan aligns HCT project advancement in a way that supports and enhances the goals of the RTP and regional 2040 Growth Concept.

Transportation in the Portland metropolitan area

- ✓ Over 90 percent of the region's residents live within one-half mile of public transit. 9.2 million rides on bus and MAX were taken during July 2008, a 13.3 percent increase over July 2007, and there are 100 million rides on bus and MAX annually.[1]
- ✓ Twenty-two percent of Portland metro residents use alternative transportation,[2] and 11 percent of the region's workforce walks, bicycles or rides mass transit to work.[3]
- ✓ Portland-Vancouver area residents make an average of about 50 trips per year on transit. Only four of 40 regions in the United States had higher rates in 2004: San Francisco, Boston, Washington D.C. and Philadelphia.[4]
- ✓ Residents of the region drove about 19.5 miles per day in 2003. On average, city of Portland residents drive four miles less than the other 33 most populous U.S. metro areas. These extra miles saved translates into more money in the pockets of Portland residents and an extra $2.6 billion in spending money to invest in our local economy.[5]
- ✓ Transportation activities are the second largest source of greenhouse gases in Oregon, accounting for approximately 34 percent of the state's carbon dioxide emissions. Congestion on our region's freeways increased 20 percent between 2000 and 2005.[6]
- ✓ Trips on transit in the Portland metro region replace more than 205,000 car trips daily, eliminating more than four tons of smog producing pollutants and more than 540 tons of greenhouse gas emissions daily.
- ✓ The regional high capacity transit system has helped to leverage more than $6 billion of development in centers, corridors and station areas, and has been shown to create jobs through construction and long-term development.[7]

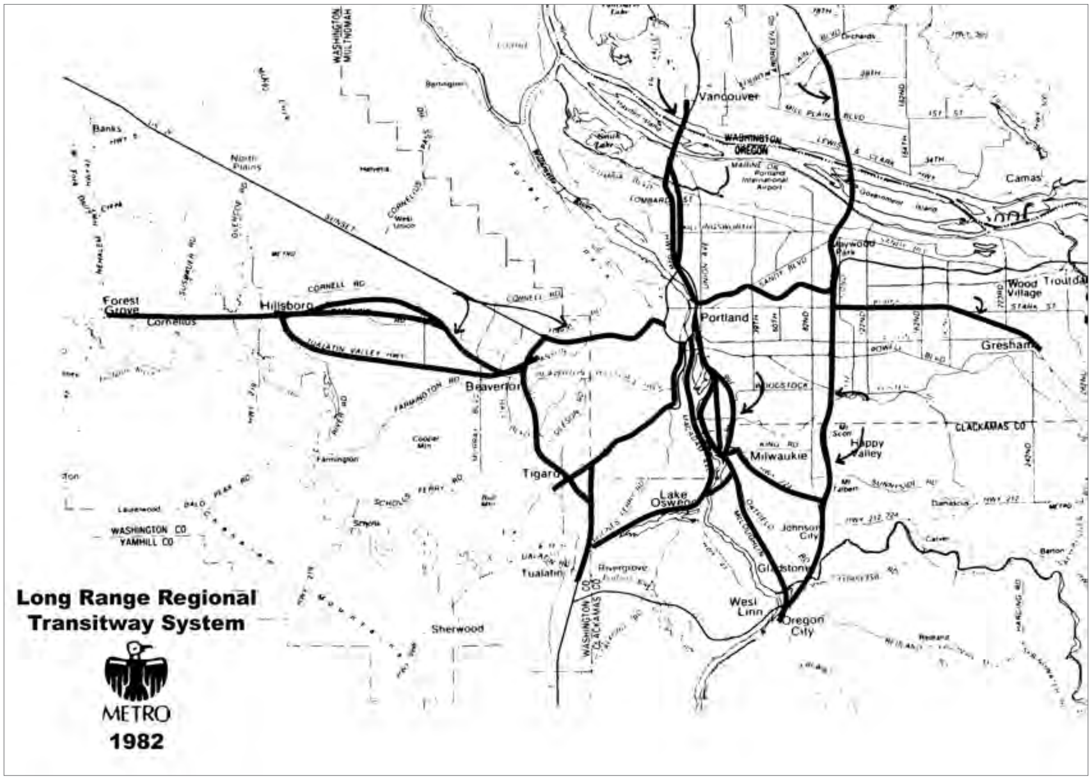
1 *Our place in the world, Metro, 2009.*
2 *American Community Survey, U.S. Census Bureau, 2006.*
3 *Greater Portland prosperity: a regional outlook, Greenlight, 2008.*
4 *Metropolitan briefing book, Institute of Portland Metropolitan Studies, PSU, 2007.*
5 *Portland's green dividend, Joe Cortright, CEOS for Cities, July 2007.*
6 *Our place in the world, Metro, 2009.*
7 *Resolution No. 09-4025, Metro, February 2009.*

THE CHOICE FOR HIGH CAPACITY TRANSIT IN THE REGION

The last comprehensive examination of regional high capacity transit system needs was the 1982 Light Rail System Plan. Impressively, the 1982 plan has resulted in 64 miles of light rail transit, commuter rail and streetcar being built and an additional 26 miles planned for construction by 2016.

In 1974, elected leaders rejected the so-called Mt. Hood Freeway project after public outcry over its expected cost and the destruction of neighborhoods required for its construction. Following this sea change in transportation policy, the region set aside plans for 54 new highway projects in favor of modest roadway projects and a network of transitways. These plans were codified in the 1975 Interim Transportation Plan and resulting refinements through the 1982 Light Rail System Plan. The 2040 Growth Concept, adopted in 1995 after an extensive public engagement process, calls for high capacity transit service to regional centers.

Figure 1.1: 1982 Light Rail System Plan map



REGIONAL TRANSPORTATION PLAN SCENARIO EVALUATION

As part of the RTP, in the fall of 2008, Metro and partner jurisdictions developed four transportation investment scenarios designed to measure improvements in mobility and access.[1] The scenarios were developed to provide a range of extreme investment decisions that would help illustrate trade-offs between investments. The four RTP scenarios were:

- investing in connectivity
- investing in high capacity transit and its supporting transit network
- investing in throughways
- investing in transportation demand management.

The high capacity transit scenario demonstrated the least increase in transportation-source greenhouse gases, created the least amount of housing growth outside the urban growth boundary and the highest effectiveness in concentrating housing growth in centers and corridors, and produced the greatest increase in transit use, walking and biking. While the high capacity transit scenario performed well, none of the scenarios by iteself would address the region's diverse needs.

When polled on the impact of the high capacity transit scenario in comparison to the other three scenarios, Joint Policy Advisory Committee on Transportation and Metro Policy Advisory Committee members stated that the HCT scenario will better address transportation issues and needs, have a positive ability to support job creation and goods movement, have a positive ability to support local, community aspirations, and have a positive ability to reduce the amount people drive.[2]

1 Transportation investment scenarios, Metro, November 2008.
2 Results of joint MPAC/JPACT meeting, Metro, November 2008.

THE HIGH CAPACITY TRANSIT SYSTEM TODAY

TriMet is the primary transit operator in the region; its district service area encompasses 575 square miles, serving 1.3 million people in the urban portions of Clackamas, Multnomah and Washington counties.[3] More than half the service area's population lives within one-half mile of TriMet service that operates every 15 minutes or better; 90 percent lives within one-half mile of TriMet service. In addition to those light rail lines listed in Figure 1.2, TriMet will open the green line in downtown Portland and to Clackamas Town Center in fall 2009 and the commuter rail line, WES, opened in February 2009. Wilsonville Smart provides service in the southwest corner of the region. Just outside of the Metro region, Sandy Area Metro and Canby Area Transit provide transit service for Sandy and Canby. Bus service in other surrounding areas, all with connections to TriMet, is also provided by C-TRAN (Clark County, WA); Cherriots (Salem, OR); Tillamook County Transportation District (Tillamook, OR); and Yamhill County Transit Area (Yamhill County, OR).

Figure 1.2: 2008 MAX light rail summary[4]

<table>
<tr><th>Line</th><th>Project/ construction Segment</th><th>Open</th><th>Length (miles)</th><th>Annual ridership opening year</th><th>Annual Ridership FY2008</th><th>Stations</th><th>Park and ride spaces</th></tr>
<tr><td>Blue
Hillsboro to Gresham</td><td>Eastside-Portland to Gresham</td><td>Sept. 1986</td><td>15</td><td>6,600,000</td><td rowspan="4">35,100,000</td><td>30</td><td>2,898</td></tr>
<tr><td>Blue
Hillsboro to Gresham</td><td>Westside-Hillsboro to Portland</td><td>Sept. 1998</td><td>18</td><td>5,900,000</td><td>20</td><td>3,613</td></tr>
<tr><td>Red
Beaverton to Airpot</td><td>Airport-Gateway to Portland Airport</td><td>Sept. 2001</td><td>5.5</td><td>571,484</td><td>4</td><td>193</td></tr>
<tr><td>Yellow
City Center to Expo</td><td>Interstate-Rose Quarter to Expo</td><td>May 2004</td><td>5.8</td><td>3,900,000</td><td>10</td><td>600</td></tr>
<tr><td>Green
City Center to Clackamas Town Center</td><td>Downtown-PSU to Union Station
Eastside-Gateway to Clackamas Town Center</td><td>Sept. 2009</td><td>14.5 (8.3 new)</td><td>TBD</td><td>n/a</td><td>20 (15 new)</td><td>2,300</td></tr>
</table>

3 A profile of the regional transit system in the Portland metropolitan region background paper, Metro, February 2007.

4 Transit Investment Plan, TriMet, 2007.

Portland Streetcar was constructed by the City of Portland. The streetcar is designed to provide local circulation in the central city; it operates in mixed traffic with frequent stops. Ridership has increased by an average of 17.4 percent per year since 2001.[5]

REGIONAL VALUES

Light rail became an important transportation choice for the region when faced with the destruction of established neighborhoods that a new freeway would cause, but it and other modes of high capacity transit continue to support regional values on many other levels. A 2006 survey of regional residents asked what they thought would be the three issues facing the region in 10 years; four of the top five issues mentioned benefit from high capacity transit: traffic congestion and transportation, the economy and jobs, population and growth, and environmental quality.[6]

PLACEMAKING AND REGIONMAKING

Six 2040 fundamentals were adopted as part of the 2040 Growth Concept by the region in 1997:

1. healthy economy
2. vibrant communities
3. environment health
4. transportation choices
5. equity
6. fiscal stewardship.[7]

This section addresses ways the regional HCT system supports these 2040 fundamentals.

Green economic boom

Dating back to 1979 when Metro was created by the voters, the region has been a national leader of the green and sustainable development movement. The Portland metro region often receives accolades for its transportation and land use planning and was recently ranked the top eco-friendly big city in the United States by SustainLane, a web-based guide to sustainable living. It is very possible that as the world transitions away from fossil fuels for most of its energy needs, the region could attract major employers in the fields of sustainability, green nanotechnology and renewable energies. The region should be prepared for rapid economic growth similar to the technology boom that occurred in the Seattle area and Silicon Valley.

Global migration

Climate change and volatile energy costs are likely to impact global migration patterns. Given the Portland region's moderate climate and supply of clear water, many have asked whether the region could accommodate another million residents beyond those already forecasted. If just 10 percent of California's 36 million people moved to the comparably wetter Pacific Northwest, and 30 percent of that wave moved to Portland, the region could gain 1 million residents within a short few years. Such a migration could create additional demand for transit and other forms of transportation.

5 Portland Streetcar Inc., 2009

6 Regional attitudes toward population growth and land use issues, Davis, Hibbits & Midghall, Inc., Metro, February 2006.

7 A profile of the regional transit system in the Portland metropolitan region background paper, Metro, February 2007.

Healthy economy

High capacity transit plays an important role in making the region affordable, attracting a well-educated work force, keeping freight and goods moving and supporting access to new jobs.

Transit supports a healthy economy by providing essential connections between where people live and work. Transit can help reduce the number of cars on the road, which reduces traffic congestion and improves the movement of freight.

The Department of Labor's Consumer Expenditure Survey shows that Portland has the second lowest rate of spending on transportation cost of the 28 largest U.S. metro areas.[8] Since residents spend less on driving, there is more money available to put back into the local economy, an extra $2.6 billion by some calculations.[9]

The emphasis on vibrant communities, reduction of congestion and transportation choices has attracted a passionate, well-educated workforce. During the 1990s, the number of college-educated 25 to 34 years olds increased 50 percent in the Portland metropolitan area, a rate five times faster than the nation as a whole.[10] Between 1995 and 2000, the city added 268 people in that demographic group for every 1,000 of the same group living there in 1995, according to the Census Bureau. Only four other metropolitan areas had a higher ratio.[11] As noted by the Wall Street Journal, transportation choices are part of the hard-to-quantify blend of attractions to the area.[12]

Transit capital investment also creates jobs and increases revenues for local businesses. A report by Cambridge Systematic, Inc. found that for every $10 million dollars invested in transit, 314 jobs are created in the year following investment, and businesses realize a gain in sales three times the

8 Portland's green dividend, Joe Cortright, CEOS for Cities, July 2007.

9 *Ibid*.

10 'Youth magnet' cities hit midlife crisis, Conor Dougherty, The Wall Street Journal, May 16, 2009.

11 American Community Survey, U.S. Census Bureau, 2006.

12 'Youth magnet' cities hit midlife crisis, Conor Dougherty, The Wall Street Journal, May 16, 2009.

Volatile energy costs and peak oil

No one can be sure, but most experts agree that we are approaching the "peak" in worldwide oil and natural gas production where demand exceeds supply, leading to rapid price increases. Fluctuating energy prices are creating pressure to reduce our consumption of fossil fuels and make rapid changes and investments in our transportation system. The sudden energy cost increases could dramatically shift how people travel.

Crude oil prices averaged about $15 per barrel from 1986 to 1999 and about $25 per barrel from 2000 to 2003. Prices climbed to almost $37 per barrel in 2004 and to $51 per barrel in 2005; from 2000 to 2005, crude oil prices rose an average of 14 percent annually.[1] The average price for 2008 was nearly $100 per barrel.[2]

Eighty-five percent of all petroleum is used for transportation, and 95 percent of energy used for transportation in Oregon is oil. Peak oil has direct, major implications for the movement of freight and people to, from and within our region. According to the City of Portland Peak Oil Task Force, automobile use will decline in favor of alternative transportation as oil prices increase in response to lack of supply. The region may have seen a preview of this with recent gas price spikes: between July 2007 and July 2008, the number of daily transit riders increased by more than 13 percent, likely in response to gasoline prices that topped $4 per gallon.[3]

1 *Descending the oil peak: navigating the transition from oil and natural gas, City of Portland Peak Oil Task Force, March 2007.*

2 *Short-term energy and summer fuels outlook, Energy Information Administration, U.S. Department of Energy, April 2009.*

3 *Choices: Transporation investment scenarios, Metro, November 2008.*

investment ($30 million).[13] Additionally, transit has been shown to produce a high net return on investment (4- or 5-to-1).[14] The Portland metro high capacity transit system has been shown to create jobs through construction and long-term development, including more than 50 new businesses that opened along the most recent line, Interstate MAX, since construction.

Vibrant communities

High capacity transit is an important tool for building vibrant, walkable and affordable communities. Transit-oriented developments are large- or small-scale developments organized to take advantage of high quality transit service. A survey of four transit-oriented developments in the Portland metro region, Orenco/Northwest 231st Avenue Station, Elmonica/Southwest 170th Avenue Station, Beaverton Central and The Merrick/Convention Center MAX, demonstrated the power of this development approach to increase transit ridership; 23 to 33 percent of residents take transit to work or school, and 15 percent of riders are 65 years old or older.[15] In the San Francisco Bay Area Rapid Transit discovered that transit-oriented development was one of the most cost-effective ways to reduce greenhouse gas emissions.[16]

A key component of the successful pairing of vibrant communities with high capacity transit is pedestrian connections. Nearly all transit riders are pedestrians at one end of their trip.

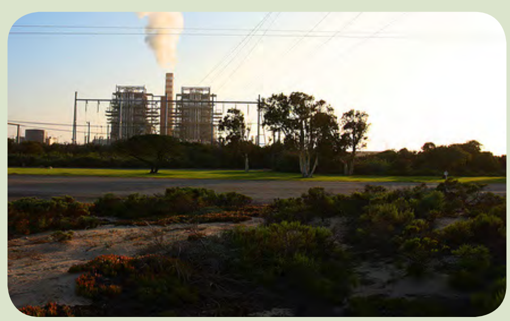
Environmental health

Transit supports environmental health. Alternative transportation allows for more compact development that preserves the natural environment and agricultural land, reduces air pollution and is more energy efficient. Transportation activities are the second largest source of greenhouse gases in Oregon, accounting for approximately 34 percent of the state's carbon dioxide emissions. The Governor's

Climate change

Accordining to the University of Washington's Climate Impacts Group (2009), the Pacific Northwest will have average annual temperature increases of 2.2° F by the 2020s, 3.5° F by the 2040s and 5.9° F by the 2080s in comparison with the average annual temperatures from 1970 to 1999. In Oregon, the average snowpack has declined by 30 percent, and the spring runoff is happening sooner. Probable impacts of climate change in the Pacific Northwest include warmer temperatures, wetter winters and drier summers.[1]

Much of the change in the climate is attributed to greenhouse gas emissions, and as much as 35 percent of greenhouse gas emissions in Oregon are related to transportation. Many cities and regions around the world, including the Portland metro region, are actively working to minimize these emissions. As one of five states participating in the Western Climate Initiative, Oregon aims to reduce greenhouse gas emissions 15 percent below 2005 levels by 2020. Transit could play a key role in reducing regional greenhouse emissions, but the system has to have the capacity to meet these goals. (See the section on high capacity transit's role in reducing carbon emmissions, page 76).



1 *A framework for addressing rapid climate change, final report to the governor, The Governor's Climate Change Integration Group, State of Oregon, January 2008.*

13 Public Transportation and the nation's economy: a quantitative analysis of public transportation's economic impact, Cambridge Systematics, Inc., October 1999.

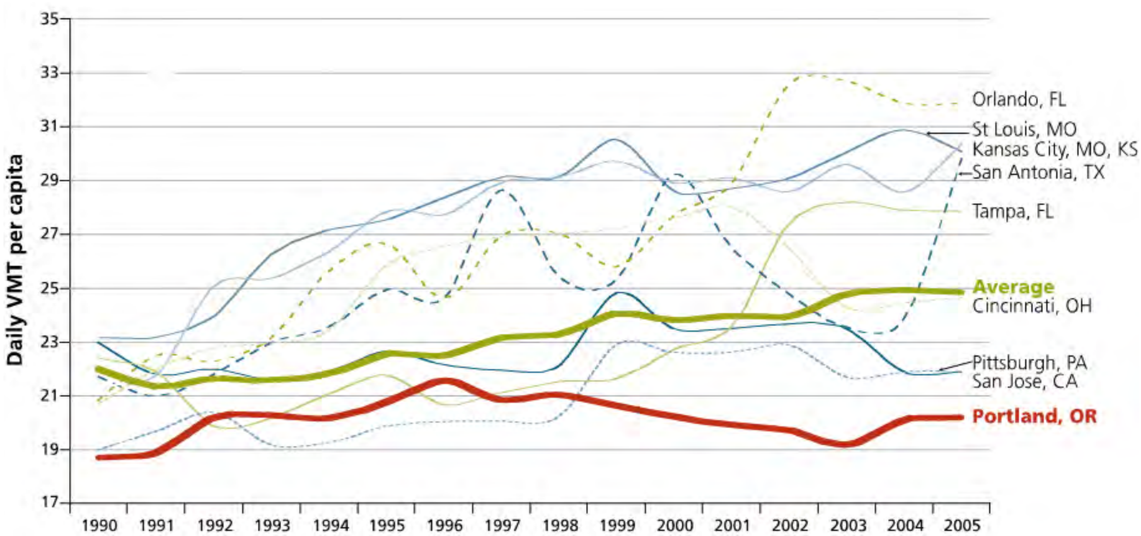
14 Dollars and sense: the economic case for public transportation in America, Donald H. Camph, July 1997.

15 Travel and transit use at Portland area TODs, Jennifer Dill, May 2006.

16 BART action to reduce greenhouse gas emissions: a cost-effectiveness analysis, Nelson\Nygaard Consulting Associates, December 2008.

Climate Change Integration Group stated that reducing vehicle miles traveled, the number of miles that residential vehicles are driven, is the “single most effective way to reduce greenhouse gas emissions.”[17] As noted in Figure 1.3, the Portland area has fewer vehicle miles traveled compared to other metropolitan areas with similar populations.

Figure 1.3: Vehicle miles traveled comparison[18]



Transportation choices

A high capacity transit system that is fast, reliable and convenient provides individuals with transportation choices. The complete high capacity transit system facilitates access by bicycling, walking and transit to provide an integrated system of travel options. High quality transit in exclusive right of way helps ease congestion. Traffic congestion growth rates have actually been shown to decline in several U.S. cities after the establishment of light rail service.[19] Additionally, per capita congestion delay is significantly lower in cities with high quality rail transit systems than in otherwise comparable cities with little or no rail service.[20]

High capacity transit allows travelers a choice to avoid traffic congestion. TriMet calculates that the westside MAX Blue Line alone carries the equivalent of an additional 1.2 lanes of car traffic each direction on the Sunset Highway. In fact, MAX carries 26 percent of afternoon rush-hour commuters traveling on the Sunset Highway and Banfield Freeway corridors.[21]

Equity

High capacity transit offers access for individuals of all income levels and special needs residents of the region, including seniors and people with disabilities. Public transportation also serves the economically disadvantaged throughout the region by connecting low-income individuals to employment areas and related social services. The average cost of a public transit trip is substantially less than the average auto trip cost.

17 A framework for addressing rapid climate change, final report to the governor, The Governor’s Climate Change Integration Group, State of Oregon, January 2008.

18 The average shown is for the 25 U.S. urban areas with the exception of Portland that have 2005 populations of one million to three million residents. Source: Highway Statistics, Table IM-72, Urban areas – selected characteristics, 1990-2005, U.S. Federal Highway Administration.

19 Comprehensive evaluation of rail transit benefits, Todd Litman, Victoria Transport Policy Institute, June 2006.

20 *Ibid.*

21 Facts about TriMet, TriMet, October 2008..

Fiscal stewardship

When paired with supportive land use, pedestrian connections and growth potential, high capacity transit capital investments can serve more people for fewer operating funds. Despite its high capital cost, high capacity transit can be more efficient and, therefore, fiscally responsible. In a recent exercise, projecting ridership to 2035 as part of the analyses supporting the development of the RTP, 26 miles of light rail transit was compared to 148 miles of new, expanded frequent bus. Although the two were allocated the same operating costs, the light rail transit was projected to have average weekday boardings of 37,000 and the frequent bus had average weekday boardings of 29,000.[22] Rail transit often attracts more choice riders than buses, in part due to its reliability, speed, comfort and integration with land use. When similar sized U.S. cities were compared, those with bus and rail systems and those with bus only systems fared differently over the period from 1996 to 2003. Over this period, bus and rail cities saw transit ridership grow 16 percent compared with 1.7 percent in bus only cities.[23] As of 2003, bus and rail cities experienced 74 percent less in operating and maintenance costs per passenger mile than bus only cities.[24]

Historically, high capacity transit projects have been built using a combination of capital funds from federal, state and local governments and some private sources. The federal support for capital development means that the region has historically paid only a minor share of capital projects out of local funds. This federal support would have otherwise gone to other transit projects in other parts of the country so these projects have offered a good value for local tax payers.

Figure 1.4: Historical regional light rail project funding shares[25]

	FTA *New Starts	TriMet	State of Oregon	FHWA Flex Funds	Local
Banfield light rail and Highway		33%	21%	45%	1%
Eastside light rail	65%	17%	14%	2%	1%
Airport light rail		22%		14%	64%
Interstate light rail	74%	11%		7%	9%
Clackamas light rail/Portland Mall	60%	5%	4%	11%	19%
WES commuter rail	37%	19%	22%	8%	14%
AVERAGE TOTAL	53%	17%	9%	12%	10%

22 Comprehensive evaluation of rail transit benefits, Todd Litman, Victoria Transport Policy Institute, June 2006.
23 *Ibid.*
24 *Ibid.*
25 TriMet, 2009.

PUBLIC INVOLVEMENT

The last broad-based, region-wide consideration of high capacity transit's role in regional planning dates back to 1982, with some adjustments in later RTP processes, notably the 2000 RTP update, though extensive planning, analysis, and public involvement have surrounded each project. The development of the Regional High Capacity Transit System Plan offered a valuable opportunity to gauge the public's vision for high capacity transit growth and development. Public input was requested during each phase of the process: the identification of corridors to evaluate, the development of evaluation framework and the evaluation and prioritization of corridors.

During the summer of 2008, feedback from residents, businesses, community organizations and elected officials identified 192 potential connections in about 55 corridors around the regions. The more than 50 stakeholders that participated included business and community leaders, transportation and transit providers, safety and security experts, developers, economic development professionals, social service and nonprofit organizations, environmental groups and elected officials. In addition, over 100 attendees contributed at the four workshops, farmers' markets and community events, and 200 people completed the online questionnaire.

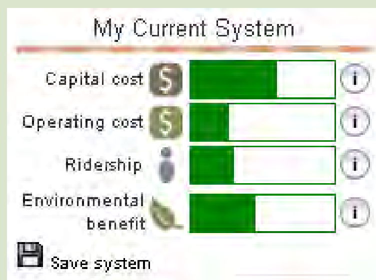
During the winter of 2009, the values collected during public involvement efforts were incorporated into the screening criteria. Staff presented the criteria to 31 existing community groups and to Metro advisory committees. In response, 115 community members, planning staff and elected officials completed a questionnaire about the evaluation framework.

In spring 2009, Metro shared evaluation results with the public to begin discussing trade-offs, choices and priorities using an interactive web site build-a-system tool and online survey and public outreach events. The online survey was completed by 657 people, and the web site was viewed by 4,256 people.

Build-a-system tool

To understand community values related to prioritization of high capacity transit corridors, an online build-a-system tool allowed community members to explore trade-offs between corridors and build their own high capacity transit system.

With the build-a-system tool, community members learned about centers that could be served by high capacity transit and to compare corridors based on ridership, travel time, operations cost, capital cost and environmental benefits.



Participants were able to add corridors to their system until they reached a budget cap that approximated the funding that might be available for new high capacity transit in the next 25 to 30 years. Participants could see the total benefits and cost of their system and compare the benefits and costs between systems that they had created. Finally, participants could submit their favorite system to Metro and complete the online questionnaire. The tool and questionnaire were featured in several news articles.

The preparation of the HCT plan included a robust public involvement program that sought to:

- provide an open and transparent decision-making process conducted through equitable and constructive public discussion and input
- provide early and ongoing opportunities for stakeholders to raise issues and concerns
- proactively inform and engage a wide range of stakeholders in the decision-making process
- build widespread community understanding of findings and decisions
- encourage the participation of all stakeholders regardless of race, ethnicity, age, disability, income or primary language.

For detailed reports on these outreach efforts, see the Regional High Capacity Transit System Plan Public Involvement Outreach Summary (Metro, May 2009).

Themes resulting from outreach efforts

In addition to the specific input on the identification of corridors, the evaluation framework, and the evaluation and prioritization, staff collected overarching themes and policy level public comment. Some of the themes staff heard over the year-long process were access, service and speed, safety and security and connecting HCT to land use.

In general, the public expressed interest in:

- serving employment areas and major institutions, shopping areas and activity centers in addition to regional centers
- integrating stations into surrounding communities and linking stations to communities with bike facilities, pedestrian facilities and local transit service
- connecting land use to public transportation to create compact commercial, residential and mixed-use development to support transit ridership
- connecting suburbs to suburbs and faster service through downtown Portland
- improving access for transit-dependent groups such as low income or elderly populations
- increasing safety and security on transit vehicles, at stations and at crossings

Public outreach

The Regional High Capacity Transit System Plan gained valuable information about regional values through its robust public outreach process. The outreach included:

summer 2008

- ✓ interviews with 50 stakeholder groups
- ✓ four workshops with 100 attendees
- ✓ presentations at farmers' markets and events
- ✓ online questionnaire with 200 participants

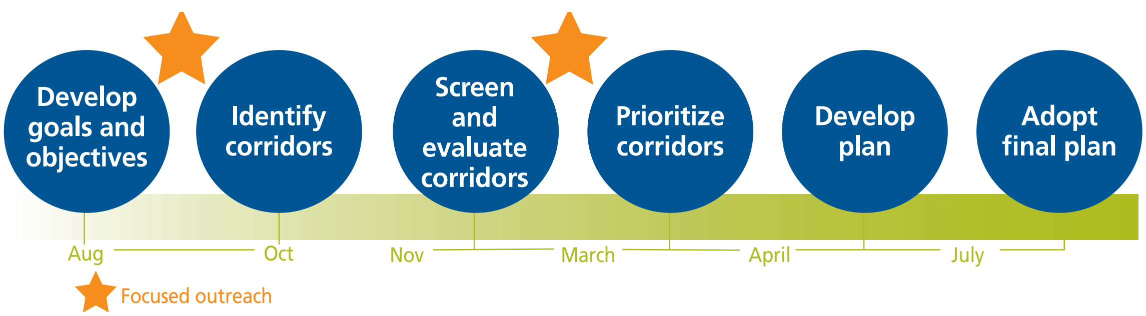
winter 2008 and spring 2009

- ✓ presentations to 31 groups
- ✓ a questionnaire with 115 participants of community members, planning staff and elected officials
- ✓ the build-a-system tool with 657 survey participants and 4,256 website visits.

- increasing budget and funding sources for high capacity transit
- filling in gaps and serving areas that are not served with high capacity transit today
- reducing congestion on roadways by reducing auto dependence and providing reliable transit with travel times that are competitive with driving
- supporting development or redevelopment in the region
- providing better transit service and existing system improvements in the city of Portland and other urbanized areas to reduce pressure to develop new areas.

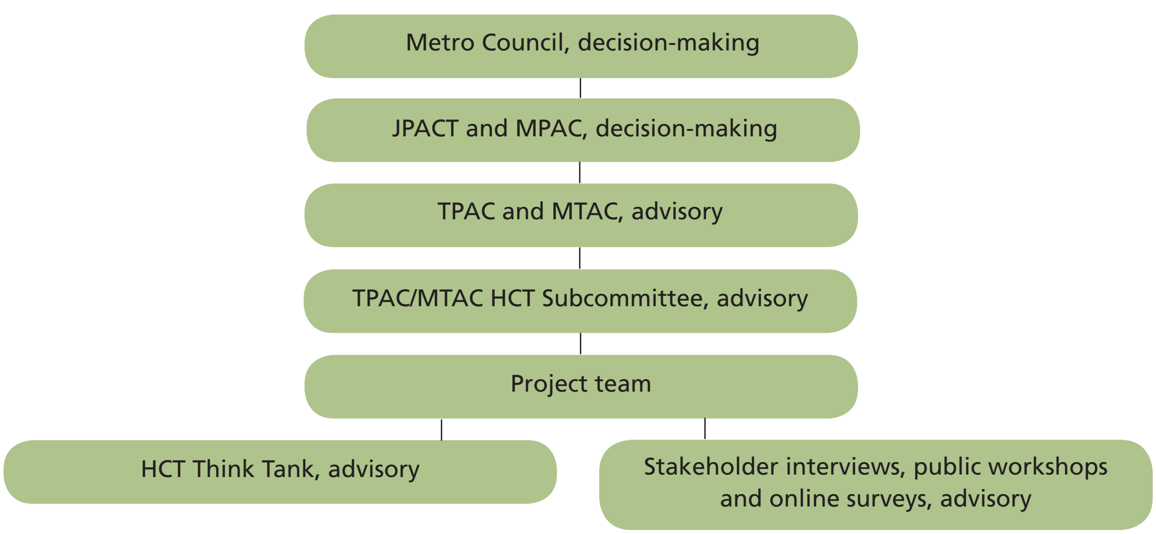
For individual reports on these outreach results, see the High Capacity Transit System Plan public involvement outreach summary (Metro, May 2009).

Figure 1.5: Project schedule of key decision points and focused outreach, August 2008 to July 2009



DECISION-MAKING

Figure 1.6: Decision-making process



The decision-making process for the High Capacity Transit System Plan was framed within existing Metro advisory committees. The High Capacity Transit Subcommittee was comprised of 18 representatives from the Metro Technical Advisory Committee and the Transportation Policy Alternatives Committee or the designees of the members. The subcommittee was charged with reviewing public input and technical analysis to provide guidance and consensus-based recommendations that reflected the interests and priorities of local jurisdictions through the High Capacity Transit System Plan process. The subcommittee provided ongoing guidance to the project and formal consensus-based recommendations to MTAC and TPAC at key decision points such as the identification of alternatives, development of an evaluation framework and prioritization of alternatives. MTAC and TPAC then made formal recommendations to the Metro Policy Advisory Committee, the Joint Policy Advisory Committee on Transportation and the Metro Council.

HCT Think Tank

The Portland area has historically been a center of activity for discussion of progressive approaches to land use, transportation and the integration of these in achieving quality communities with vibrant economies. As a result, the region has produced some of today's leading thinkers and practitioners on these subjects. The High Capacity Transit Think Tank was intended to bring together a cross section of these experts and activists at major milestones to ensure the Regional High Capacity Transit System Plan considered and benefited from this body of knowledge and experience. The group was not intended to embody a full representation of the community, but rather a cross section of specialized knowledge and interests.

The HCT Think Tank raised several crucial themes and questions to consider as part of the vision for high capacity transit within the region.

- ✓ Consider Portland's history in moving forward and be true to the region's values.
- ✓ Use high capacity transit as a tool for placemaking and regionmaking.
- ✓ Reinforce the concept of 20-minute neighborhoods within the region on a local level.
- ✓ Use high capacity transit to link residents to the global society.
- ✓ Balance the tension between the present in individual terms and the future in community and collective terms.
- ✓ Consider all existing rights of way as "land banking" for the transit system.
- ✓ Promote federal policy changes to level the playing field for federal transportation funding in favor of transit.
- ✓ Look beyond the norm and shift cultural expectations in order to serve and balance the needs of diverse constituencies.
- ✓ Create a complete, integrated system that includes pedestrians, bicycles and bus.
- ✓ Reinforce redundancies and diversity in the transit network for disasters.

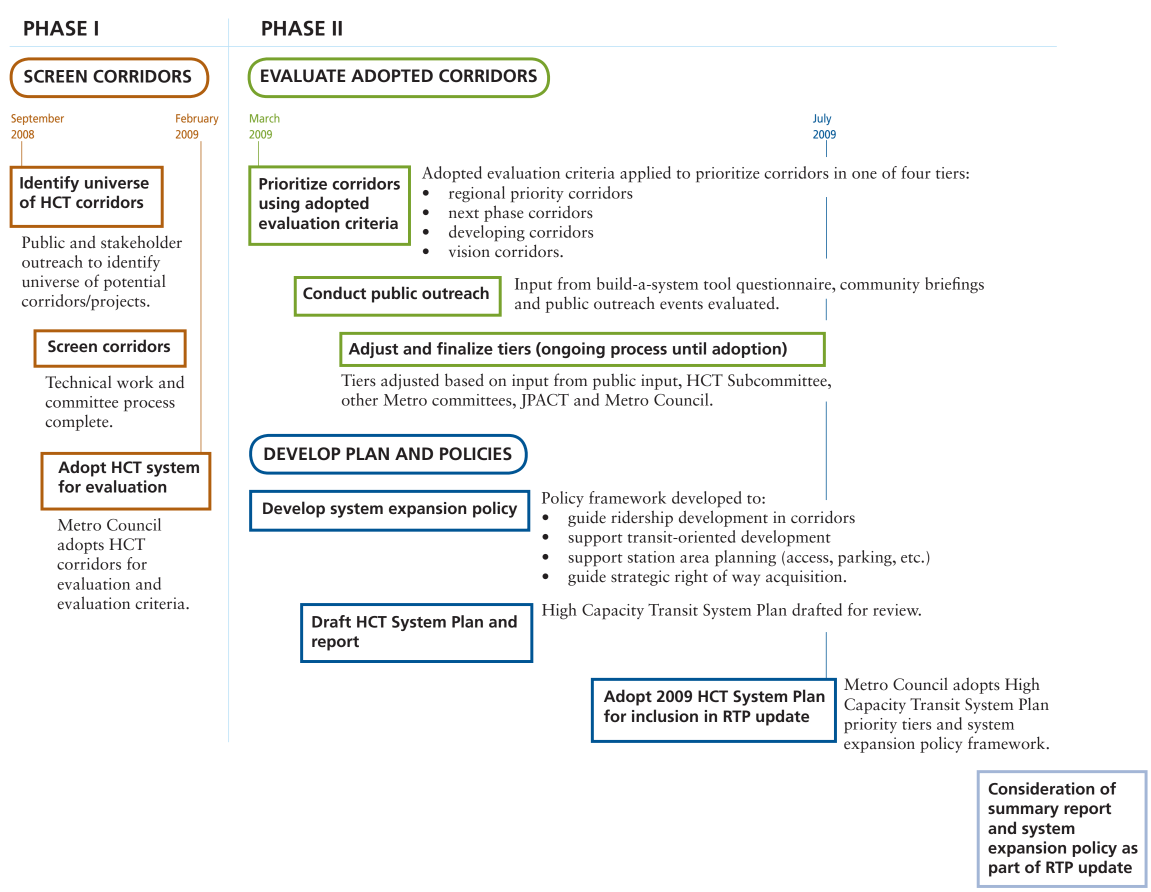
2. HIGH CAPACITY TRANSIT CORRIDOR PRIORITIZATION AND ADVANCEMENT

Metro is working with local partners to define how regional and local aspirations come together to create vibrant, healthy and sustainable communities. This effort is called, "Making the Greatest Place", and the HCT plan is one component of this effort. The challenges of climate change, rising energy costs, economic globalization, aging infrastructure and population growth require regional land use and transportation decisions to be supported by local decisions and actions. Much of the region remains auto dependent due to the relatively low level of transit supportive land use outside major urban centers. The Regional High Capacity Transit System Plan used an extensive evaluation process to identify regional priorities for high capacity transit investment over the long-term (30 years) and in the near-term (next 4 years).

SUPPORT OF METRO VISION AND RTP GOALS, PERFORMANCE MEASURES

HCT system capital investments must be recognized as an element of a much broader corridor strategy that includes supportive land use and transit-oriented development, comprehensive parking programs, well developed access systems for pedestrians and cyclists, park and rides and feeder bus networks.

Figure 2.1: Regional HCT System Plan process diagram

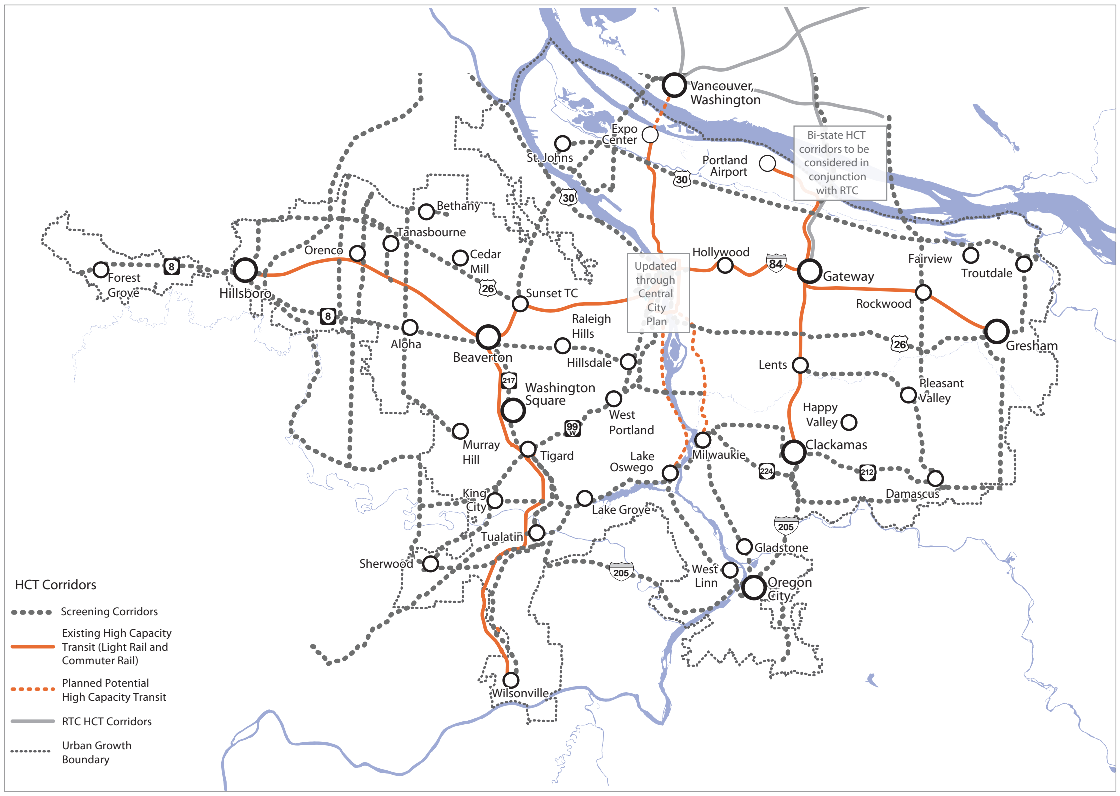


EVALUATION METHODOLOGY

Phase one: Identification of corridors and development of screening criteria

Public workshops, stakeholder interviews and review of numerous past regional transit planning efforts were considered in developing a “long list” of potential regional HCT corridors to be studied. At the completion of this work, the universe of potential corridors totaled 55, as shown in Figure 2.2.

Figure 2.2: Universe of corridors for screening evaluation



The intent of the screening was to eliminate corridors that could not reasonably support an HCT investment in the next 30 years; however, some corridors where projected 2035 land uses are not supportive of HCT were retained for other reasons, such as demonstrated local aspirations to meet transit-supportive land use requirements. An early phase evaluation was applied to reduce the list of potential corridors, so more intensive evaluation of the best candidate corridors could be completed.

Eight criteria were used to screen the corridors:

- ridership
- corridor availability and cost
- environmental constraints
- equity
- connectivity and system benefit
- congestion
- 2040 Growth Concept land use
- origins and destinations transit demand.

A set of 18 high capacity transit corridors was identified and adopted for evaluation and prioritization by the Metro Council on Feb. 12, 2009 (Figure 2.3). Additionally, two central city service improvement projects, a tunnel through downtown Portland and an eastside connector, were evaluated separately from the other corridors. Potential corridor extension to neighboring cities were also evaluated separately, as discussed later in this report.

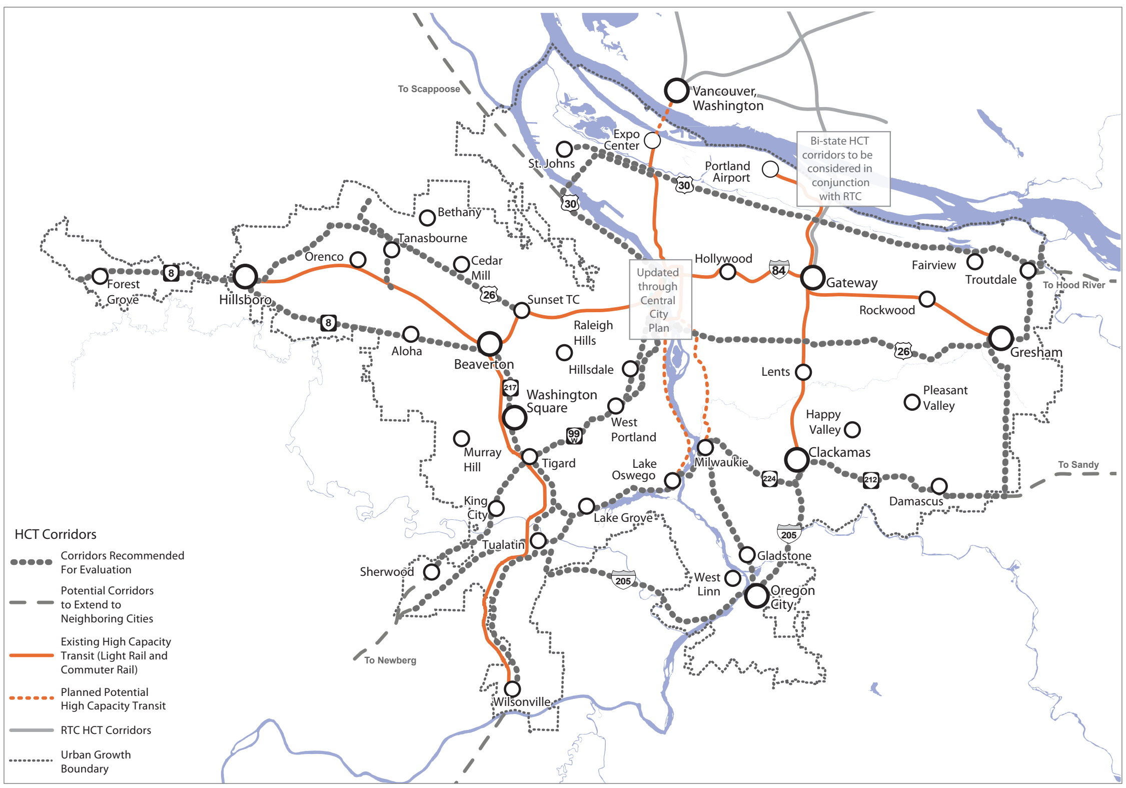


Figure 2.3: Corridors advanced for detailed evaluation and prioritization

For details on the screening process, see the Regional High Capacity Transit System Plan final screening results memo (Nelson\Nygaard, February 2009).

Phase two: Detailed evaluation of adopted corridors

In the fall of 2008 and early 2009, Metro worked with local jurisdictions and regional partners, including TriMet, to develop and refine a set of evaluation criteria to be used to evaluate and prioritize the screened HCT corridors. The evaluation criteria were organized using a multiple account evaluation approach.

This approach is consistent with the Regional Transportation Plan outcomes-based evaluation approach, in which three areas of benefit are stressed: community, environment and economy. Additionally, a deliverability account was added to determine a corridor's near-term readiness.

Within each category, several measures were used to assess near-term and long-term benefits and impacts of implemented HCT investments. Figure 2.4 presents how the process was aligned with the RTP evaluation approach.

Multiple account evaluation

The multiple account evaluation approach was adapted and refined from a standardized methodology employed in the United Kingdom for evaluation of major transportation projects. This approach, called the new approach to appraisal, is a multi-criteria decision analysis based tool that builds on already well established cost-benefit analysis and environmental impact assessment techniques.

The multiple account evaluation approach was chosen for the HCT System Plan because of its ability to provide decision-makers with data in a number of key areas, allowing them to assess the cost and benefits of proposed HCT investments. The process also aligned closely with the Regional Transportation Plan framework, which ensured consensus among regional partners.

Figure 2.4: 2035 RTP evaluation approach and deliverability

The evaluation approach aligns specific HCT plan recommendations with the hierarchy of regional planning objectives.

- 2040 Growth Concept (vision)
- 2035 Regional Transportation Plan (implementing the 2040 Growth Concept)
- Regional High Capacity Transit Plan (supporting RTP Goals)

Figure 2.5 summarizes the specific criteria under each account: community, environment, economy and deliverability. For more detailed descriptions of these criteria, see the Regional High Capacity Transit System Plan detailed evaluation report (Nelson\Nygaard, third draft, April 2009).

Figure 2.5: High Capacity Transity System Plan evaluation criteria

	Community
C1	Supportiveness of existing land uses
C2	Local aspirations
C3	Placemaking and urban form
C4	Ridership generators
C5	Support of regional 2040 Growth Concept
C6	Integration with regional transit system
C7	Integration with other land uses*
C8	Congestion avoidance benefit**
C9	Equity benefit
C10	Health (promotion of physical activity)**
C11	Safety and security***
C12	Housing and transportation benefit
C13	Transportation efficiency or travel time benefit to individual user**
C14	Transportation efficiency or travel time benefit to all corridor users**
	Environment
EN1	Reduction in emmissions and disturbance**
EN2	Risk of natural resources disturbance
EN3	Risk of 4(f) resource disturbance***
	Economy
EC1	Transportation efficiency (operating cost per rider)**
EC2	Transportation efficiency annual capital and operating cost per rider)**
EC3	Employment served
EC4	Vacant and rebuilding/redevelopment land
	Deliverability
D1	Total project capital cost (exclusive and nonexclusive right of way options)
D2	Capital cost per mile (exclusive and nonexclusive right of way options)
D3	Operating and maintenance cost**
D4	Total corridor ridership**
D5	Funding potential**

** Addressed through the mobility corridors work in coordination with Oregon Department of Transportation*
*** Criteria which are evaluated, at least in part, using regional travel demand outputs*
****Discussed later in this report*

It should be noted that two criteria, safety & security and risk of 4(f) resource disturbance, were not evaluated at the corridor level because the results would not show a difference between the corridors at this level of analysis. Issues related to these two criteria would be addressed through alignment alternatives studies and design solutions. Another criterion, integration with other road uses, was deferred to the regional mobility corridor process being undertaken by Metro in support of the RTP update. A discussion of issues relating to these criteria is provided in the best practices for building great communities with transit at the center section of this report (page 49).

Using the adopted evaluation criteria, a detailed evaluation was conducted on the 18 corridors. For each corridor, the criteria were either quantitatively or qualitatively applied or given an assessment using a scale between significant benefit to significant constraint or adverse impact.

Where quantitative data was available as part of a criterion evaluation, natural data breaks were employed in the scoring process. Where possible, criteria were rated against a baseline or reference case (in this case, the RTP 2035 reference case) and criteria scoring for all corridors were shown as either having a beneficial or adverse impact, as shown in Figure 2.6.

Figure 2.6: Criteria scoring method

Assessment	Natural data break	Rating
Significant benefit	4th	3
Moderate benefit	3rd	2
Slight benefit	2nd	1
Neutral	1st	0
Slight constraint/adverse impact	2nd	-1
Moderate constraint/adverse impact	3rd	-2
Significant constraint/adverse impact	4th	-3

Note: For most criteria with quantitative evaluation outputs, four natural data breaks were applied indicating the level of benefit or constraint – from neutral to significant benefit. In all cases, the first break was considered to fall close to neutral and was indicated as such. For several of the criteria, it was determined that the corridors needed to be scored using the full range of impacts – from significantly adverse to significant benefit – in which case seven natural breaks were used.

The technical evaluation was documented and presented to the HCT Subcommittee for review and consideration. After considering several options for balancing evaluation criteria, the subcommittee determined that an equal weighting of all adopted criteria was the best determinant of project prioritization and was most reflective of public input, RTP goals and the 2040 Growth Concept vision.

Local aspirations workshops

Making a vision a reality is not a simple task. Metro initiated a local aspirations process to help each community establish its own voice as the region prepares for regional growth management and transportation systems decisions in 2009 and 2010.

These decisions include the identification of transportation investment priorities and how to best accommodate the next 20 to 50 years of population and employment growth. Over the long term, the aspirations of local communities to accommodate that growth will inform the deployment of Metro's technical and financial assistance to support communities in implementation of the 2040 Growth Concept, the region's blueprint for managing growth.

To inform these decisions and use regional investments wisely, Metro held four workshops to understand the aspirations of each unique community and engage in an ongoing dialogue with local partners to document community aspirations as related to high capacity transit.

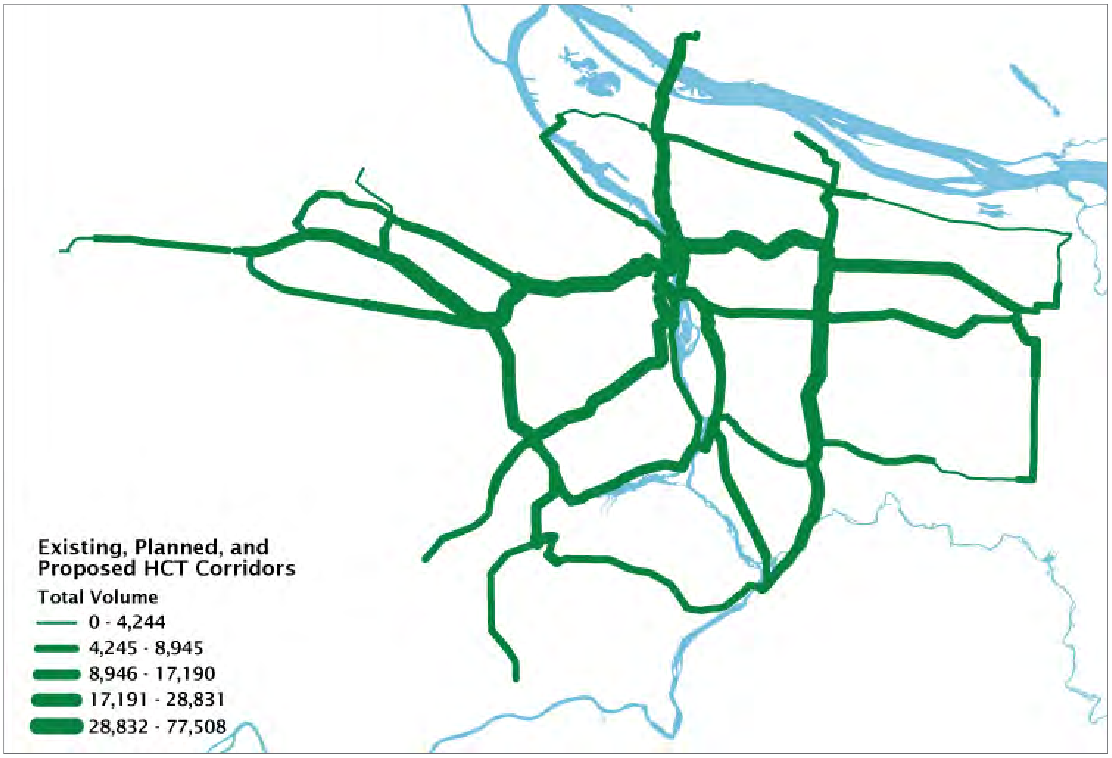
EVALUATION RESULTS AND ADVANCEMENT PROCESS

The Regional High Capacity Transit System Plan identifies near- and long-term regional HCT priorities. The system expansion policy component of the HCT plan provides a framework to advance future regional HCT corridors by setting targets and defining regional and local actions that will guide the selection and advancement of those projects.

All corridors were evaluated assuming light rail transit as the primary investment mode. This decision was made to simplify evaluation requirements and to ensure that all corridors were evaluated evenly. A more detailed analysis of each corridor is included in the Regional High Capacity Transit System Plan detailed evaluation report (Nelson\Nygaard, July 2009), including a discussion of other viable HCT modes. Ultimately, mode decisions will be made as corridors enter into the Federal Transit Administration Alternatives Analysis process. Corridor communities that wish to consider lower cost transit modes can use system expansion policy targets to assess whether a different mode could improve the priority ranking of their project (see system expansion policy framework section, page 25).

The full detail of the screening and corridor evaluation are included in technical reports available on Metro's web site at www.oregonmetro.gov. Highlights from these reports are summarized below.

Figure 2.7: Future transit ridership volumes for evaluated corridors



High capacity transit priority tiers

All corridors that were evaluated in detail are priority regional transportation corridors in which future high capacity transit could serve an important function. Certain corridors are much more viable in the near term. To distinguish near-term regional priorities from corridors that will need time to develop, a simple set of priority tiers was established. The set of near-term projects was constrained to two or three based on the region's history of project implementation. In the past 25 years, Metro and TriMet have taken on a major investment analysis about every three years. If regional policy makers were to choose to dedicate more resources toward HCT corridor evaluation and development, it could influence the number of HCT projects the region takes on over time and the speed of HCT system expansion. Metro and TriMet are constrained when it comes to working with the federal government to obtain funding for capital development. For example, obtaining funding through the Federal Transit Administration's New Starts grant process takes seven or eight years on average from initiation of a federal alternatives analysis to completion of a full funding grant agreement.

The Regional HCT System Plan recommends near-term regional priority corridors receive top priority for advancement to a federal alternatives analysis, federal funding and implementation. However, no corridor is guaranteed advancement, and every corridor has the opportunity for rapid advancement by meeting system expansion policy targets to be defined in the 2010 Regional Transportation Plan update.

Figure 2.8 summarizes the priority tiers and (with figures 2.9 to 12) shows which projects were ranked in each tier. Priority tiers will be updated each time the Regional Transportation Plan is updated or by amendment to the RTP.

Figure 2.8: Summary of HCT priority tiers

Tier	Tier description	Corridors* (not listed in order of performance)
Near-term regional priority corridors	Corridors that are most viable for implementation in next four years.	10 – Portland to Gresham in the vicinity of Powell corridor 11 – Portland to Sherwood in the vicinity of Barbur/Highway 99W corridor 34 – Beaverton to Wilsonville in the vicinity of WES**
Next phase regional priority corridors	Corridors where future HCT investment may be viable if recommended planning and policy actions are implemented.	8 – Clackamas Town Center to Oregon City in the vicinity of I-205 corridor 9 – Park Avenue to Oregon City in the vicinity of McLoughlin corridor (extension) 17 – Sunset Transit Center to Hillsboro in the vicinity Highway 26 corridor/ Evergreen 17D – Tanasbourne (extension) 28 – Clackamas Town Center to Washington Square in the vicinity of I-205/ Highway 217 corridors 29 – Clackamas Town Center to Washington Square in the vicinity of railroad right of way 32 – Beaverton to Hillsboro in the vicinity of TV Highway 55 – Gateway to Salmon Creek in the vicinity of I-205 corridor***
Developing regional priority corridors	Corridors where projected 2035 land use and commensurate ridership potential are not supportive of HCT implementation, but which have long-term potential due to political aspirations to create HCT supportive built form.	12 – Hillsboro to Forest Grove (extension) 13 – Gresham to Troutdale (extension)
Regional vision corridors	Corridors where projected 2035 land use and commensurate ridership potential are not supportive of HCT implementation.	13D – Troutdale to Damascus 16 – Clackamas Town Center to Damascus 38S – Sherwood to Tualatin

**Corridors presented in each tier are sorted by numeric order only; corridor numbers refer to identifications used in the scoring and evaluation processes.*

***Corridor 34: WES frequency improvements to 15-minute all day service are currently included in the state RTP financially constrained list of projects. The project as included in the RTP represents this level of improvement phased in over time, not construction as light rail as evaluated in the Regional HCT Plan technical evaluation.*

****Corridor 55 (Gateway to Salmon Creek) was selected as part of the Southwest Washington Regional Transportation Council HCT System Plan and was not ranked based on evaluation criteria used in this plan.*

Figure 2.9: Near-term regional priority corridors

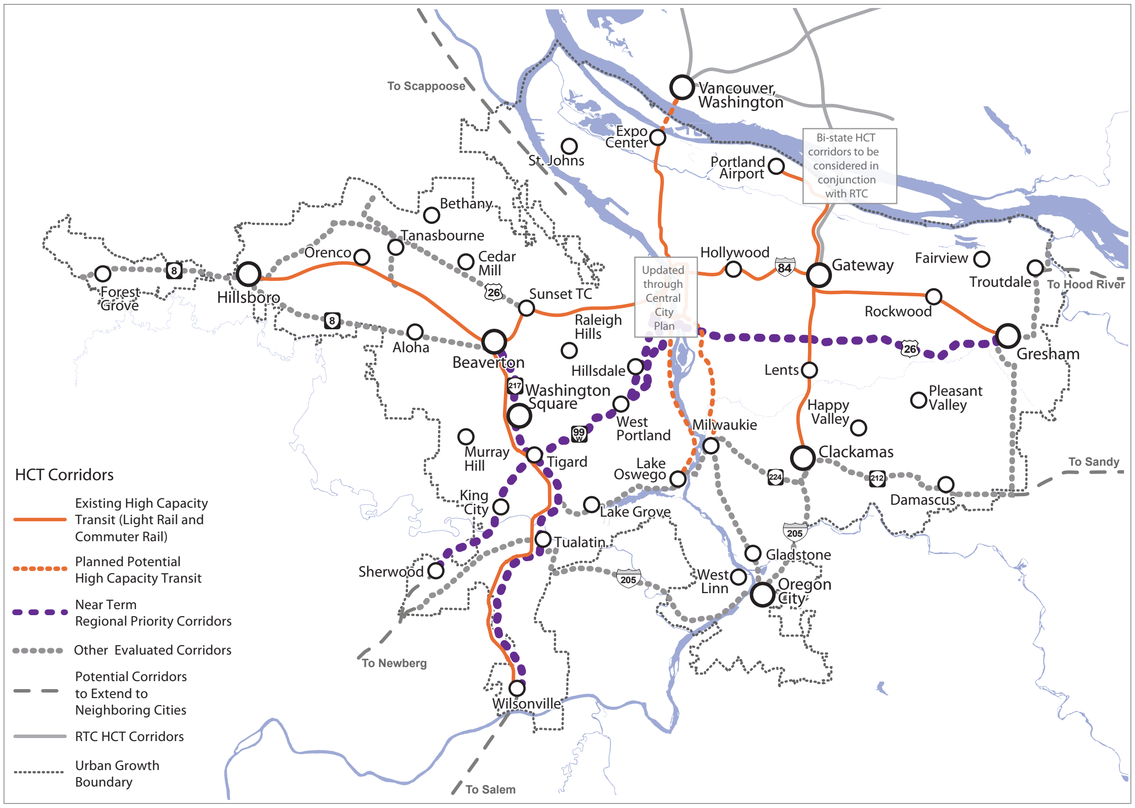


Figure 2.10: Next phase regional priority corridors

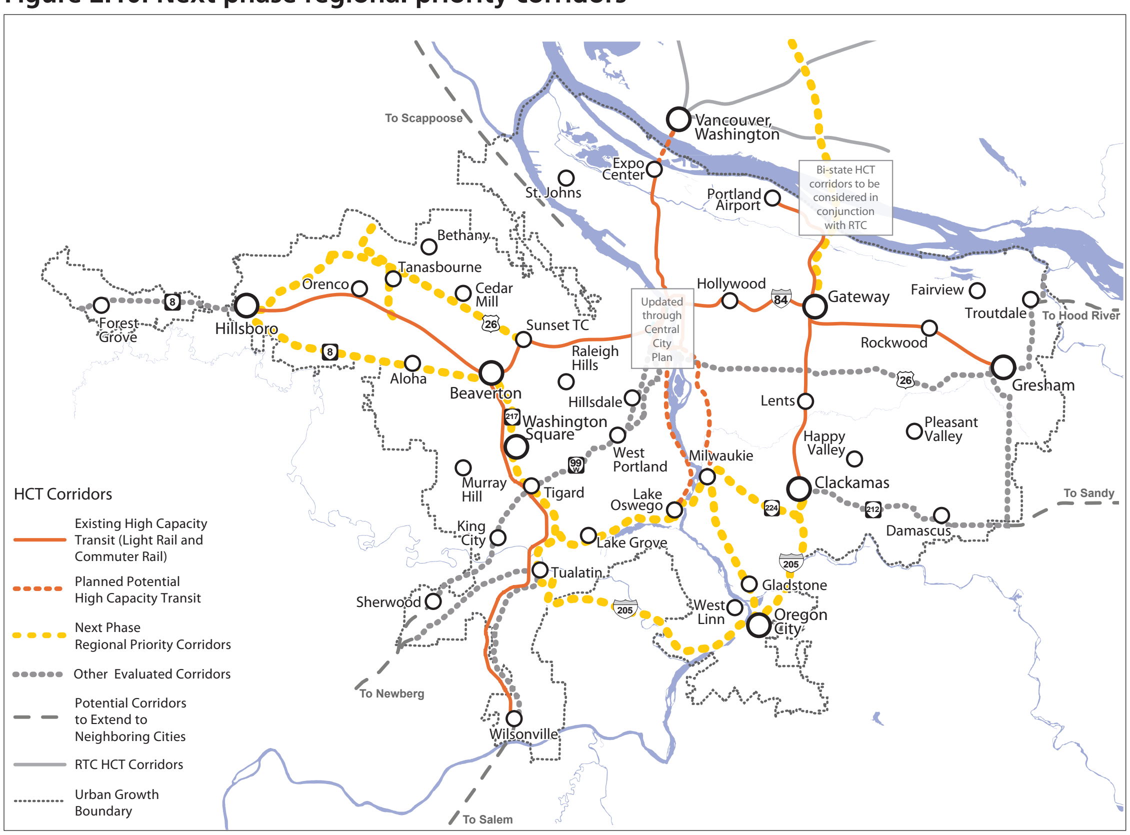


Figure 2.11: Developing regional priority corridors

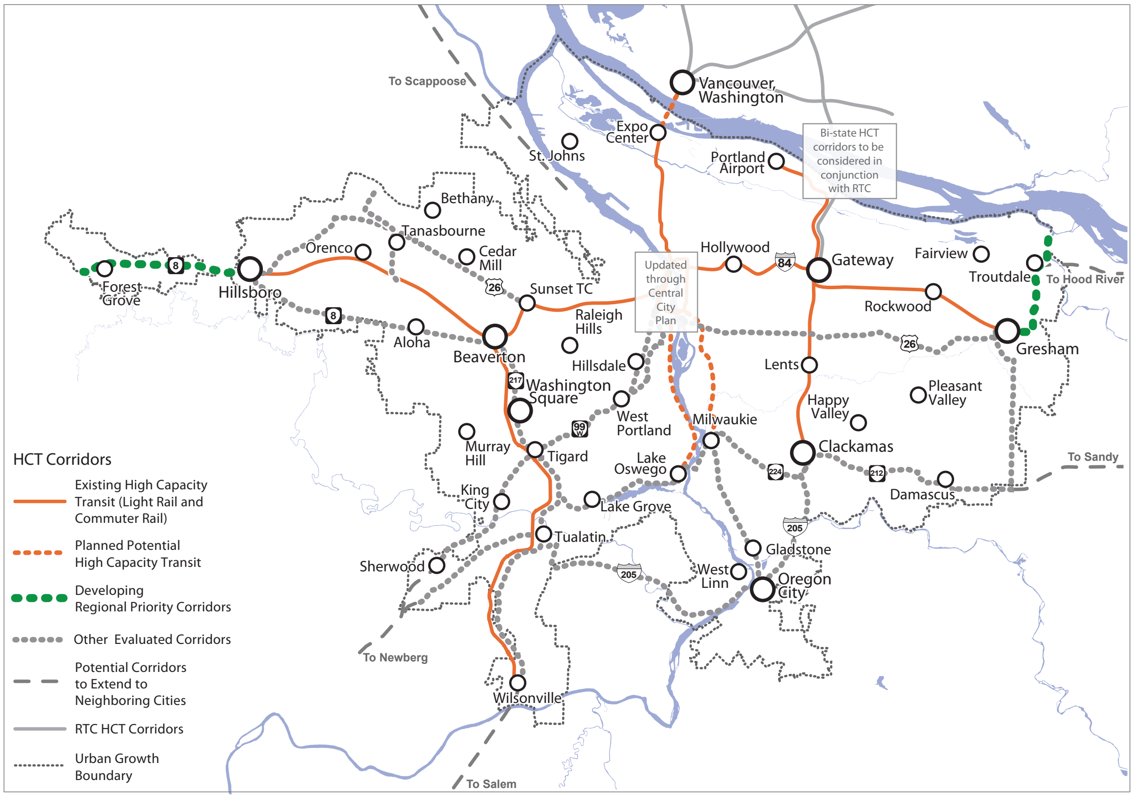
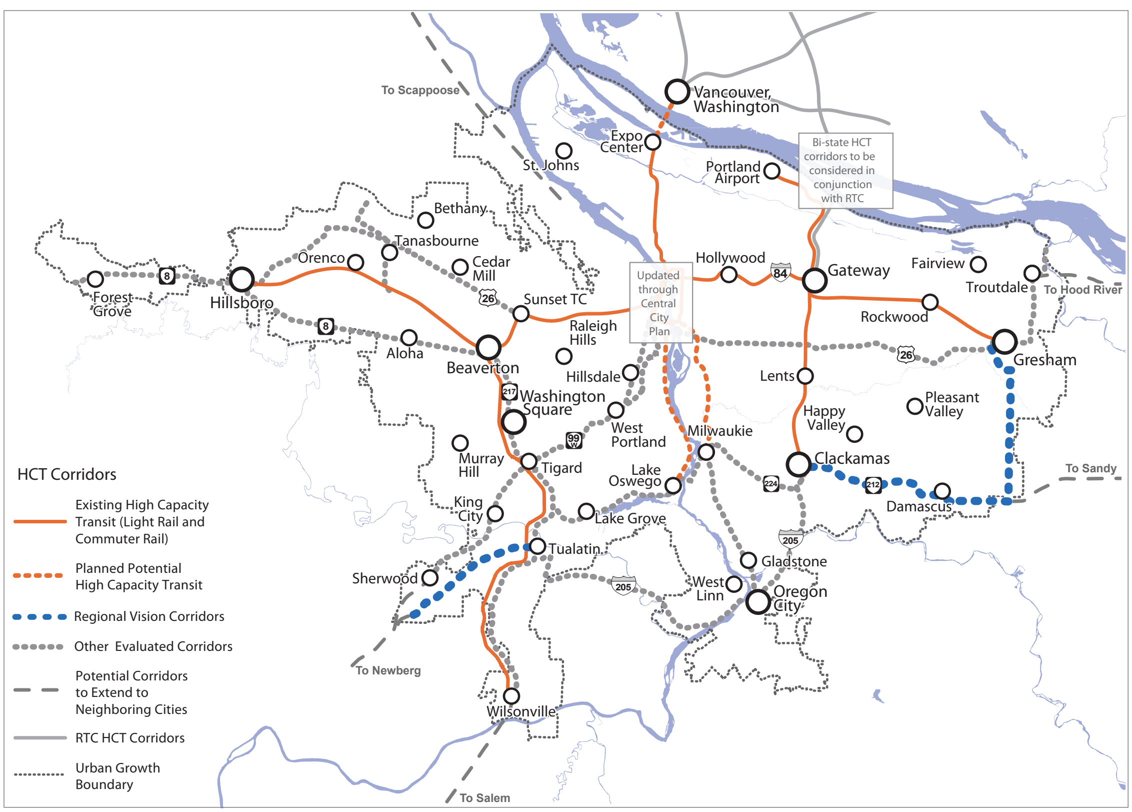


Figure 2.12: Regional vision corridors



"The Portland region is more fortunate than most. It has already defined a future vision by adopting the 2040 Growth Concept of compact, mixed-use development designed for walking and bicycling. Now it needs to support this ambitious vision with a transportation system that will make it work: a regional framework of light rail transit connected by frequent and reliable bus and streetcar service to smaller centers and neighborhoods, supported by safe and convenient facilities for pedestrians and bicyclists of all ages.

"The criteria for implementing this system needs to be not increased mobility or even reduced congestion, but the social and economic vitality of all of the region's communities. Therefore, the public's investment in transportation must further other regional goals. Light rail stations and transit centers must be located and designed to attract the stores, businesses, and housing that revitalizes and sustains neighborhoods. Public transit must connect residential areas and employment centers."*—Myron Orfield, "Portland Metropolitics," Coalition for a Livable Future, July 1998.*

SYSTEM EXPANSION POLICY FRAMEWORK

The system expansion policy framework is designed to provide a transparent process agreed to by Metro and local jurisdictions to advance high capacity transit projects through the tiers. The framework is based on a set of targets designed to measure corridor readiness to support a high capacity transit project.

The system expansion policy framework:

1. identifies which near-term regional priority corridors perform best in the analysis and therefore appear to be the best candidates to move into the federal project development process toward implementation
2. delineates a process by which potential HCT corridors can move closer to implementation, advancing from one tier to the next through a set of coordinated Metro and local jurisdiction actions.

Based on the tiered category, regional actions would be aligned with concurrent work in each corridor while local actions would focus on meeting HCT system expansion targets. In near-term corridors, formal corridor working groups would be established. Other corridors would coordinate work through existing processes.

Figure 2.13 illustrates the process for project advancement under the system expansion policy.

System expansion policy framework concepts

This section elaborates on terms used in Figure 2.13 to describe local actions, regional actions and targets proposed for HCT project advancement. The process for advancing projects and specific targets for project advancement will be refined as part of the Regional Transportation Plan update.

Figure 2.13: Local actions matrix

Tiers	Potential local actions	Potential regional support	Potential system expansion targets	Potential strategies
Near-term regional priority corridors	Develop corridor problem statement. Define corridor extent. Assess corridor against system expansion targets. Create ridership development, land use and TOD plans for centers and stations. Assess mode and function of HCT. Create multimodal station access and parking plans. Assess financial feasibility.	Create land use and TOD plans for centers and stations. Analyze station siting alternatives. Coordinate with MTIP priorities. Perform multi-modal transportation analysis. Create multimodal station access and parking plans. Start potential alternatives analysis.	Transit supportive land use/station context Community support Partnership/political leadership Regional transit network connectivity Housing needs supportiveness Financial capacity – capital and operating finance plans Integrated transportation system development	Corridor working group Existing land use and transportation working groups
Next phase regional priority corridors	Develop corridor problem statement. Define corridor extent. Assess corridor against system expansion targets. Create ridership development, land use and TOD plans for centers and stations. Assess mode and function of HCT.	Create land use and TOD plans for centers and stations. Analyze station siting alternatives. Coordinate with MTIP priorities.	Transit supportive land use/station context Community support Partnership/political leadership Regional transit network connectivity Housing needs supportiveness Financial capacity – capital and operating finance plans	Existing land use and transportation working groups
Developing regional priority corridors	Develop corridor problem statement. Define corridor extent. Assess corridor against expansion targets. Create ridership development, land use and TOD plans for centers and stations.	Create land use and TOD plans for centers and stations. Analyze station siting alternatives.	Transit supportive land use/station context Community support Partnership/political leadership Regional transit network connectivity	Existing land use and transportation working groups
Regional vision corridors	Develop corridor problem statement. Define corridor extent. Assess corridor against system expansion targets. Create ridership development, land use and TOD plans for centers and stations.	Create land use and TOD plans for centers and stations.	Transit supportive land use/station context Community support	Existing land use and transportation working groups

Local action descriptions

Local actions would be structured to help local jurisdictions move their project toward targets set for project advancement. Some or all of the following actions could be taken to advance a project, depending on the tier placement.

Develop corridor problem statement: The corridor problem statement defines the purpose of and establishes goals for the proposed HCT investment (i.e., congestion mitigation, economic development, etc.). It assesses the role of the project in addressing other regional transportation priorities and identifies opportunities for integration with other transportation system improvements in the corridor.

Define corridor extent: As in a federal alternatives analysis, the definition of corridor extent could encompass multiple alignment corridors or options.

Assess corridor against system expansion targets: Progress toward all system expansion targets for the current priority tier is identified.

Create ridership development, land use and transit-oriented development plans for centers and stations: Assessment of potential future ridership based on current land use projections, identified station areas and local zoning. This might involve demand modeling, but could effectively use Transit Orientation Index (TOI) scores within one-half mile of identified station areas. A ridership development plan could include assessment of TOI score, residential density, employment density, potential cost-effectiveness and transit supportive land uses (zoning and station typology aspirations).

Assess mode and function of HCT: The HCT modes that are most relevant for meeting the primary function of a corridor's problem statement are defined. Selection of a lower cost mode could improve the corridor's ability to meet targets.

Create multimodal station access and parking plan: The station access plan would ensure that station designs optimize opportunities for intermodal connections and transit-oriented development by planning for an urban block pattern. The parking management plan would help local jurisdictions develop transit-supportive parking policies that include development of potential parking districts. It could also establish maximum parking requirements, pay-for-parking, park and ride development and management plans, and other parking code changes such as unbundling parking for new development.

Assess financial feasibility: Financial feasibility of the region to advance an HCT project is examined. The analysis would consider and propose incentives to finance existing and future infrastructure improvements, using tools such as system development charge credits, tax abatement, improvement districts and tax increment financing.

Regional support descriptions

Regional support will be necessary to advance any corridor. Regional actions may already be in place, such as work coordinated through the transportation system plans; however, specific regional actions to support HCT project advancement would vary based on the tier.

Create land use and transit-oriented development plans for station areas: Land use and transit-oriented development plans for corridors would be reviewed for local areas to ensure that station areas within a defined corridor extent can meet defined targets for ridership and transit supportive land use.

Analyze station siting alternatives: Locations of stations are critical to the success of the HCT system. Metro has advanced tools to work in tandem with locals to assess the trade-offs between potential station areas.

Coordinate with Metropolitan Transportation Improvement Program priorities: HCT investments should align with regional priorities for transportation and land use investments. MTIP prioritization would support development or preparation of a corridor as an HCT project.

Perform multi-modal transportation analysis: Metro will assist with the preparation and production of transportation modeling for near-term regional priority corridors. Metro will assist corridors in other tiers as well; however, methods may vary.

Create station access and parking plans: Parking availability is one of the strongest determinants of transit ridership and has the potential to add significant value to leverage regional HCT investment. Metro has tools for the region to review parking plans for all land use types; regional support action will coordinate with and aid local action.

Start potential alternatives analysis: The region can begin the process to help projects advance into federal alternatives analysis process.

Proposed system expansion target descriptions

A small set of system expansion targets will be identified to measure project readiness and contribution to regional goals. These targets will provide clear direction to local jurisdictions that desire to advance projects. System expansion targets would vary based on the tier.

Transit supportive land use/station context: Under this target, each station along a proposed alignment should be evaluated for ridership potential based on the jurisdiction's demonstrated willingness to promote transit supportive development. Specific targets could be set for residential, commercial and employment density in station areas. Additionally, each station should undergo an evaluation to determine: (1) the capacity for station area development, (2) ability to create good station access for all modes and (3) any issues with station capacity or functionality.

Community support: This measure would be qualitative, based on expressed support for HCT service in the corridor.

Partnership/political leadership: This measure would be qualitative based on demonstrated political leadership, development of strategic partnerships and demonstrated advancement of local aspirations.

Regional transit network connectivity: This measure would assess the role the project plays in filling key regional transit system gaps, connectivity with the existing and planned systems and ability for existing system facilities to support the investment. It would also measure a project's impact on the regional HCT system's ability to increase system capacity to deal with malfunction, incident or construction/maintenance, and the ability for existing station and track infrastructure to support the investment.

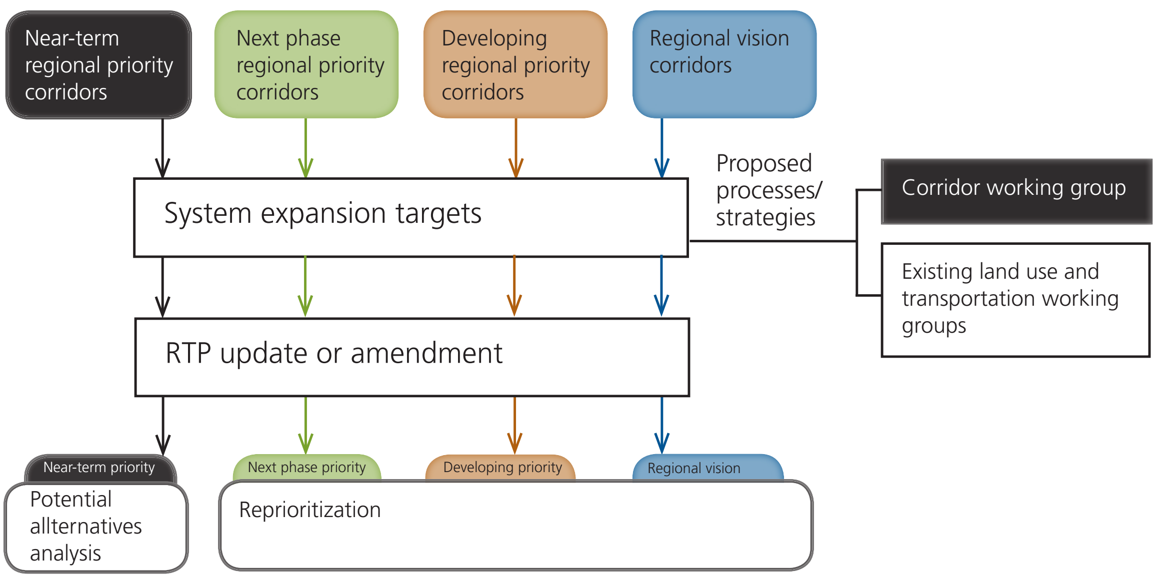
Housing needs supportiveness: This measure would assess the contribution of the project to improve overall housing and transportation affordability for populations of concern.

Financial capacity (capital and operating finance plans): This measure would assess the capacity to fund capital and operations with no significant negative consequences on existing infrastructure or transit system operations. This evaluation could include:

> **Capital finance plan:** A qualitative rating based on whether a project is partially or fully funded, the availability of local capital funds and competition for funding that is needed for core system capacity enhancements or maintenance.
>
> **Operating finance plan:** A preliminary analysis of the financial capacity to operate using measures such as estimated farebox recovery, cost-effectiveness (total annualized operating and capital cost per passenger), and the stability, reliability and availability of proposed operating subsidy.

Integrated transportation system development: This measure would quantitatively assess the role each project would play in addressing a broad range of regional transportation priorities, particularly those priorities for the mobility corridor in which the corridor is located.

Figure 2.14: System expansion policy process



3. HIGH CAPACITY TRANSIT SYSTEM DEVELOPMENT

This plan reviews and prioritizes future regional high capacity transit corridors for the Portland metro region. A critical consideration when prioritizing a HCT investment is how well the corridor integrates into the entire transit system, including the conventional bus and streetcar system. The region's transit system should be designed to be responsive to a wide range of travel needs and diverse customer markets while also furthering key transportation and land use policy objectives. As corridors advance and are studied more carefully, there are a number of system considerations that should be evaluated. This section frames the context in which the regional system has developed to date and identifies key system design considerations for future system expansion and enhancement.

"One of the basic principles of urban planning is that the distribution and intensity of land use should be coordinated and balanced with a transportation system that will accommodate the movement of people and goods within the community of region. The transportation system can be utilized as a principal tool in developing proper land use patterns, thus allowing land-use planning and transportation planning to reinforce on another. An effective regional policy to integrate land use development planning and transportation planning will intensify rapid transit's catalyst effect upon the distribution of future land use developments."—*National League of Cities & US Conference of Mayors, 1973*[1]

1 Banfield Transitway Project, technical report, light rail transit land use considerations, TriMet, 1977

DEFINING HIGH CAPACITY TRANSIT

High capacity transit is defined by its function: to carry high volumes of passengers quickly and efficiently from one place to another. Other defining characteristics of HCT service include the ability to bypass traffic and avoid delay by operating in exclusive or semi-exclusive rights of way, faster overall travel speeds due to wide station spacing, frequent service, transit priority street and signal treatments, and premium station and passenger amenities.

The transit modes most commonly associated with high capacity transit include:

- light rail transit, light rail trains operating in exclusive or semi-exclusive right of way[1]
- bus rapid transit, regular or advanced bus vehicles operating primarily in exclusive or semi-exclusive right of way
- rapid streetcar, streetcar trains operating primarily in exclusive or semi-exclusive right of way
- commuter rail, heavy rail passenger trains operating on exclusive, semi-exclusive or nonexclusive (with freight) railroad tracks.

Other transit modes, such as exclusive track heavy rail or monorail, could be applied in Portland but have generally not been considered due to high costs.

SYSTEM DESIGN CONSIDERATIONS

While individual proposed high capacity transit corridors will need to have independent value to merit future investment, it is also critical to consider the role each new line or extension plays in developing the region's transit and broader transportation system. This section discusses some considerations in system design that will be important as new lines are studied in more detail.

1 Exclusive right of way, as defined by Transportation Research Board TCRP report 17, includes fully grade separated right of way. Semi-exclusive right of way includes separate and shared rights of way as well light rail and pedestrian malls adjacent to a parallel roadway. Nonexclusive right of way includes operations in mixed traffic, transit mall and a light rail/pedestrian mall.

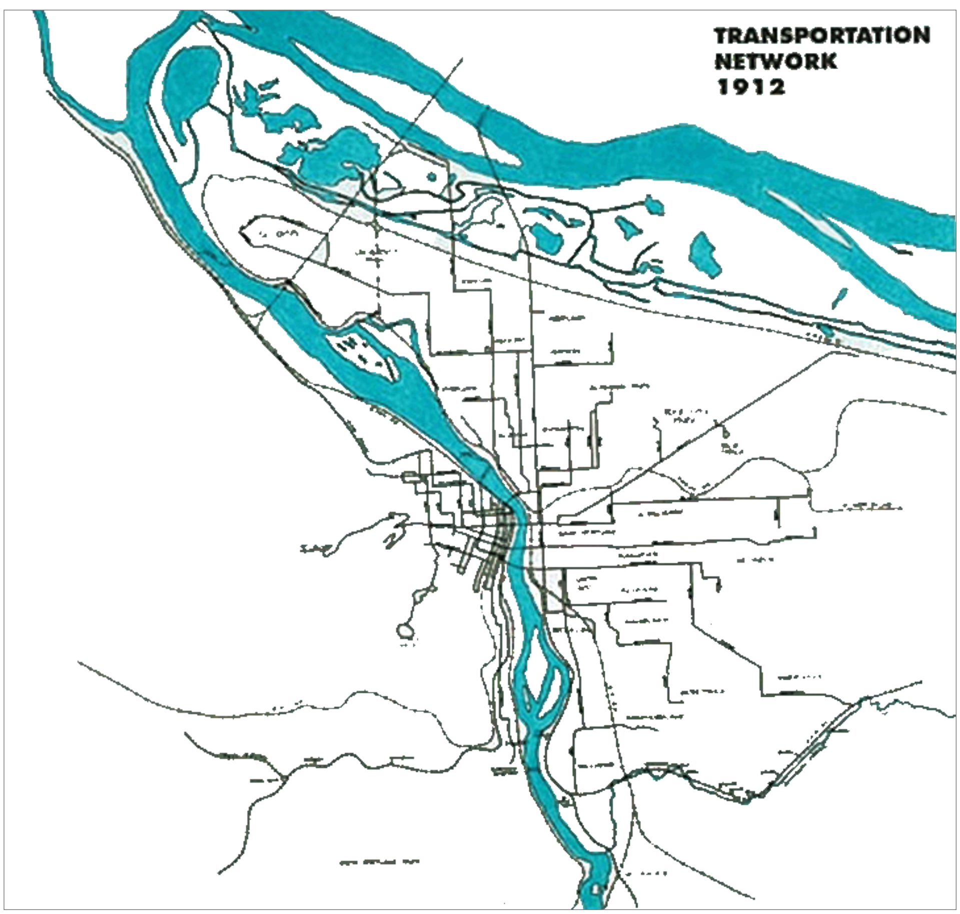
Grid versus radial system

The historic urban form of the Portland area was influenced by developers who organized new neighborhoods around streetcar and interurban rail transport. By the early 1900s, Portland and surrounding developed areas were organized around a dense series of radial rail corridors operated by Portland Railway Light and Power Company and the City and Suburban Railway Company. By 1904, there were over 100 miles of operating rail service; this amount increased as new lines were added into the 1920s.

The radial streetcar and interurban network brought workers to downtown Portland, creating a strong business district, and returned workers to neighborhood centers such as Irvington, Richmond, St. Johns, Council Crest and Lake Oswego. Today, many of TriMet's frequent service bus lines follow the historic streetcar network, and Portland's most vital neighborhood centers and main streets are on former streetcar corridors. As the region has grown, downtown Portland has continued to serve as the regional employment and entertainment center. As in the past, the region's modern rail system plays an important role in maintaining a strong, region-serving central city district.

Given the historic development of the region, a radial high capacity transit structure continues to serve current and projected travel patterns in the Portland region well. Strong linkages remain between key regional markets and the Portland central city. Development of the near-term regional priority corridors identified in this report (Portland to Sherwood and Portland to Gresham via

Figure 3.1: 1912 Portland streetcar system



European Street Trams

The distinction between urban streetcars – smaller trains operating in mixed-traffic with limited priority – and light rail transit, which is typically developed using exclusive rights of way, has been blurred in many European cities which have taken an integrated approach, combining the best attributes of each.

These European street tram systems, which have been constructed in places like Lyon, Dublin, Hanover, and Nantes over the past few decades, use larger vehicles with sleek styling of a modern streetcar but with capacities comparable to a light rail train. They operate in dedicated rights of way with traffic priority on urban streets, comparable to Portland's downtown light rail operations, but also stress urban integration and the placemaking value of rail investments. As the Portland metro region continues to lead the nation in building great communities, rail mode integration will be a critical consideration.

Nantes, France

Dublin, Ireland

Southeast Powell Boulevard) along with planned MAX service to Milwaukie and Vancouver, Wash. and a rapid streetcar extension to Lake Oswego will create a robust radial high capacity transit network. An extension of the Interstate Highway 205 MAX line or Milwaukie MAX line to Oregon City would further enhance this radial system. New cross-region or circumferential routes, which create grid connections between key regional markets, may become priorities for the region once the radial system is fully realized and regional markets can generate enough riders to justify the HCT investment.

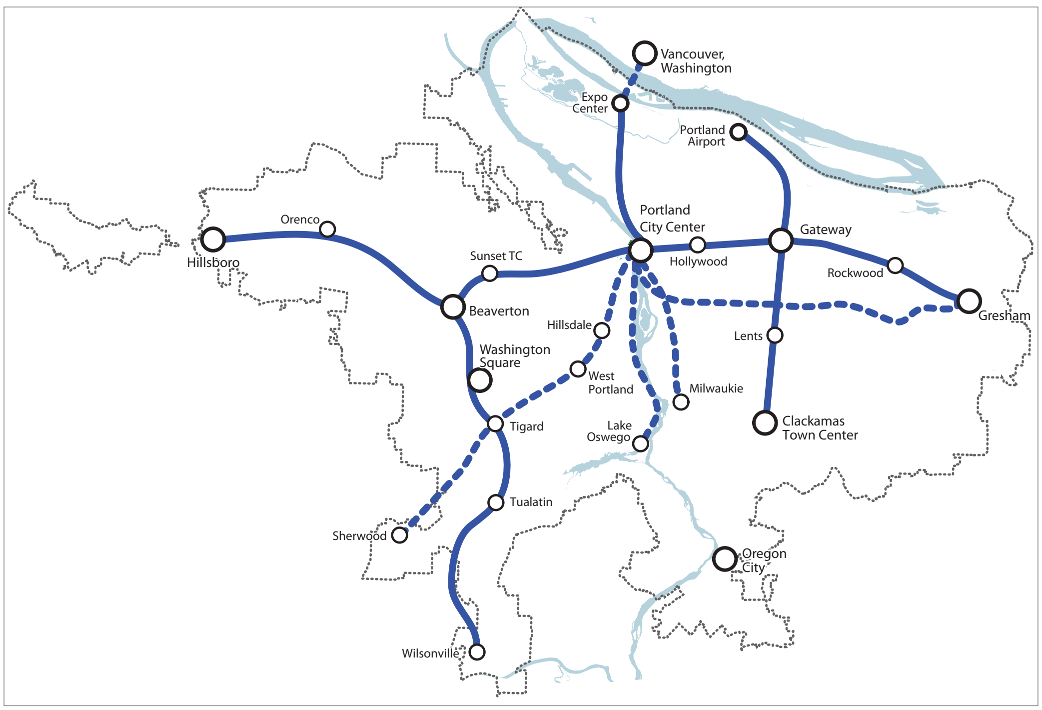
Much like a grid street network, which uses perpendicular streets crossing at regular intervals, a HCT grid network provides service in a series of linear corridors crossing frequently across a city or region. Grid systems provide additional person carrying capacity and travel choices but are only feasible if there are enough riders to support parallel lines. Consistent, high frequencies are required for a grid system to work well, so transfer time between lines is minimized. Once the radial HCT system illustrated in Figure 3.2 is complete, new cross-region investments in HCT may be more viable. Some of the most heavily used TriMet bus lines in the region are cross town routes that connect neighborhoods and centers outside of downtown. Future benefits of a grid HCT system include:

- strengthened regional and town centers
- increased travel options to, from and within regional and town centers
- reduced travel times for cross-region trips.

This plan determines that near-term regional priority investments in the HCT system are best aimed at extending the radial network and increasing the person carrying capacity of services to the central city. The additions of the planned Milwaukie and Vancouver extensions of the Yellow Line and Lake Oswego rapid streetcar will dramatically improve the radial network south and north of downtown Portland. This study suggests the next regional priorities are two new radial lines to Southeast Portland/Gresham and Southwest Portland/

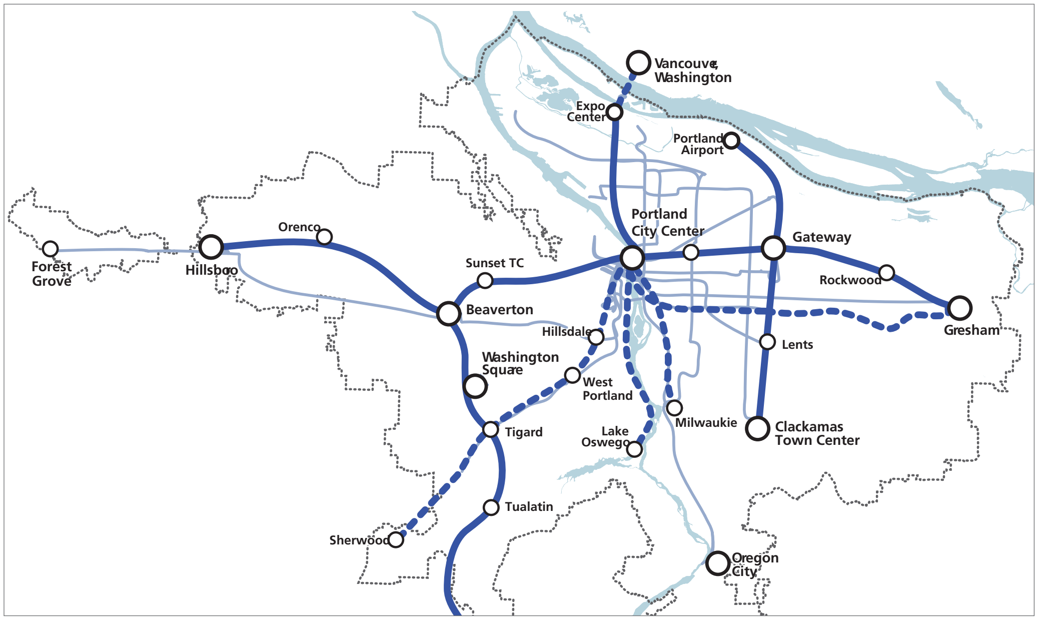
Tigard (possibly continuing to Sherwood). Furthermore, system analysis shows that the highest value investments in terms of riders gained per dollar of capital and operating investment would be the inner portions of these two regional priority corridors. Indeed, two short radial lines may provide a much greater transportation benefit than a single long corridor. This is an important consideration as the region evaluates future high capacity transit investments. Well within the timeframe of this 30-year plan, cross-region investments in HCT are likely to advance as regional priorities. In particular, an east-west alignment south of Portland connecting the I-205 corridor with Milwaukie, Lake Oswego, Tigard and Washington Square appears to be a strong candidate for a cross-region HCT line. With the Westside Express Service (WES), the Green Line, the Milwaukie extension of the Yellow Line, the Lake Oswego streetcar and a future Barbur Boulevard HCT investment in place, this new line crossing the southern metro region would increase transit connectivity to downtown via connections to multiple high capacity lines as well as provide an important connection between growing 2040 Growth Concept-identified regional and town centers.

Figure 3.2: Existing and near-term regional priority HCT corridors



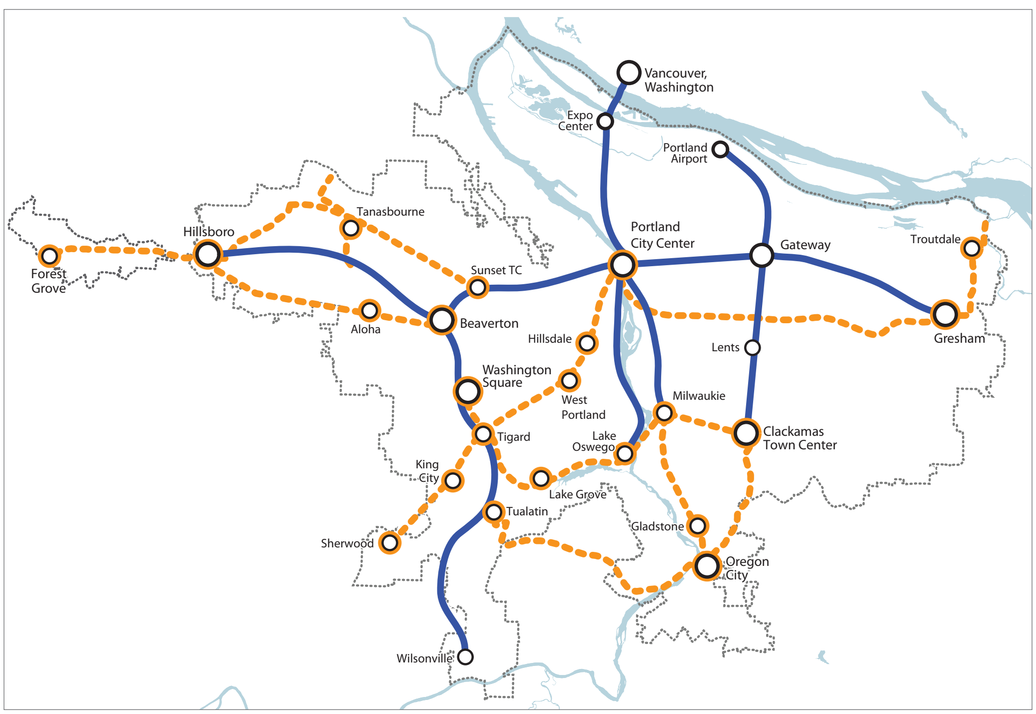
This map shows the existing high capacity transit network (solid lines) along with the planned and near-term HCT corridors (dashed lines). The existing and planned HCT network is largely radial in nature with service oriented to the central city.

Figure 3.3: Existing, planned and near-term regional priority HCT corridors and frequent bus network



This map shows the existing, planned and near-term HCT corridors (solid and dashed dark blue lines) with the frequent service network (in light blue). The frequent service network provides extensive cross-regional connections to the radial HCT system, forming the basis of a grid transit network with service oriented to the central city.

Figure 3.4: Existing, planned and regional priority HCT corridors



This map shows the existing and planned HCT corridors (solid blue) along with all of the near-term, next phase and developing regional priority HCT corridors. This HCT network more closely resembles a grid network with several new cross-region connections.

Network density (versus system coverage)

The region's light rail system was developed to fit the unique characteristics of the region, including downtown Portland's 200-foot blocks, which limit MAX light rail trains to two cars (many light rail systems can operate three- or four-car trains). As the region grows and demand for high capacity transit increases, particularly to downtown Portland, the system will need to increase its capacity to carry passengers. There are a few viable options to increase HCT person carrying capacity over time:

- increase service frequency (number of trains per hour) on existing lines
- add new lines to the system that serve parallel radial markets, preferably with at least 1-mile spacing between lines
- construct a tunnel under downtown that would allow some trains to operate with more than two cars and to travel faster through downtown Portland. However, the analysis for the HCT showed that, though a tunnel would increase travel speeds, the losses in direct walk access outweigh the benefits in the planning horizon.

The person carrying capacity of the region's transit system is anticipated to increase over time as new lines open and/or service frequency is increased to deal with increased demand. For example, the Green Line will add passenger capacity in the Banfield corridor where it will operate with Blue Line and Red Line service.

Branching

Branching uses the strategy of allowing high capacity transit lines with different terminus locations to use the same route for the bulk of their run. In the current MAX system, the Green, Red and Blue lines branch at the Gateway Transit Center (after sharing tracks and stops through the Banfield corridor). As the Portland metro region expands its rail system, the strategy of branching lines should be considered in more cases. This is particularly effective where a strong inner line segment exists, but there are multiple options for a line terminus. Branching can eliminate the need to make difficult decisions between relatively equal outer termini markets and can help deliver higher frequency service on inner line segments.

As the system evolves and new corridors are studied in detail, there will be other opportunities for branching light rail or other high capacity services. It is important to recognize that lines radiating from the central city have the opportunity to serve a triangular area, expanding as the corridor moves away from the central city. Corridor 11, which is described as a general corridor from Portland to Tigard and on to Sherwood in the vicinity of the Southwest Barbur Boulevard, is one of the corridors given top regional priority in this study and provides a good example of a corridor where branching opportunities should be evaluated. In this case, the three strongest terminus markets are Tigard, Washington Square and Tualatin. It would be difficult to serve all directly with a single line. A Tigard line that branched at Hillsdale Highway to serve Washington Square or Tualatin could provide service to both destinations on equal headways and deliver service at half the headway to Hillsdale and Oregon Health Science University.

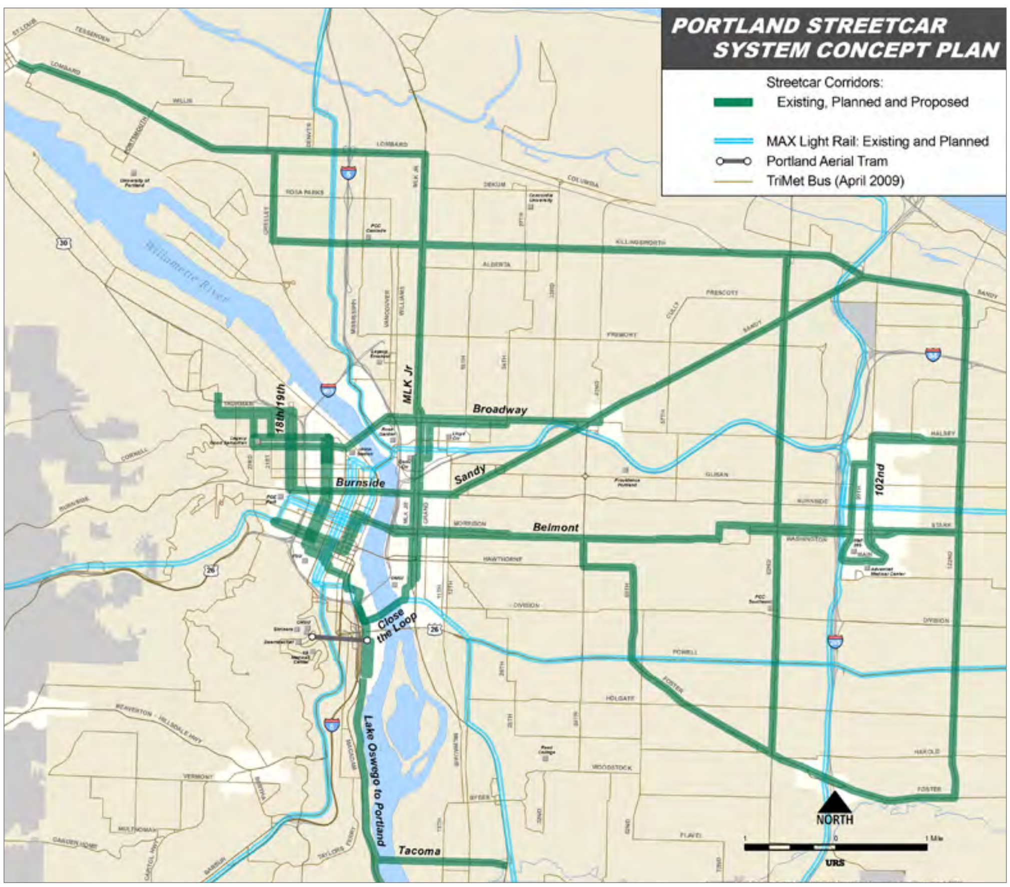
Portland Streetcar System Concept Plan and rail interoperability

The City of Portland Bureau of Transportation and Bureau of Planning are conducting a Streetcar System Plan in coordination with the TriMet and Metro. The Streetcar System Plan is a long-range study that will identify transit corridors in Portland with the highest potential for more detailed analysis in future years. Key goals of the plan are to:

- reinforce walkable and economically diverse neighborhoods and vibrant main streets
- encourage sustainable and equitable development and infrastructure
- support reduction of vehicle trips
- support greater accessibility, housing options, employment and economic development.

Figure 3.5 illustrates draft corridors identified in the system plan. These may change as the plan is finalized.

Figure 3.5: Draft Streetcar System Plan map



Draft Streetcar System Concept Plan map from the public review draft of the Portland Streetcar System Concept Plan, July 2009. This draft map is subject to revisions.

Certain corridors identified as potential long-range streetcar lines were excluded from consideration in the Regional High Capacity Transit System Plan. However, an important future consideration is the interoperability of MAX light rail and Portland streetcar systems. Currently, each system uses slightly different design standards that do not allow MAX trains to operate on streetcar tracks. Because streetcar trains are lighter, a shallower track bed can be used that can save significant cost and cut down on construction time. Careful consideration should be given to future investments to determine whether there may be value in developing segments of streetcar track to support light rail technology. This may have particular value where streetcar tracks could provide alternative routings for MAX, providing system redundancy and protecting the regional transportation system in the case of a major facility failure. For example, streetcar tracks could provide an eastside connection between the Rose Quarter and the Broadway Bridge or the new light rail bridge (to be constructed as part of the Milwaukie line), which would allow MAX trains access to downtown Portland if it were necessary to close the Steel Bridge.

Corridor 43 as initially studied includes a connection between St. Johns and the MAX Yellow Line on North Interstate Avenue but focuses on the Highway 30 corridor as the primary connection between downtown and St. Johns. A more cost-effective way serve St. Johns with light rail may be to branch the Yellow Line at North Lombard Street. Lombard Street is being considered as a streetcar corridor in this area; however, constructing the line to be compatible with both technologies could create the opportunity to serve this area as a MAX extension. Delivering streetcar to St. Johns will require construction of new north-south trackage from the central city, whereas branching the MAX Yellow Line could significantly reduce the total track miles to be constructed. Additionally, the Southeast Foster Boulevard corridor may be a viable alternate to share streetcar and light rail.[2]

Vehicles

Along with predictable departures and efficient travel times, ensuring adequate vehicle capacity greatly impacts passenger comfort and system reliability. Block lengths in downtown Portland constrain the length of MAX light rail trains, but TriMet is adding capacity by purchasing vehicles that are slightly longer than previous vehicles and have more passenger space by eliminating redundant operator space. This additional capacity comes with a loss of service flexibility so it is still uncertain whether this strategy will continue into the future..

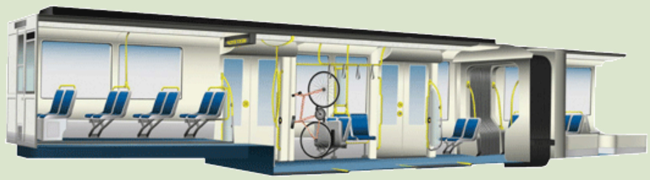
Typical HCT vehicles have low floors and wide doorways that streamline boarding and alighting. These characteristics are important to universal access and should be combined with providing vehicle seating available at various heights, using nonslip fabrics and surface materials, and providing highly visible and tactile yellow warning strips and handles. Choosing vehicle amenities that serve older adults, passengers who use mobility devices and people with strollers and large packages creates a system that is more comfortable and attractive for everyone. Current TriMet procurement practice and guidelines prioritize these features.

In addition to selecting vehicles with adequate capacity and passenger comforts, agencies brand their systems by choosing highly recognizable vehicle designs. Developing an innovative HCT system offers a special opportunity to choose vehicles that will become a vibrant symbol of the new service, the agency and the region. Sleek, modern designs, unique colors and even “green” fuel propulsion systems can create an iconic vehicle, and may draw upon elements of existing fleet vehicle designs. For example TriMet light rail vehicles, including the new “Type IV” have

2 In the June 2009 Streetcar System Plan materials, the Lombard Street and Foster Boulevard lines are categorized as eventual streetcar corridors. The Southeast Belmont Street line leading to Foster Boulevard is categorized as a planned and/or priority corridor.

New TriMet MAX vehicles in Portland

In preparation for the new Green Line service rollout in September 2009, TriMet has ordered 22 new Siemens Avanto S70 light rail vehicles. These 70 percent low-floor trains have more passenger capacity than the existing fleet, with eight more seats per train and more room for standees with only 7 feet of additional length. This is due to the parlor cab configuration, a seat layout and interior design that leaves more open space. These vehicles also have an updated exterior, with rounded corners and smooth sloping fronts, but retain MAX's emblematic blue and gold circles in the paint design.



regenerative braking, which recaptures some of the energy from braking and puts it back into the overhead wires for use by other trains on the alignment.

Service quality

Successful transit services consider the total transit system; this means delivering safe, comfortable, reliable service to passengers in a manner that pleases existing customers and attracts new customers. Key components of service quality stressed in the functional design of HCT are addressed below.

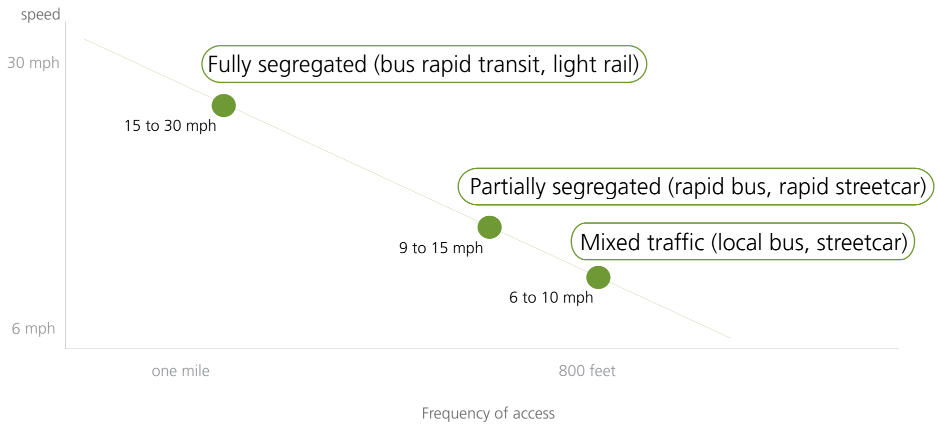
Service frequency and hours of service. Frequent service, or service with headways of 15 minutes or less, are generally considered the point at which a person no longer needs to use a schedule. Passengers can rely on a bus or train arriving within a short time frame. Frequent service also makes transfers easier, since the wait time between trip segments is minimal. Transit customers consider wait time at stops doubly punitive compared with in-vehicle delay. Transit agencies often choose their headways based on the demand for transit service in an area. Where there is weak demand, headways are typically longer. Long headways do not offer the same amount of convenience as short headways. As a result, riders must carefully plan their trips, so not to miss any crucial transfers.

Services with an 18-hour span of service provide customers with the security that transit is available to them almost any time they need it. In combination, 15-minute or better frequency and long service spans create a predictable, reliable, livable system, where people can feel comfortable relying on transit for their daily transportation needs. TriMet has expanded frequent service seven days a week from three bus lines in 1999 to 16 bus lines by 2008, and all MAX lines offer frequent service every 15 minutes or more often.

Speed and reliability. Urban transit users often have many travel options, including driving, bicycling, walking or taking transit. Each mode offers advantages to people, depending on their circumstances. Most transit users do not expect transit to get them to their destination faster than driving, but they find other benefits that make transit a desirable option.

In order for transit service to be effective, transit speed and access must be balanced. In the case of high capacity transit, access is typically concentrated in select areas in exchange for faster travel speeds, shorter travel times and better on-time performance. Access to only a few station areas emphasizes the need for a good access to these sites by bike, foot, conventional transit service or automobile. Figure 3.6 depicts the direct tradeoff between access and operating speed. Lines with fewer stops have less delay.

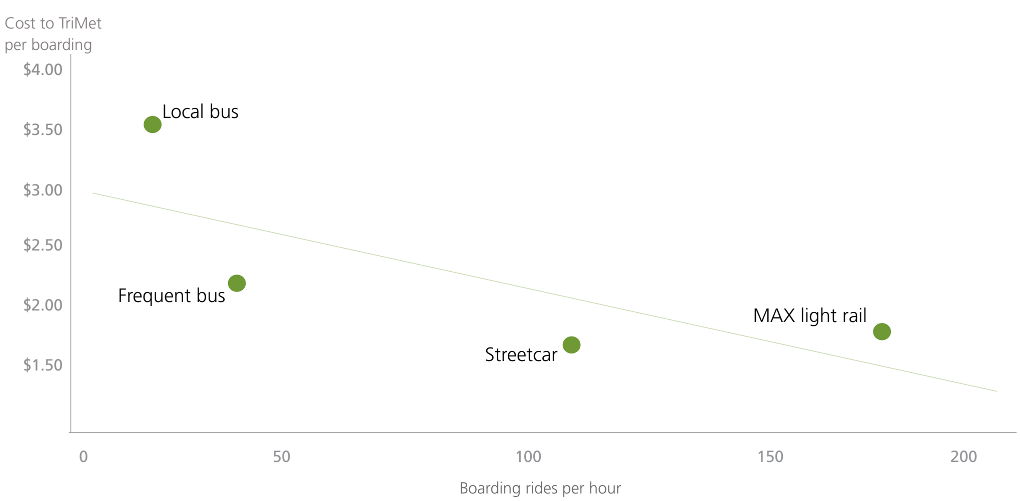
Figure 3.6: Average speeds relative to stop spacing



Capacity

Two key factors determine person carrying capacity in a corridor (assuming the right of way design is established): vehicle type and frequency. Sizing transit service to meet demand is an ongoing challenge. One of the advantages of HCT is, if demand for transit service is high, that it can move a large number of people efficiently at a low operating cost. The Figure 3.7 shows that Portland's regional light rail system, which provides the most passenger capacity per hour of service, is also the most cost-effective way to transport transit passengers in high demand corridors.

Figure 3.7: Cost per passenger trip for transit modes in the Portland metro region



Customer experience

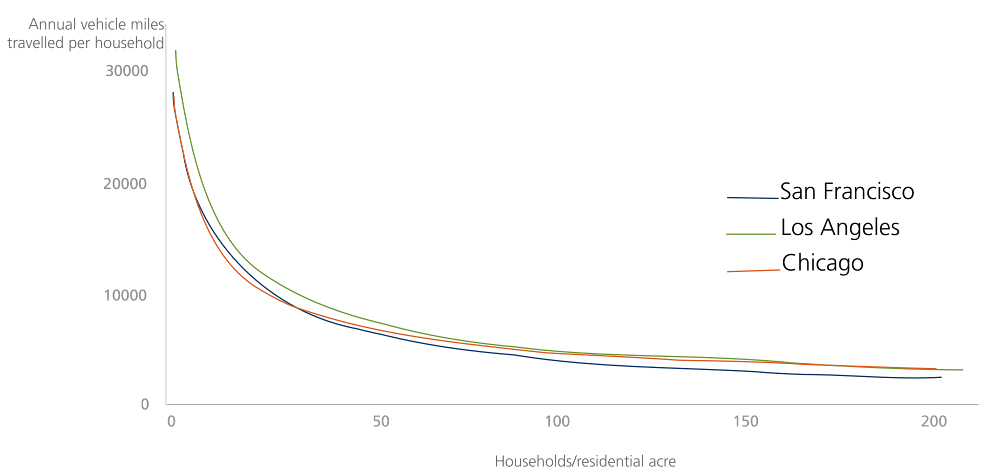
Since their wheels run on tracks rather than pavement and turning movements are more gradual and less frequent, rail vehicles typically deliver a smoother ride than buses, thus making it easier to read or work on board. Seating configurations on rail vehicles are also typically more spacious, although advanced bus rapid transit vehicle configurations are often similar to a small rail car. Modern bus rapid transit vehicles provide comparable level of amenities to rail but are often challenged to provide an equal ride quality. From a purely aesthetic standpoint, transit customers and developers often prefer rail modes and bus rapid transit over local bus, because these modes signify a more permanent and important component of the transportation network. Other factors that can improve customer experience include: large windows, tall ceilings and a clean environment on vehicles, and real-time information, clean environments and covered waiting areas at station areas. Issues related to the customer's experience with transit are further discussed in the system design and usability section later in this report (page 64).

Land use and urban form

Mixed land uses concentrated within walking distance of HCT stations are critical to fostering walkable communities where transit is the most convenient mode available for longer trips. A detailed regression analysis conducted in the Portland metro region shows that population and employment density can predict 80 percent of transit demand in an area. In other words, where concentrations of residents, jobs and activities are high, so too is the demand for transit.

Denser mixed-use communities also reduce demand for driving, which in turn can satisfy multiple policy goals such as reductions in greenhouse gas emissions, improved roadway operations and reduced capital construction. Figure 3.8 shows residential density's impact on annual vehicle miles travelled (VMT) per household in San Francisco, Los Angeles and Chicago. To achieve the dramatic drop in per capita VMT that occurs as urban neighborhoods transition from 10 to 50 households per acre, high quality transit service and quality pedestrian access must be in place. The most dramatic shift happens between 10 and 30 households per acre. In the Portland metro area, downtown and the Pearl District have an average 24 households per acre and Nob Hill has 28 households per acre. The Lloyd and Hillsdale districts and the Westmoreland and Clinton neighborhoods have an average of between eight and 11 households per acre.

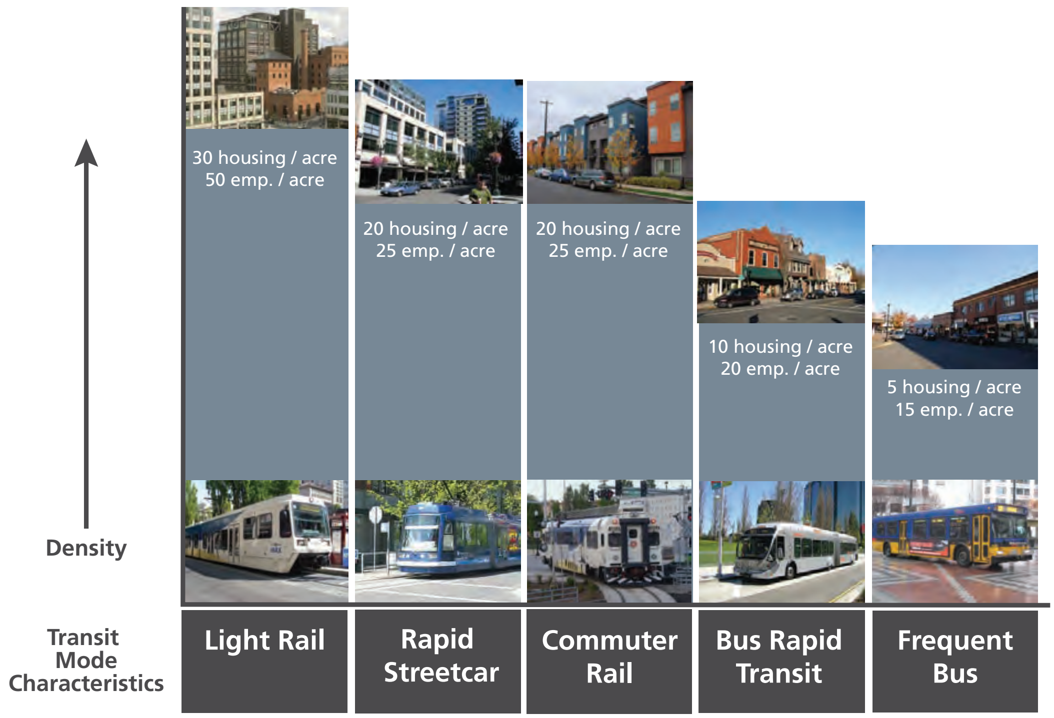
Figure 3.8: Impact of residential density on driving[3]



3 Location efficiency: neighborhood and socioeconomic characteristics determine auto ownership and use – studies in Chicago, Los Angeles and San Francisco, Holtzclaw, J. et al., Transportation Planning and Technology, vol. 25, 2002.

Figure 3.9 provides a guide for the average land use densities (within one-half mile of stations) that support various transit mode investments.

Figure 3.9: Station area density targets for high capacity transit modes



The transit systems that support the great cities of the world (London, New York, Tokyo, etc.) are emblematic and were essential to the evolution of each city's urban fabric and pedestrian-friendly streets. It is important to note that HCT systems tend to organize development differently than locally serving modes.

- Linear development. Local bus and streetcar typically have a linear impact on density and overall mix of land uses in a corridor since these modes have close stop spacing and provide consistent pedestrian access along the entire line.
- Nodal development. Light rail and bus rapid transit typically provide regional service with wider stop spacing and more developed stations. These modes typically have an impact on density and land use types within a one-third to one-half mile radius of the station.
- Mixed. Rapid bus (on-street bus rapid transit) or modes that mix right of way treatments and/or stop spacing may spur both types of development in different segments of the line.

Figure 3.10: Mode capacity

Local bus, streetcar	Frequent bus	Bus rapid transit, light rail
Less capacity		*More capacity*
Streetscape doubles as station		*High investment in station access*
Supports linear development		*Supports nodal development*

HCT SYSTEM STATUS

Population growth must be considered first when planning for transportation and economic opportunity. The world's population is growing, and here at home our population is also expanding rapidly. The population of the Portland-Vancouver area grew 26.6 percent between 1990 and 2000, from 1.5 million to 1.9 million.[4] Seventy-five percent of this population lives in the three counties of the Portland metro region, Multnomah County (34 percent), Washington County (23 percent) and Clackamas County (nearly 18 percent). The area's population grows at a rate of 500 people per week, and Metro projects that by 2030 the Portland-Vancouver area will house one million additional residents, raising the population to between 2.9 and 3.2 million – about double what it was in 1990. New forecasts show that by 2030, the population of the Portland metro region and adjacent cities will increase from 1.9 million people to between 2.9 and 3.2 million.[5] By 2060, the Portland region could have between 3.6 and 4.4 million residents and as many as 2.4 million jobs.[6]

Regional transit ridership grew at twice the rate of population growth between 1990 and 2000.[7] TriMet states that though Portland's population has grown 27 percent in the last 10 years, transit ridership has grown 46 percent.[8] The region's 2040 Growth Concept seeks to prepare for the increase in growth in the Portland metro region by encouraging growth and transportation access in seven regional centers and downtown Portland as the central city. Transportation options, including pedestrian and bike access as well as transit, play a large role in facilitating growth within our current capacity. While this growth brings opportunity, it also creates new challenges. Assuming these growth forecasts are correct, the region needs to prepare itself to be able to accommodate new demand with the existing and planned high capacity transit services.

Using regional travel demand model data, an analysis was conducted to assess the ability of the existing and future HCT system to meet demand. In 2005, the existing system consisted of three lines: the Red, Blue and Yellow lines. It has been estimated that in 2005 the existing system, had adequate capacity to accommodate demand (using between 26 to 76 percent of available capacity). For the future model year of 2035, several recently completed corridors and planned transit corridors were modeled to determine how well the system can handle future demand. As shown in Figure 3.11, most of the existing and future capacity will be utilized, but demand can be accommodated with more frequent trains.

4 Statistics for regional population are drawn from the Census Bureau's designation of the "Portland-Vancouver Primary Metropolitan Statistical Area" and include Multnomah, Washington and Clackamas counties as well as Clark, Columbia and Yamhill counties. This Portland-Vancouver area differs from the Metro's service area of the Portland metro region which includes Multnomah County and parts of Washington and Clackamas counties and is the focus for Metro's transportation and land use planning.

5 20 and 50 year Regional population and employment range forecasts – draft, Metro, March 2009.

6 *Ibid.*

7 Transportation Investment Scenarios, Metro, November 2008.

8 Dirty Words, TriMet, April 2009.

Figure 3.11: Transit demand

Route or corridor	Modeled peak-hour headway (minutes)	Percent utilized (evening peak 2-hour period)	Necessary headway to meet demand (minutes)
Existing corridors (2005)			
Blue Line (Gresham to Hillsboro) and Red Line (Portland Airport to Beaverton) – combined	5	62%	16.2
Yellow Line (Portland central city to Expo Center)	10	26%	38
Existing and planned corridors (2035)			
Blue Line (Gresham to Hillsboro) and Red Line (Portland Airport to Beaverton) – combined	4.3	126%	4.1
Yellow Line (Portland Central City to Expo Center)	7.5	123%	6.1
WES commuter rail (Beaverton to Wilsonville)	30	142%	21.1
Green Line (Portland Central City to Clackamas Town Center)	7.5	134%	5
Near-term priority high capacity transit corridors (2035)			
Corridor 10 (downtown Portland to Gresham)	10	83%	12.1
Corridor 11 (downtown Portland to Sherwood)	10	110%	9.1
Corridor 34 (upgrades to WES commuter rail corridor)	10	89%	11.2

Capacity on the entire MAX system is constrained by the need to operate two car trains, meaning future capacity increases require adding headways or building new lines. The current HCT system can accommodate headways of about 2 minutes per direction (30 trains per hour, per direction) over prolonged periods. With the Portland Mall in operation, the Yellow and Green lines operate on Southwest 5th and 6th avenues, which increases system capacity to expand train service through downtown. Although passenger capacity will be over utilized assuming modeled headways, existing light rail infrastructure is sufficient to accommodate projected 30-year increases in passenger demand. In short, this analysis shows that the current and planned HCT major track infrastructure does have the capacity to accommodate demand at least until the year 2035, assuming operating funds become available to improve headways.[9]

The public, jurisdictional staff and elected officials requested that the Regional HCT System Plan evaluate options for improving operating speed of MAX through downtown Portland. The plan conducted an analysis of two options for improving travel speeds through downtown:

9 A number of minor track upgrades will be needed to accommodate more trains on the existing system, particularly at key merge points such as Gateway Transit Center, Rose Quarter Transit Center and the Steel Bridge.

1. An east-west tunnel from Lloyd Center/Northeast 11th Avenue station to Goose Hollow/ Southwest Jefferson station with a single station located in the vicinity of Pioneer Courthouse Square. The tunnel would save approximately 12 minutes of travel time for passengers traveling from the Lloyd Center to Goose Hollow or beyond and allow for longer train sets not constrained by downtown block widths.
2. An eastside bypass from the future OMSI station to Interstate Rose Quarter station. This bypass would save approximately 10 minutes for approximately 4 percent of passengers traveling north-south past the central city.

The analysis concluded that construction of a downtown bypass or tunnel does improve travel speed but at the expense of superior access to employment and households in downtown provided by an at-grade, convenient alignment. This analysis also concluded that the operational need to meet projected demand can be met with the existing surface alignments on Southwest Morrison and Yamhill streets and on the Portland Mall. Downtown employment constitutes a high enough percentage of regional employment that diminished accessibility due to a single station is not outweighed by optimizing transit travel speed through the downtown. Direct service is measured by walk access of a half mile. The total estimated capital cost to construct the downtown tunnel as described is $2.2 billion in 2009 dollars. More stations could be built, but the travel time savings would be correspondingly less, diminishing returns for what would be one of the most expensive projects ever built in the region.

Figure 3.12: Analysis of tunnel or connector through downtown Portland

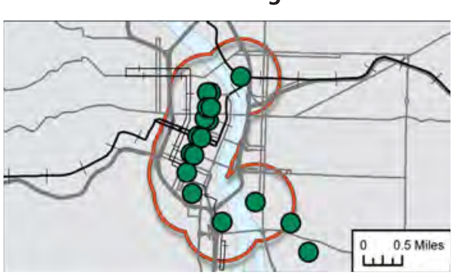
Tunnel versus downtown	Current alignment	Tunnel
Households served in 2005	19,300	14,400
Households served in 2035	40,600	28,100
Employment served in 2005	121,000	98,700
Employment served in 2035	173,900	140,800

Current downtown light rail stations

Proposed tunnel light rail stations

Connector versus Portland Mall	Current alignment	Connector
Households served in 2005	15,900	3,800
Households served in 2035	42,700	13,000
Employment served in 2005	129,600	49,900
Employment served in 2035	192,900	75,300

Current Portland Mall light rail stations



Proposed connector light rail stations

Other surface running options for enhancing MAX travel speed through downtown will be considered by the City of Portland in the Central City Plan; these may prove to be the most cost-effective improvements and to best match regional land use and growth management goals. Simply eliminating one or two tightly spaced stations, providing bypass tracks for express trains on Southwest Morrison and Yamhill streets, or adding a separate express alignment on another couplet in downtown could all improve travel speed through the central city at a minimal cost when compared with tunneling.

Other system constraints

There are several merge locations in the system that impact operating speed and overall system capacity:

- Steel Bridge. The Green, Red, Yellow and Blue lines will utilize the Steel Bridge. There are capacity constraints at the junctions on the east and west ends leading to the bridge.
- Rose Quarter Transit Center. The Rose Quarter Transit Center is also constrained due to the high number of light rail, bus, pedestrian, bicycle, and auto movements sharing limited space.
- Non-preempted at-grade light rail/auto crossings in the system. Wherever a non-preempted at-grade crossing with a roadway occurs, light rail must either preempt or yield to traffic creating some operational constraints.
- At-grade light rail/light rail crossings at Steel Bridge, Gateway, and the Portland Mall.

PASSENGER RAIL BEYOND THE PORTLAND METRO REGION

Preliminary demand estimates to Neighboring Cities

A high level assessment of potential demand for commuter rail outside of the Portland urban growth boundary was conducted for this plan. The demand estimates of ridership potential are highly conceptual and were developed only to determine the order of magnitude differences between corridors, not as actual predictions of ridership. The estimates are not based on detailed alignment, station location or service concepts. Rather, they estimate potential to attract riders based on comparable commuter rail services in operation in the United States and the overall demand for work travel between the major corridor markets. Five potential corridors were evaluated:

- Salem/Keizer to Beaverton. This line would be an extension of the WES commuter rail, terminating at the Beaverton Transit Center and serving to downtown Salem..
- Hood River to Gresham. This line would generally travel along I-84 and connect Hood River to the MAX Red Line at the Parkrose/Sumner Transit Center.
- Newberg to Beaverton. This line would generally travel along Highway 99 from Newberg to the existing WES commuter rail corridor, terminating at the Beaverton Transit Center.
- Scappoose to Portland. This line would generally follow Highway 30 and connect to downtown Portland at Union Station.
- Sandy to Clackamas Town Center. This line would generally follow Highway 212 and connect to the Green Line at Clackamas Town Center.

Estimates of ridership potential were developed using two different approaches:

- Journey-to-work flows and adjusted mode split. This method uses worker flows from the 2000 U.S. Census and applies an adjusted mode share based on different factors that influence ridership in the corridors.

- Ridership per capita based on peer commuter rail systems. This method utilizes actual ridership data from several peer commuter rail systems in the country and estimates ridership on a per capita basis.

These two methods were then compared and blended to develop a single high-level estimate of ridership, as shown in Figure 3.13. Ridership numbers assigned to each corridor should be considered an order-of-magnitude estimate for purpose of comparing corridors and prioritizing future study.

Figure 3.13: Estimated ridership potential methods and average annual ridership

Commuter rail corridor	Estimated corridor population*	Peer review		Journey-to-work analysis	
		Estimated weekday ridership	Estimated annual ridership	Estimated weekday ridership	Estimated annual ridership
Hood River	22,100	130	34,000	50	12,000
Salem/Keizer	519,800	3,200	807,000	2,500	637,000
Scappoose	11,000	70	17,000	40	9,000
Newberg	111,500	700	173,000	1,000	257,000
Sandy**	33,200	400	103,000	n/a	n/a

** Very rough estimate of population within a 5-mile buffer of the commuter rail corridor.*
*** Ridership on the Sandy line was not estimated using the journey-to-work because this corridor is entirely within Clackamas County.*

Key findings from this analysis

Nonviable corridors. Hood River, Scappoose and Sandy are not viable commuter rail markets given current and projected conditions. Even considering a very low capital cost to construct these corridors, any metric of cost per passenger served would be very high.

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

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

4. GOOD PRACTICES FOR BUILDING GREAT COMMUNITIES WITH TRANSIT AT THE CENTER

PLANNING CONTEXT AND SYSTEM CONCEPTS

During the development of the High Capacity Transit Plan, a number of questions and concepts were raised in communication with the public and with partner jurisdictions. This section attempts to address the range of issues raised and provide guidance for future policy discussions, guidance, and implementation of practices related to the High Capacity Transit.

The Portland metro region uses a collaborative regional approach to planning and economic development. Most importantly, the approach recognizes the tight interrelation of land use, economic development and transportation decisions in creating great communities and building a region ready to address the greatest challenges of the 21st century. High capacity transit is an important tool to this end. The Regional HCT System Plan provides a framework by which HCT investments support urban growth, housing, regional affordability, environmental protection and livability goals. Like any element of community development, the plan is not static. Rather it sets a dynamic course where holistic system development is a priority and future investments are measured against targets that advance a broad set of regional goals.

This section is intended to provide background for further future policy discussions using examples and research from great transit-oriented communities and neighborhoods in the Portland metro region, around the country and in other parts of the world. This section describes in more detail the mutually supportive relationship between land use, transit service quality, transit accessibility and integration of the complete multimodal transportation system. Two additional considerations are discussed separately, safety and security, and carbon/greenhouse gases reduction strategies. Station safety and security is discussed under the system design and usability section (page 66), while carbon/greenhouse gases reduction strategies are presented in the final section, high capacity's role in reducing carbon emissions (page 76), since these strategies are a culmination of all of these factors.

In this section:

- Integrating transit and land use
- Access and system integration
- System design and usability
- Multimodal corridors
- High capacity transit's role in reducing carbon emissions

The practices discussed in this section are not prescriptive for the Portland metro region and do not have consensus among jurisdictional partners. Rather, the ideas brought forth in this section reflect the interests, concerns, and thoughts heard and discussed in meetings and stakeholder interviews with members of the public, committees of jurisdictional staff and elected officials, and the Think Tank that warrant further investigation.

INTEGRATING TRANSIT AND LAND USE

Metro's Regional High Capacity Transit System Plan presents a significant opportunity to implement the regional 2040 Growth Concept by further integrating land use and transportation in the region. By extending the transit network, the HCT plan will increase regional accessibility, thereby enhancing the viability of transit-oriented development in new and existing station areas. Designed properly, the future corridors will open up new opportunities for residents to choose lifestyles where they can live, work and play without the daily use of a private automobile.

Capturing the full value of future regional transit investments will require coordinated land use planning along corridors and within station areas. Given the maturation of Portland's light rail transit system and others like it throughout the country, there is a growing body of tested best practices that can help inform land use policy in the region. The section below describes some of these key practices under the headings of guiding transit-oriented development principles including the "three D's" of transit-oriented development: density, diversity and design.

Start with development-oriented transit

The realization of integrated land use and transit planning is commonly referred to as transit-oriented development. The connotation is, however, that land use follows and reacts to transit. A truly synergistic relationship begins with development-oriented transit (transit projects that are intentionally designed with existing and future development in mind). HCT alignments and stations should provide direct access to compact mixed-use districts while also opening up new development and redevelopment opportunities.

The long-term potential value of development oriented transit is illustrated by the Rosslyn-Ballston Corridor in the Washington, D.C. area. Despite the added upfront costs, Arlington County, Va. was successful in its bid to move the proposed Metrorail Orange Line alignment from the median of Interstate Highway 66 to a subway beneath the struggling Wilson Boulevard commercial corridor. This prescient move helped the corridor's five station areas attract over 45 million square feet of commercial space and 20,000 residential units while diverting growth from nearby stable single family neighborhoods. To mimic this success, transit-oriented development potential should be considered and incorporated into alignment and station location decisions.

In order to be successful, the region must establish a corridor vision and stick with it. Far from operating in a vacuum, each station is part of a corridor and the greater transit system. As such, its land use planning should be tied to broader corridor analysis and visioning. This can be difficult because transit lines cross neighborhood and political boundaries, so corridor-wide land use planning takes additional effort and coordination not found in every region or every project. The successful efforts of other regions to coordinate corridor planning efforts should inform the corridor working groups envisioned by the HCT system expansion policy.

Much of Arlington County's success with implementing transit-oriented development has been attributed to its corridor approach to planning. Well before the term transit-oriented development was coined, the county's elected officials, planners and citizenry understood the transit and land use connection and were willing to advocate for it. With a development friendly Rosslyn-Ballston corridor to work with, the county was able to develop and adopt a general land use plan for the new stations. Successfully branded as the bull's-eye approach to development, the public and private sectors rallied behind this vision. Supported by more targeted station sector plans, the county's General Land Use Plan guided all development decisions for the corridor over the last 40 years.

It is this steady strategic planning and implementation over multiple development cycles that has helped each station area thrive in its own right and as part of the corridor. Rather than effectively

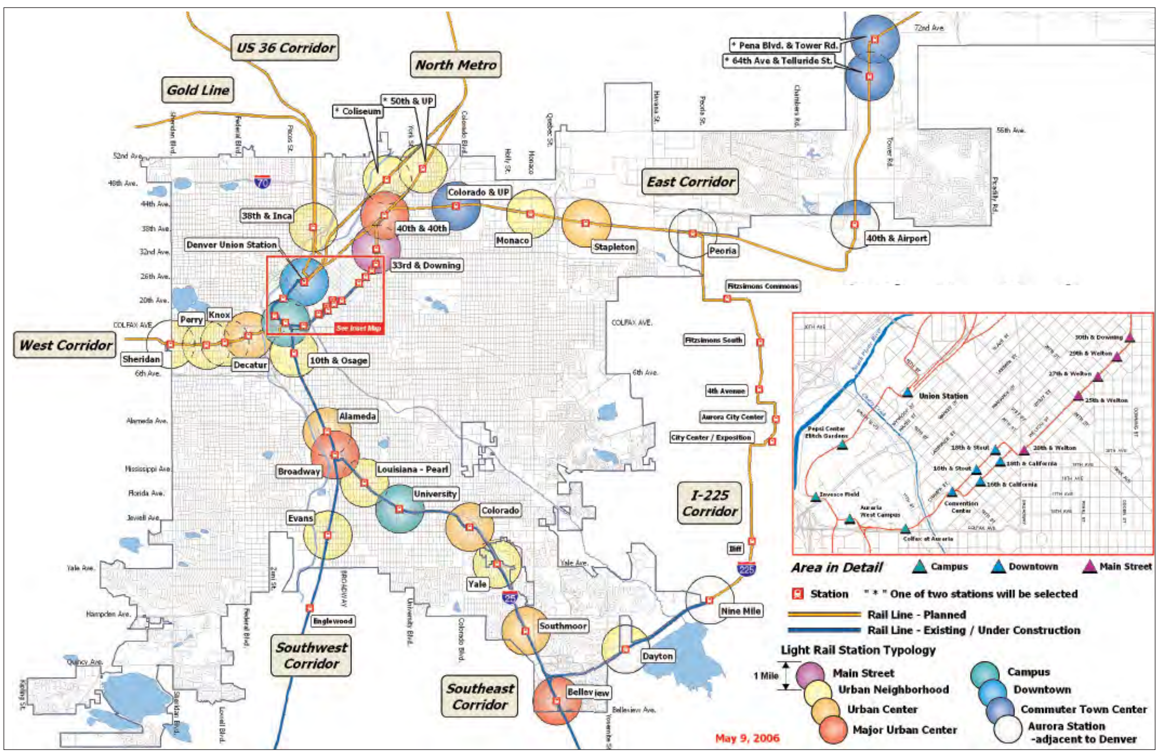
The relationship of density, diversity and design

As density increases, more potential riders are given access to transit, if transit is available. Assuming nicely designed streets and stops that invite passengers, increased density will drive ridership higher. As the level of transit patronage increases in a corridor, transit providers will look to offer more frequent service and to improve the speed and reliability of service for passengers. High quality, permanent transit service makes an area attractive to more residents, signaling to developers that the market is good for more dense, diverse and designed housing and amenities. This relationship builds over time as long as transit is able to respond to growing demand.

cannibalizing one another by pursuing similar aspirations, the stations fulfill distinct roles or market niches and are often referred to as a "string of pearls." For instance, some stations areas are primarily employment centers, while others are small scale urban villages with an eclectic mix of shops and restaurants.

Other jurisdictions have used corridor and system planning to establish a hierarchy of station areas. The City and County of Denver developed a transit-oriented development typology system for existing and future transit stations as part of its Transit-Oriented Development Strategic Plan. In anticipation and advance of actual zoning changes, the typologies helped "clarify expectations for new development, alleviate concerns about inappropriately scaled development at transit stations and guide incremental decisions on infrastructure and project approvals."[1] Station area classifications outside of the central business district range from high density major urban centers to smaller scale urban neighborhoods and include unique types such as campus (e.g. University of Denver) and main street (e.g. historic streetcar corridors) typologies. This place-based approach enhances predictability for the development community while easing the fears of single family neighborhoods. From a corridor perspective, it helps create vibrant lines by stringing together a series of differentiated, but compatible, station areas.

Figure 4.1: City and County of Denver's station area typology map



Promote and test new density concepts

Household and employment density is the primary determinant of transit ridership. Here in the Portland region, a 1995 study by Nelson\Nygaard Consulting Associates found that 93 percent of the variation of transit demand is explained by employment and housing density, after controlling for 40 land use and sociodemographic variables.[2] The degree to which density impacts ridership

1 Transit-Oriented Development Strategic Plan, City and County of Denver, 2006.

2 Land use and transit demand: the transit orientation index, Nelson\Nygaard Consulting Associates, 1995.

is also significant. A study of 129 San Francisco Bay Area rail stations found that the commute mode split was 24.3 percent in neighborhoods with densities of 10 housing units per gross acre.[3] This figure jumps to 43.4 percent and 66.6 percent, respectively, in station areas with densities of 20 and 40 housing units per gross acre. In terms of employment density, significant commuter modal shifts to transit occur as employment destinations reach 50 to 75 employees per gross acre.[4] Consistent with this body of research, a recent national review of transit-oriented development design guidelines found that most agencies recommend a minimum of 20 to 30 housing units per gross acre to create highly transit-supportive housing areas.[5] Minimum employment thresholds are sought by requiring minimum floor area ratios of 5:1 for commercial or mixed-use development.[6]

One strategy to best encourage transit oriented densities in HCT station areas over the short- and mid-terms, would for local jurisdictions to test the market feasibility of land use requirements through an audit of their development codes. Thresholds for minimum densities should be transit oriented, but they should also be achievable within the planning horizon of the station area. An audit could determine whether minimum densities can be achieved. An audit should also ensure that maximum densities can be achieved in light of parking requirements, height restrictions, floor area ratio maximums and other bulk restrictions. The audit should assess public financial resources available for transit-oriented development and related infrastructure such as urban renewal, tax abatements and adjusted system development charges or other

3 Influence of density, diversity, and design on proportion of commutes by transit for Bay Area station area residents, Bay Area Rapid Transit, 2000.

4 Relationships between land use and travel behavior in the Puget Sound region, L.D. Frank and G. Pivo, WSDOT, 1994.

5 Transportation and land use innovations, Reid Ewing, 1997.

6 Station area planning: how to make great transit oriented places, Reconnecting America and the Center for Transit-Oriented Development, 2008.

Development-oriented transit promotes the seamless integration of land use and transit.

Mixed-use development at North Main Village in Milwaukie.

The Center Commons transit-oriented development project in Northeast Portland includes a mix of renter and owner-occupied housing types.

Pedestrian-oriented design and blocks help bring people (density) and activities (diversity) to the transit system.

programs.[7] This process would reconcile land use regulations with market realities while demonstrating the potential need for local financial tools in facilitating higher density mixed-use development.

> "Transportation is one of the key factors in shaping our cities. As our communities increasingly undertake deliberate measures to guide their development and renewal, we must be sure that transportation planning and construction are integral parts of general development planning and programming. One of our main recommendations is that Federal aid for urban transportation should be made available only when urban communities have prepared or are actively preparing up-to-date general plans for the entire urban area which relate transportation plans to land-use and development plans."
> *— March 1962 joint report on urban mass transportation submitted to President Kennedy at his request by the Secretary of Commerce and the Housing and Home Finance Administrator.*[1]
>
> 1 *Urban transportation planning in the U.S.: an historical overview, U.S. Department of Transportation, August 1983.*

Diversify uses and housing types

The second of the "three Ds" of transit-oriented development is diversity, or a mix of land uses. By providing retail, services and employment opportunities, a diverse transit-oriented development enhances the viability of a transit lifestyle. This is consistent with the City of Portland's concept of the 20-minute neighborhood, a place where people can reach most of their routine destinations within a 20-minute walk from home. Mixing uses also enhances the efficiency of a transit system by inducing more counter-flow trips to stations outside the central business district. More mature transit systems in the United States are often characterized by this more balanced multidirectional ridership. Again demonstrating the long-term benefits of concerted transit-oriented development efforts, Arlington County Metrorail stations exhibit a nearly equal number of boardings and alightings during the morning and evening peak periods, optimizing the system by serving as origins (residential) and destinations (employment, entertainment) and filling outbound and inbound trains throughout the course of a day.

Encouraging and in some cases requiring mixed-use development should be done strategically for the entire corridor. In strong markets with high visibility and a large critical mass of residents and/or employees, ground floor commercial can be very successful. In less intense and more peripheral station areas, the viability of retail and services may be more challenging. With the exception of specialty neighborhood destination retail, commercial uses usually require vehicle access, visibility and traffic to survive. Whereas a busy light rail station might have 2,000 boardings and alightings per day, even a modest retail node typically will have at least 15,000 cars passing per day. For these reasons, requiring mixed-use in inappropriate locations may result in empty storefronts or preclude new development altogether.

Rather than stretching retail beyond its limits, jurisdictions are increasingly targeting specific areas for active ground floor uses. The City of Vancouver, B.C. has adopted a downtown retail uses map that designates specific streets and corners that are best suited for commercial uses. Generally speaking, these areas are historic streetcar corridors where retail has grown and prospered organically over time. So as not to over saturate supply and dilute demand, the map also prohibits ground floor commercial uses on many of its downtown residential streets.

To optimize diversity in HCT corridors, stations and mixed-use zoning should be targeted in areas that are already attracting diversity rather than forcing the market elsewhere. Regionally and nationally, stations that conjure images of places (e.g., Hollywood District in Portland, Mockingbird Station in Dallas, Texas, Gaslamp Quarter in San Diego, Calif., and Dupont Circle in Washington,

7 For more information and programs, see Community investment toolkit, vol. 1: Financial incentives, Metro, 2007.

D.C.) rather than simply transportation nodes have been successful in this regard. To this end, HCT alignments and stations should be oriented towards existing "branded" areas with strong urban amenity packages. Urban amenities such as shops, restaurants and theaters in these districts have the ability to attract future mixed-use development and promote destination ridership.

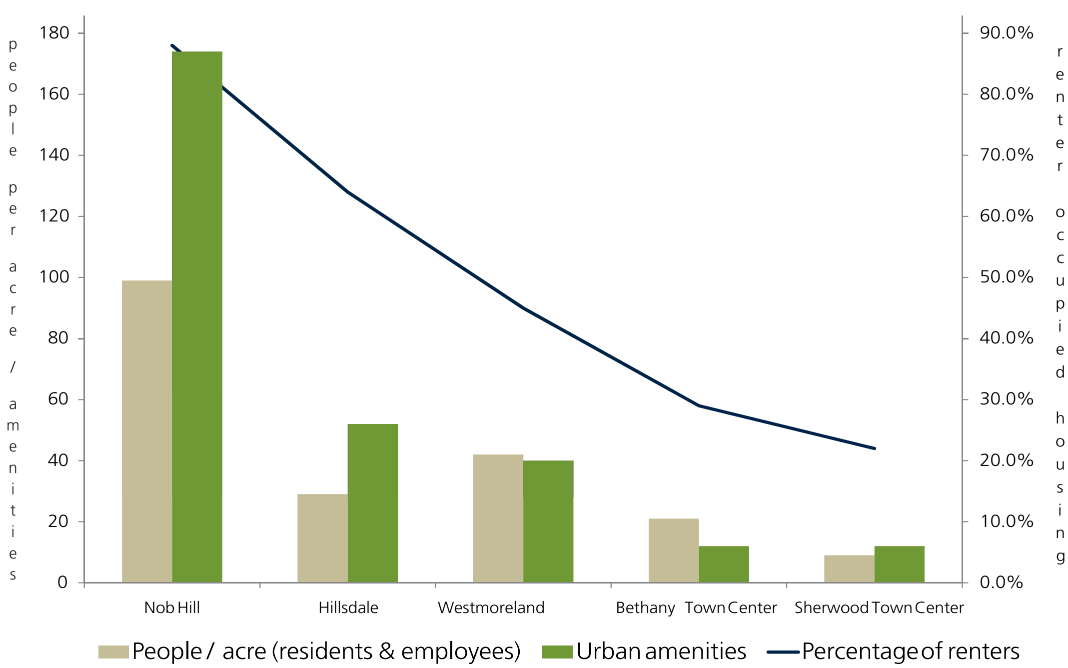
A second best practice is to adopt a more holistic view of transit-oriented development diversity. Recent analysis of a selected number of the region's successful neighborhood centers such as Nob Hill and Sellwood-Westmoreland compared to regional town centers found that, in addition to residential and employment density, urban amenities were related with a strong supply of rental housing, a good proxy for an active youthful population.[8] Local jurisdictions should design land use regulations in station areas to help capture diversity in terms of housing types, thereby attracting a better mix of generations and income groups.

Design urban form both vertically and horizontally

The third of the "three Ds" of transit-oriented development is design, the urban form and character of a station area. Pedestrian friendly design is what separates transit-oriented development from transit-adjacent development. A dense mix of uses may be near a transit station, but if the uses are not functionally linked to the station via pleasant and comfortable pedestrian connections, they are not likely to fulfill their full ridership potential.

The density and configuration of street blocks dictates urban form and connectivity, both of which impact travel behavior. Research suggests that the single most important urban design determinant of transit ridership is the underlying block pattern of an area. In the Bay Area, residents in neighborhoods with an average block size of 6 acres (approximately 900 feet by 300 feet) had a transit mode split of approximately 11 percent. Neighborhoods with blocks averaging 3 acres (approximately 600 feet by 200 feet) exhibited an impressive 48 percent mode split.[9]

Figure 4.2: Density, housing urban amenities



8 State of the centers: investing in our communities, Metro, 2009.

9 Influence of density, diversity, and design on proportion of commutes by transit for Bay Area station area residents, Bay Area Rapid Transit, 2000.

Whereas smaller blocks warrant more urban style development and provides greater connectivity, large blocks will likely attract fewer transportation routing options. The large blocks along the MAX Blue Line east of I-205 demonstrate this difficulty. Platted originally within unincorporated Multnomah County, individual lots reaching 300 feet in depth pull development away from the street. To avoid this problem, land division regulations should set the table for transit-oriented development by establishing maximum block lengths (e.g., 400 feet) and/or block perimeters (e.g., 1,200 feet). Big blocks make walking seem to take longer, stifling pedestrian activity. To implement this provision, local jurisdictions should have local funding mechanisms and incentives in place to help finance land assembly and existing and future infrastructure improvements.

Transit-oriented design is also controlled by design guidelines and/or design review processes. Seeking to enhance the pedestrian experience walking to and from transit, guidelines may control building size, materials, fenestration (openings and windows) and building articulation. Standards should avoid requiring costly materials and features and focus on the key elements of strong urban form to limit added costs, increase affordability and promote architectural diversity. Minimum building heights and maximum setbacks, for instance, can be employed together to foster a sense of safety and enclosure for pedestrians, thereby creating an "outdoor room" effect. It also simply ensures the walk from sidewalk to building is not prohibitively long. Massachusetts's *Model Transit-Oriented Development Overlay District* suggests a minimum allowable building height of 28 feet and a maximum building setback of 5 feet. Exceptions to these standards may be granted if, respectively, a building is at least two stories or if an outdoor seating area, plaza or courtyard is incorporated into a development. To add visual interest and to provide more visibility, design standards may include requirements for transparency (e.g., see-through windows, openings onto the sidewalk) and/or active ground floor uses. For key pedestrian streets, Sacramento Regional Transit recommends 75 percent of ground floor building facades be transparent. As mentioned earlier, active ground floor retail or commercial uses can be required along market viable streets and/or strategic corners. This continuous pedestrian friendly street edge is preserved by the regulation of access and vehicle parking. Design standards should limit or prohibit curb cuts along pedestrian streets and tuck surface parking to the side or, ideally, behind buildings. More so than with other modes, every transit rider is also a pedestrian. If it isn't pleasant and safe to walk (or roll a wheelchair) to and from a station, then transit cannot perform to its potential. Similar standards are implemented in some jurisdictions in this region. Those that do will compete better for future HCT investments.

ACCESS AND SYSTEM INTEGRATION

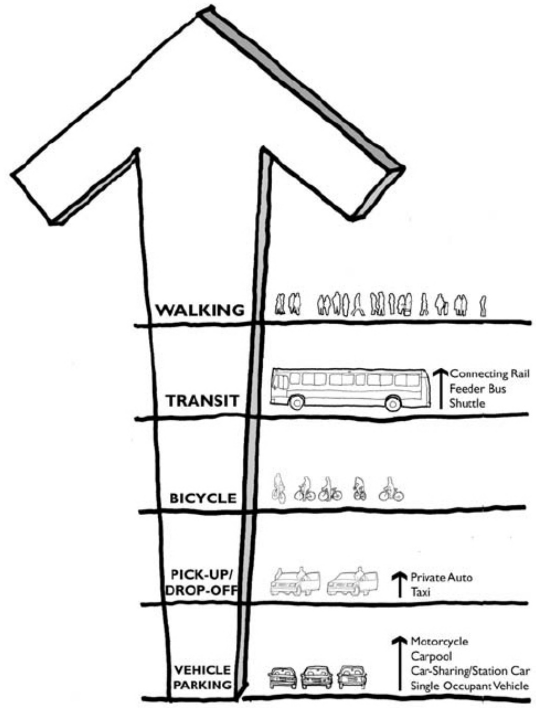
A successful transit system must allow people to travel where they want and when they want with assurance that they won't be met with unreasonable delays or breaks in service. This necessitates an approach to system design which places priority on multimodal access.

No matter how frequent, comfortable and well planned an HCT line is, passenger experience and ridership will suffer if it is difficult, time-consuming or uncomfortable to get to and from stations. Ultimately, jurisdictions' decisions to support different modes of access also determine the success of common goals such as easing traffic congestion, reducing emissions and supporting sustainable development.

Jurisdictions could consider developing a formal hierarchy of access to guide decision-making along HCT corridors and to evaluate disparate HCT station designs, infrastructure investments and area planning in light of these community goals . Figure 4.3, taken from the 2003 Bay Area Rapid Transit Access Guidelines, illustrates that low cost and high capacity modes, such as walking and transit, can produce the most cost-effective benefits and have less of an impact on the environment and neighborhoods. This hierarchy helps decision makers combine incentives for priority modes with disincentives for low priority modes in mutually reinforcing land use, infrastructure and urban design decisions. In the Portland region, bicycles might likely take higher priority than transit in the hierarchy of access.

Urban form around many current MAX stations is transit, bike and pedestrian supportive, but some current stations and many future station locations will be challenged to provide excellent access for bicyclists and pedestrians. How passengers get to their origin station also determines their access choices at the destination end. Investments in multi-modal infrastructure and services are needed in regional and town centers and smaller station areas alike. Coordinated planning between jurisdictions in a corridor, design guidelines tailored to station typologies and targeted policies for parking management and infrastructure investment are all best practice strategies for creating environments that support multiple modes of HCT system access.

Figure 4.3: Muti-modal hierarchy



Source: BART Station Access Guidelines, April 2003.

Corridor thresholds and station area plans

In the San Francisco Bay Area, the Metropolitan Transportation Commission adopted a transit-oriented development policy in 2005 to promote "the development of vibrant, mixed-use neighborhoods around new stations."[10] The policy guides coordinated transit-oriented development planning at different scales in order to make sure regional goals and site specific development work together. Elements of the Bay Area plan should be considered in creating land use plans in HCT corridors and station areas.

Residential density thresholds around proposed HCT corridors. Setting these thresholds on a corridor level allows jurisdictions to meet density requirements even if intensification is not feasible at every station along the line.

Station area plans. Created in collaboration with the community, these plans specify future land use goals, parking strategies and transportation network designs around local stations. In addition to supporting corridor level density targets, these plans are detailed enough to guide walkable street designs, such as limiting blank walls and curb cuts, and promoting active storefronts, retail and employment.

Access circulation diagrams. These diagrams direct all new development to support preferred travel patterns for each access mode in the station area.

The commission has also implemented a grant program to fund plans in key locations and has determined that these small planning grants (most $100,000 or less) are among the most cost-

10 Transit-Oreiente Development (TOD) Policy for Regional Transit Expansion Projects, Resolution 3434, Metropolitan Transportation Commission, 2005.

effective ways to improve station access, draw new passengers to the system and reduce regional greenhouse gas emissions.

As with the corridor level density thresholds, the Bay Area recognizes that not all areas are appropriate locations for intense transit-oriented development growth. During planning, stakeholders employ station classification based on existing land uses, street networks, parking supply, proximity to highways and the quality of existing and proposed transit service and non-motorized infrastructure. Classification identifies the access modes most appropriate for each station in order to prioritize supportive infrastructure investments and consider the cost per new rider of making a given improvement. Based on a station's classification, plans focus on bolstering the non-motorized network, strengthening transit connectivity or improving park and ride access in the immediate term. Best practices for supporting each access mode are described below.

Walking and biking networks

Non-motorized modes are primary in the access hierarchy because they consume little land, have the least impact on the environment, reduce demand on motorized systems and are available to all people without the need to own or drive a car. With good pedestrian and bicycle networks in place, the catchment area for walking access to transit is considered to be within a one-half mile radius for pedestrians (a 10-minute walk) and a 3- to 5-mile radius for bicycling. Bike and walk networks within these HCT catchment areas should be among top local priorities. Accordingly, the draft

Creating a walk- and bike-friendly environment

- ✓ Mixed-use development offers conveniences like cafés, day care, dry-cleaning, and shopping.
- ✓ Human-scale urban design features add comfort and interest, such as transparent frontages, small setbacks, street trees, furniture, and awnings.
- ✓ Traffic calming slows vehicles and prioritizes people on bicycle and on foot.
- ✓ A complete network of walkways with continuous sidewalks, well-marked signalized crossings and green buffers or parking separates the walkway and traffic.
- ✓ A complete network of off- and on-street bikeways with prominent intersection treatments offers convenience and safety to bicyclists.
- ✓ Universal design recognizes the needs of people of all ages with a wide range of physical and cognitive abilities.
- ✓ Good wayfinding includes consistent signage, maps and online trip planners combining biking, walking and transit.

recommended policy language for the Regional Transportation Plan update specifically describes an integrated mobility strategy “to guide the development of a region-wide network of on- and off-street bikeways and walkways integrated with transit… [which] cannot achieve their full potential if they are treated as stand-alone.” Portland’s dramatic success increasing bicycle travel to the central city could be replicated around key HCT stations through the region. Critical non-motorized elements for station access are addressed below.

Comprehensive walking and biking networks. HCT corridor and station construction present special opportunities to build new walking and cycling amenities, such as parallel paths along the right of way, and station area plans can compel specific radial (feeder) improvements within the expected one-half mile and 3- to 5-mile catchment areas. Walk and bike pathways to stations should be continued onto the property and into station buildings.

Prominent bike and pedestrian station entrances. Entrances should be separated from vehicle traffic, leading directly to ticketing and boarding platforms or to bike parking.

Concentrated passenger amenities. Amenities at terminals and transfer points, including weather protection, seating and nearby or integrated services and dining options.

Bicycles at the station

In addition to complete, comfortable and clear bicycle networks through the 3- to 5-mile catchment area, cyclists must be assured that they will have a secure place to keep their bicycles at the HCT station. A survey of Portland cyclists found that a major deterrent to combining cycling with transit was a limited capacity for bikes on board and not wanting to leave expensive bicycles parked unattended.[11]

Refinements for the RTP from the bike policy and transit-bike parking working groups include consistent guidelines for bike parking, concentrated at stations identified as regional bike-transit facilities. Such identified transit centers would have dense residential development or major destinations located in the area but outside of walking distance, especially with bikeway connections to the station. Station areas with high expected walking or feeder transit access would not receive as much bike

Bicycle accommodations

This bike lane in Portland leads cyclists safely behind a streetcar stop, out of the way of both vehicles and waiting pedestrians.

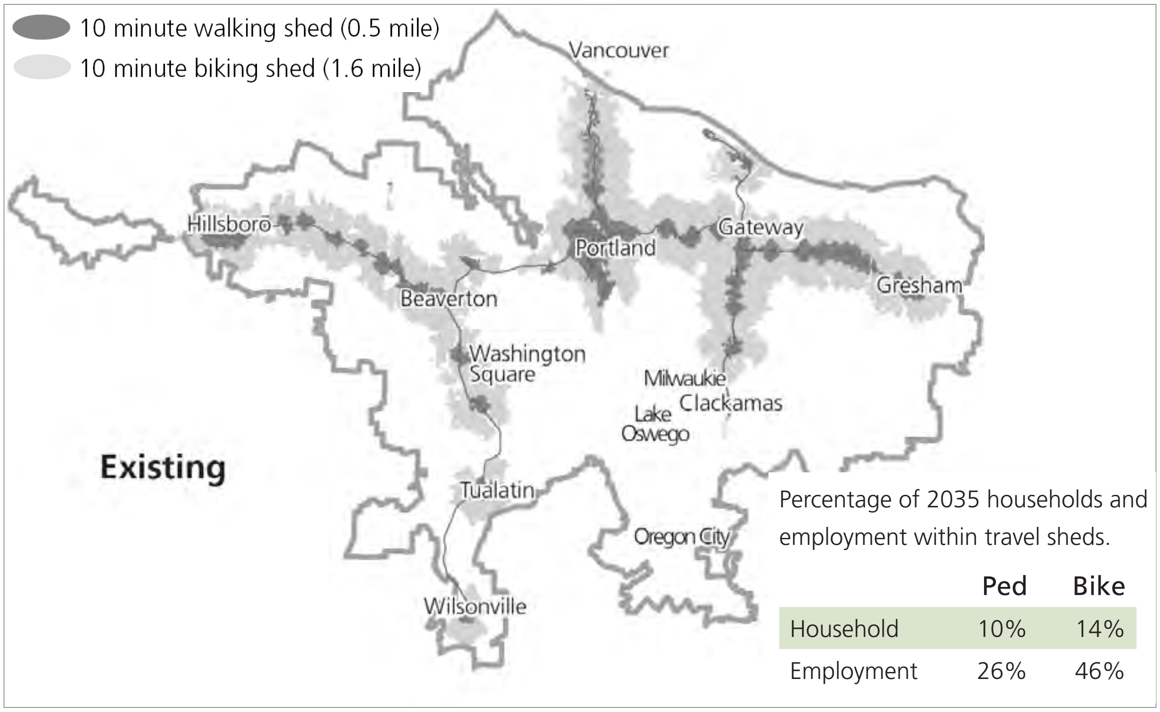
A bike box in Portland allows cyclists to be more visible at intersections.

Covered bicycle parking creates a safe, dry and convenient place for bicyclists to park.

11 Bicycle parking guidelines – draft, TriMet, 2009.

Figures 4.4 to 4.7 show how walking and bike access would increase throughout the region as the high capacity transit network expands. The analysis was conducted using a network analysis tool that measures walking and biking distances based on existing road networks. These figures are calculated on households and employement within the urban growth boundary only; Clark County is not calculated, but estimated.

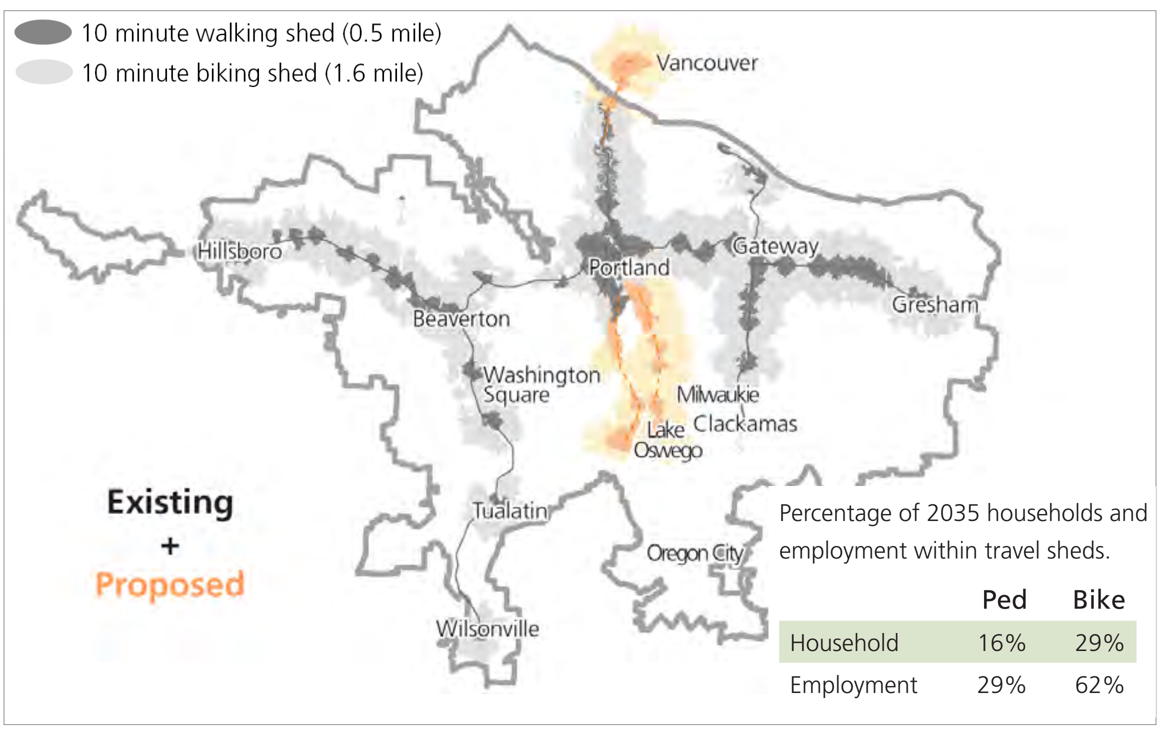
Figure 4.4: 10-minute walking and biking travel shed, existing HCT corridors



Percentage of 2035 households and employment within travel sheds.

	Ped	Bike
Household	10%	14%
Employment	26%	46%

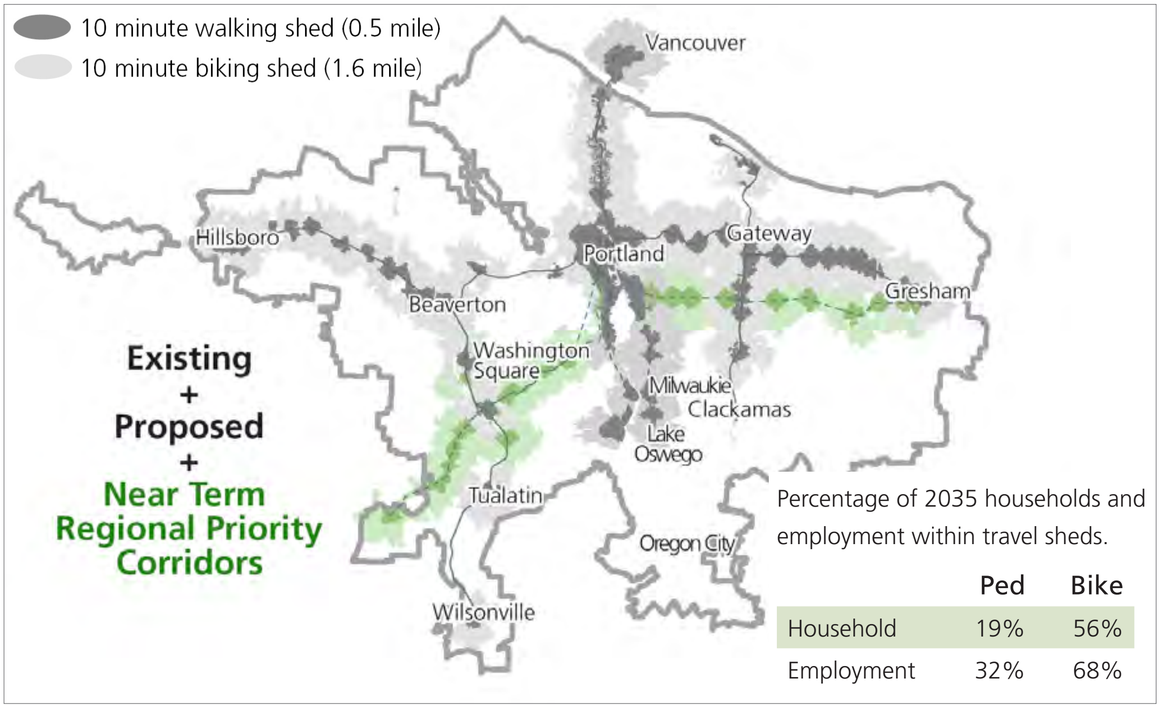
Figure 4.5: 10-minute walking and biking travel shed, existing and planned HCT corridors



Percentage of 2035 households and employment within travel sheds.

	Ped	Bike
Household	16%	29%
Employment	29%	62%

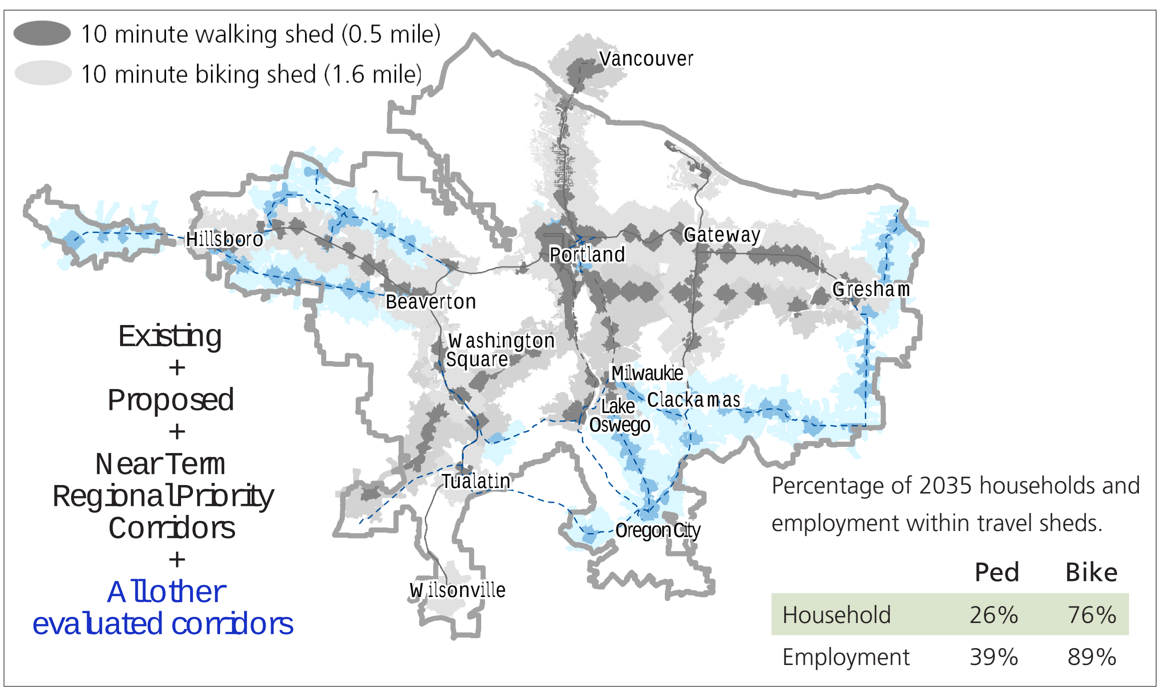
Figure 4.6: 10-minute walking and biking travel shed, existing, planned and near-term priority HCT corridors



Percentage of 2035 households and employment within travel sheds.

	Ped	Bike
Household	19%	56%
Employment	32%	68%

Figure 4.7: 10-minute walking and biking travel shed, existing, planned and evaluated HCT corridors



Percentage of 2035 households and employment within travel sheds.

	Ped	Bike
Household	26%	76%
Employment	39%	89%

parking. The guidelines suggest evaluating daily boarding data, existing bicycle facilities and household densities to determine the amount and placement of parking. For stations identified as regional bike-transit facilities, the guidelines recommend bike parking capacity for 10 to 30 percent of peak hour bike-walk boardings, with a mix of sheltered racks, bike lockers and enclosed racks within attended or card access areas.[12]

The RTP transit-bike parking working group recommendations for Portland draw on examples of extensive, high quality, high priority bicycle parking at train stations throughout Europe, especially in the Netherlands, Denmark and Germany. In cities such as Copenhagen, Amsterdam and Münster, main train stations overflow with parked bicycles. In order to accommodate and prioritize cycling access, bike racks have been installed near station entrances en route to ticketing areas and on desire lines from major bikeways. Stations offer a range of parking types, from open outdoor U-racks to sheltered parking with direct access to the platforms, staffed bike stations with clothes lockers, restrooms, repairs and rentals and even piped-in music. Bike parking in full view of station attendants, or at the least with optional cages and rentable bike lockers, are preferred for added security. Because capacity issues will always constrain the number of bicycles that can be transported on board HCT vehicles, opportunities should exist for cyclists to rent overnight, long-term storage for personal bikes at destination stations to complete the trip to their final destination.

Motorized access

Peninsula Traffic Congestion Relief Alliance

Parking at Portland's Beaverton Transit Center

Paid BART Park and Ride

Connecting transit service

Among motorized access modes, connections to transit are of highest priority. Feeder service significantly extends HCT catchment areas without creating additional traffic from private vehicles. Today, TriMet connects bus routes to MAX light rail and WES commuter rail, providing convenient transfers between modes and maintaining predictable wait times. Real-time information such as Transit Tracker displays improves passenger experience by providing information about vehicle arrivals. Riders perceive time spent waiting much more negatively than time spent riding, particularly when no information about vehicle arrival is available. Vehicle location and departure estimates can be displayed inside stations and at

12 *Ibid.*.

HCT around the world

Bogota, Columbia's world-renowned TransMilenio bus rapid transit system was designed with the goal to stimulate urban renewal through improvements to public spaces and restricted reliance on private vehicles. Instead of building a planned citywide multilevel highway system, Mayor Enrique Peñalosa refocused policy on creating a ubiquitous HCT bus network coupled with innovative urban design features that support access to the network without the need to drive.

Stations are located every 500 meters (one-third mile) on average. In addition to funding bike facilities, sidewalks, pedestrian avenues and signalized intersections through station catchment areas, public plazas and open spaces were built or improved, making areas inviting for pedestrian and bicycle trips and creating community amenities.

Since TransMilenio opened, transit mode share has increased from 64 to 70 percent. Notably, in light of the deliberate bike and pedestrian improvements, non-motorized mode share also increased, from 8 to 15 percent. In Bogota's bus rapid transit corridors, bikes are critical for TransMilenio ridership and cost-efficient service. Officials estimate that for every 20 people who bike to a station, one fewer feeder bus is needed. Bike parking facilities are integrated within terminals at key locations, where cyclists receive a bike parking sticker free of charge.

bus stops as well as online and on mobile devices. As new HCT stations are constructed, bus stops should be located to minimize the walking distance, avoid street crossings and offer sufficient curb space for peak demand with a preference for on-street stops. Developing supporting bus networks can be particularly important in suburban jurisdictions where pedestrian and bicycle access is more challenging, but these additional bus networks also add significant operating cost to support a new HCT line.

Feeder service for transit

A common barrier to shifting people away from long regional trips by private vehicle is the "last mile" connections to trunk line transit service like light rail or commuter rail. Shuttle services are often the most viable option in suburban environments where pedestrian and bicycle options are limited and locations are distant and/or on a disconnected street network.

Private vehicles

In station areas where automobile access will remain the dominant mode for the near term, agencies can choose parking management tools that enable passengers to use private cars but still demonstrate a priority for non-motorized and transit access.

- Allow passenger drop-offs as a low-cost means of extending the HCT catchment area without requiring parking; however, these zones still consume valuable curb space and generate vehicle congestion that can dissuade bicycle, pedestrian and transit access.
- Carefully size and locate park and rides based on the feasibility of other access modes (i.e., not locating park and rides in areas with good feeder transit access).
- Set parking maximums instead of parking minimums or allow shared parking arrangements among varied uses.
- Reserve spaces for high occupancy vehicles in priority locations near entrances and weather protection.
- Charge for parking on a monthly, daily or hourly basis, with surcharges at popular stations or variable prices throughout the day based on changing demand.

The Portland metro region's parking management policy establishes parking maximums at developments based on proximity to frequent transit service. TriMet park and ride lots are sited outside of the Portland central city to extend transit access to locations not otherwise well served by transit routes and where transit-oriented development is unlikely. Twenty percent of these park and rides are shared arrangements with churches, movie theaters and retail, many of which are not at light rail stations. Priority spaces may also be reserved for carpools and motorcycles, modes that consume less space per passenger for vehicle storage.

In the San Francisco Bay Area, Bay Area Rapid Transit has begun offering different types of paid parking, setting rates and the number of reserved spots based on demand patterns at different stations. Between 25 to 45 percent of stalls are reserved for monthly permit holders, with these spaces opening to anyone for use after 10 a.m. Other spaces can be reserved online on a daily basis before driving to the station. In addition, stations where parking regularly reaches capacity have begun to charge a $1 fee for parking in any spot, not just reserved spaces. While BART found that there was no drop in ridership as parking charges were implemented, and many lots continue to be filled to capacity before the morning peak period ends, lower-income passengers tend to respond more strongly to changes in parking prices than higher income passengers.[13] TriMet has begun to implement similar programs in the Portland metro region. At Sunset and Gateway Transit Centers, TriMet has reserved some spots for short-term, metered parking to address demand and increase availability of spaces at these over-subscribed park and ride lots.

At many stations, BART is also pursuing mixed-use housing redevelopment projects on old surface parking lots and constructing new structured garages with smaller footprints for the same or even greater capacity. This is a primary BART regional strategy to reduce vehicle miles traveled per capita by creating walkable, transit-oriented communities and to reduce the combined cost of housing and transportation for area residents. Similarily, TriMet entered into an agreement with the Portland Development Commission(PDC) to replace several acres of surface park and ride at the Gateway Transit Center with spaces in a parking garage. PDC partnered with a local developer on a multi-phase transit oriented development of the former park-and-ride site. Phase 1 is a medical clinic.

Parking management in station area communities

Above and beyond these direct treatments at stations, jurisdictions can also adopt regionwide policies that reduce incentives to drive. Parking policy can be a key determinant of a jurisdiction's readiness to support high capacity transit. Some of the most important policies are explored below.

13 Parking pricing and fees – traveler response to transportation system changes, TCRP report 95, Transportation Research Board, February 2005.

Widespread parking pricing. To ensure high ridership and reduce the many negatives of excessive driving, most public parking should be priced, and most employee parking should be either cashed out or priced. Cash out policies require employers who provide subsidized parking for their employees to offer a cash allowance in lieu of a parking space. Revealing the true cost of parking to those who drive typically decreases driving by 20 to 25 percent and increases transit ridership accordingly. Municipalities can put policies in place to require employer parking cash out, like Bellevue, Wash., and ensure adequate parking availability at all times by pricing public parking, like Redwood City, Calif.

Residential parking unbundling. Households looking for transit-oriented lifestyles are more likely to self-select into transit-oriented developments when they do not have to buy more parking than they need. Municipalities should require that developers unbundle the cost of parking from the cost of housing, particularly in rental units and multifamily condos For example, the City of Portland allows the unbundling of parking.

Residential parking ratios. Families living near high capacity transit demand less parking than those in auto dependent neighborhoods. Municipalities should eliminate minimum parking requirements in station areas and substitute parking maximums, ideally no more than 1.5 spaces per unit and often less. For example, San Francisco, Calif. sets residential parking maximums in transit-oriented neighborhoods at 0.25 to 0.75 spaces per unit.

Commercial parking ratios. Minimum parking ratios should be eliminated and replaced by maximums to ensure that development is truly transit-oriented and not just transit-adjacent. San Mateo, Calif., allows up to 2.0 spaces per 1,000 square feet of transit-oriented development. Commercial parking in San Francisco is limited to 7 percent of gross floor area and typically must be wrapped in active uses or built underground.

Transit pass programs. Many municipalities require that all new developments in station areas fund universal transit pass programs for project residents and employees in perpetuity. Some, like Boulder, Colo., extend such programs to cover existing residents and employees. Municipalities should implement such programs in all station areas.

SYSTEM DESIGN AND USABILITY

Integrating transit into our communities and daily lives

When designing new service, transit planners generally focus on passenger markets, route alignments and operational criteria. These are essential considerations when siting new HCT routes; however, how transit is built into

HCT around the world

In Montpelier, France, high capacity rail lines are built directly through major town centers, including the main public square, and directly adjacent to key destinations like the convention center and the iconic Comédie Opera House. Lines run on surface streets in between sidewalk cafes and through the public market, as a blended part of the streetscape. The transit system is a part of all residents' daily experience whether or not they are passengers, because everyone walks around trains and across lines throughout the city. These European street trams created placemaking value similar to Portland's Streetcar, but operate more reliably and efficiently due to dedicated lane operations.

Montpelier, France

neighborhoods and the everyday lives of residents also plays a critical role in attracting passengers and can establish transit as a valued, integral part of the community. Stations, vehicles and HCT rights of way are important elements of urban form that all community members experience at some level, and they should be designed as welcoming public spaces.

Above all, riders and neighbors must feel that the system is safe, comfortable, easy to use and compatible with their neighborhoods and their daily activities. TriMet's station design guidelines encompass many system design best practices, including civic architecture that incorporates neighborhood characteristics, clear building layouts and signage systems that naturally direct smooth passenger flow, and comfortable waiting environments that offer weather protection, security and seating.

HCT rights of way as integrated streetscapes

Dedicated HCT rights of way are critical to ensure on-time reliability and desirable travel times. In addition to this functional role, HCT corridors can make transit a visible and tactile element of the built environment. When HCT vehicles are given signal priority and dedicated lanes, they do not have to compete with or get stuck in general traffic and are clearly identified as a fundamental part of the transportation network. Instead of widening streets to accommodate transit, European cities regularly take over existing general traffic lanes and convert them to dedicated lanes for streetcars, buses and bicycles, or to accommodate wider sidewalks and greenspace amenities for the community at large. At the same time, these streets and the HCT corridors should be designed to integrate into and accentuate the existing neighborhood fabric, especially when built at grade instead of underground and out of sight. Highly prominent transit lines that deliver people directly to centers of activity help animate the streetscape by attracting pedestrians.

Stations as placemakers

Specific station area plans are necessary to guide nearby land uses and ensure that street and building designs support HCT access and use. TriMet's station design guidelines also direct walkway and bicycle amenities on the station property itself as well as call for seating, lighting and 24-hour uses that create a publicly desirable place with natural activity and surveillance. ADA-accessible entrances and ramps, platforms built to match vehicle heights for easing loading and obvious paths that avoid level changes and blind corners are all fundamental to easy station navigation for all passengers.

Beyond ensuring basic access and circulation needs, station property and buildings should also be designed as a good neighbor, reflecting

HCT around the world

Dublin created an integrated land use and transportation plan that was directed not by transportation considerations, but by a broader vision for the city. Land use policies and public private partnerships focused on the character, quality and on-the-ground implementation of higher density development. Routes were designed to provide access directly into major plazas, dining and retail spaces, and to interface easily with buses and regional rail. New station construction helped revitalize abandoned, high-crime areas outside of the city, and downtown redevelopment and intensification of businesses and residences fronting the light rail lines changed the face of Dublin.

Dublin, Ireland

community characteristics and supplying a valued public space. Building designs can incorporate materials and patterns drawn from neighborhood architecture and culture, and define public spaces both inside and outside the building. Green spaces, gathering places and public art give stations and the transit system character and humanize spaces that might otherwise remain large and impersonal. Designing new stations also presents the opportunity to create highly recognizable, valued and unique community landmarks. Grandiose, whimsical or interactive architectural elements can be incorporated into otherwise standard building designs to create a visual and cultural identity for the station and its neighborhood.

Public information: consistent, easy to find and far reaching

Since people will access HCT stations by foot, bike and car, it is critical that public information successfully direct passengers to, through, and out of stations, reorient them to the neighborhood when they exit and get them back to the station for the return trip. Public information materials must be easily and completely understandable by all transit users, especially those that are unfamiliar with the system or new to the Portland metro region. Similar to designing physical spaces for seniors and persons with disabilities, creating a system that is easily understandable to all users ensures that riding transit will be a pleasant, convenient and seamless experience for all passengers.

TriMet has developed guidelines for station and stop information that at a minimum include schedules and maps for routes serving that location. Some of the major stops in the system also include digital displays with real-time information, and Transit Tracker allows users to obtain real-time information for all stops in the system via phone or TriMet's web site. An additional navigation tool could include a map that shows the station and surrounding streets and key landmarks and destinations. Prominent signs outside of the station can also be used to direct passengers to surrounding streets. Correspondingly, wayfinding elements can be placed throughout the neighborhood to direct people to the station. Passenger experience includes every part of making a trip, not just the time spent on board.

TriMet is continually evaluating and improving their public information systems by observing passengers as they make a complete trip in order to discover where confusing or uncomfortable roadblocks occur. The goal of this effort is to identify ways of improving the passenger's experience from start to finish. This total user experience includes planning a route and deciphering timetables, boarding the vehicle and paying the fare, finding a seat and riding comfortably, and requesting stops and making transfers. As part of this experience, fare structures should be simple to understand and remember, and payment media and rates should be integrated across modes and systems. Portland uses proof of payment systems and off-vehicle fare collection on MAX, and is investigating advance payment technology such as smart cards that will make fare payment at the station effortless to passengers. Prepaid and no-contact cards would make boarding faster and reduce customer confusion about how much, when and where to pay. These passes have the capacity to serve as a monthly pass as well as for pay as you go trips or offer discounted fares tailored to individual travel needs that serve a wide variety of rider groups.

Station safety and security

Transit stations are the front door of the transit system. Station design not only establishes user value but enhances usability. Well designed, secure transit stations send a clear signal to transit passengers that they are using a first class public service. Station amenities can be enhanced or even replaced by a well integrated urban streetscape, as is often the case with streetcars and urban bus malls. Standardized station design and facilities across lines and modes are also important for user comprehension.

High capacity transit modes, which often use exclusive rights of way, must still operate in busy street environments where the alignment and stations share the right of way with pedestrians, bicycles and motor vehicles. Station design, and design of trackage between stations, must minimize conflicts with people and vehicles and emphasize safety where modes intersect. In addition, security at stations and on transit vehicles is an integral element of the customer experience and can often be enhanced by design. This section highlights some best practices for creating safe and secure transit stations.[14]

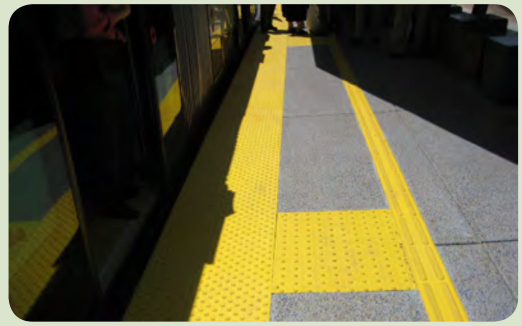
Inside the station

Create inviting, safe platforms and secure station areas. Stations that follow accessible design practices convey inviting, safe and secure station areas. This can be accomplished through design, lighting, clear zones and cleanliness. Station elements should consider:

- **Station location.** Stations in low crime areas near activity centers tend to be more safe and secure. Paid fare zones increase the sense of security. Isolated stations should be closed down during off hours; if this is not possible, maintain a security presence and bright lighting throughout the night.
- **Lighting and clear wayfinding.** Lighting throughout the station and clear wayfinding signage can make stations more inviting.
- **Station design.** Stations that have dead-ends are less inviting and can encourage criminal activity.
- **Station cleanliness.** Clean stations ensure that amenities like ticket machines, pay phones and vending machines remain in working order. Cleanliness signifies that the station is monitored and well cared for, helping to reinforce safety.
- **Accessible stations.** In accordance with the Americans with Disabilities Act

14 Guidance provided in part from light rail design practices documented for the City of Bellevue, the Columbia River Crossing plan and recommendations for the Portland-Milwaukie Light Rail Project.

CPTED in practice



Tactile strips at stations

Bicycle access

Signals for light rail

Pedestrian warning gates

Accessibility guidelines, platform edges must have a tactile warning strip. The warning strip can be enhanced with additional measures similar to the feature on the ACE light rail platforms in Las Vegas, which have a warning strip preceding the platform edge strip and a square to alert passengers, especially those with physical impairments, where train doors will open. Due to variation between vehicles in the TriMet MAX fleet, consistent door location markers are not possible.

Check station designs against crime prevention through environmental design principles. CPTED principles outline ways of using the built environment to deter criminal activity. For example, a transit station facing out onto the street, viewable by any passerby, feels much more secure than a station surrounded by a high wall and closed off from the public. Early decisions about alignment (i.e., highway rights of way versus arterial corridor) can influence the level of investment needed to design and construct secure stations. The CPTED principles include making spaces feel visible to others, delineating boundaries between public and private space, and managing access through measures like a clearly marked primary entrance. The CPTED principles also prescribe keeping all elements of the station clean and maintained, which also deters crime. If the station cannot be access-restricted, follow CPTED to clearly delineate platform areas and communicate that only paying customers are allowed in that area.

Provide station art and amenities. Successful HCT stations will become an important extension of the community and civic life when the transit line opens. Artistic touches can help humanize the station environment and foster a sense of ownership among residents and business owners, encouraging community policing of suspicious activity. Any amenities like bike parking should be clearly visible outside the station to deter theft, and enclosed if possible. Benches can be designed as single seats to prevent people from sleeping on them.

Coordinate with enforcement and response agencies. While station design has the potential to deter a good portion of criminal activity, stations also need the presence of security personnel. The transit agency can work with local law enforcement and emergency workers throughout station design to ensure the station is routinely monitored. Some strategies include:

- Work with local police to add new transit stations to their rounds. If businesses near the station already employ private security services, there may be an opportunity to partner on monitoring a station.
- The number of transit police or daily visits could be increased as ridership increases and more people are using a station.
- During station design, determine how emergency vehicles will reach stations and tracks, and train first responders and police on how to access secured station areas.

Use technology to monitor the station. Closed circuit cameras not only allow agents to monitor stations, their very presence helps deter crime by increasing the feeling of visibility to the outside. Closed circuit television cameras in and around stations, as well as in parking areas can be used to monitor activity. Call boxes at stations can also be provided so that passengers can directly contact security or emergency personnel if needed. By planning for technology early in the design process, the equipment can be better integrated with the station to be unobtrusive yet still effective.

Getting to the station

Maximize predictability and minimize confusion. Safety around the station can be enhanced by increasing the predictability for drivers, bicyclist and pedestrians. This can be achieved by limiting movement choices.

- Separate station entrances for cars and pedestrians can minimize conflicts.

- Barriers at transitway may be used so that bicyclists must dismount before crossing tracks. This improves predictability for the train operator.
- Clear signage and markings provide unambiguous direction to all users.

Create safe and direct connections for non-motorized access. Bicycling and walking to stations can be encouraged by providing clear, direct, well-lit pathways to transit. Ramps or "runnels" (rails for bicycles on stairways) can improve access to platforms and secure bike storage. Pathways that require tunnels or overpasses, or routes that pass through areas without natural surveillance, are discouraged. It is important to provide direct access from adjacent bus stations to and from the train platform.

Provide pedestrian-scaled lighting. An important distinction should be drawn between roadway lighting, which is meant to illuminate roads for drivers, and pedestrian-scaled lighting. Good lighting at the pedestrian level improves people's feeling of security. In Seattle, the Department of Neighborhoods and Seattle City Light are installing pedestrian-scaled lighting at a height of 12 to 15 feet in business districts. These lights are placed on the sidewalk rather than in the road and will improve security and business exposure.[15] The Puget Sound Regional Council recommends lighting at 10 to 12 feet and providing 0.75 to 1.5 foot candles of illumination. When possible, high pressure sodium (HPS) lighting should be avoided because of its poor color rendering. TriMet's system design guidelines specify lighting conditions for various environments throughout their system. They also specify that new lighting should use F32T8 florescent lamps whenever possible rather than T12, HPS or pulse-start metal-halide lamps due to better efficiency and color rendering.

Ensure secure parking areas. CPTED principles can be used when designing parking areas. As noted above, lighting provides a better sense of security when placed at the pedestrian scale. A small but fully occupied lot feels safer than a large, mostly vacant lot. In cases where structured parking is provided, garage attendants can circulate through the garage to provide additional security. Closed circuit cameras can also be used in parking areas.

Surrounding and between stations

Provide pedestrian and bicycle warnings. Crossing gates on sidewalks can be used where there are at-grade crossings of HCT corridors. Signs showing people which way to look when crossing transitways improve safety, especially if there are three tracks. Warning signs and lights also help alert pedestrians and bicyclists. If transit runs at grade through a pedestrian zone, tactile warning strips along the entire corridor help to alert pedestrians that the street is shared with a transit line.

Provide visibility for all users. Visibility from the standpoint of the transit operators, drivers, bicyclists, pedestrians and wheelchair users should all be considered. Operators need to have a clear view of the station, track and crossing areas. Pedestrians, drivers and bicyclists should have a clear view of the tracks, roadways and sidewalks. Visibility can be achieved by providing lighting above transitways and especially at crossings.

Ensure safe interactions between vehicles and trains. Transit and cars often share rights of way, even if only where tracks cross roadways at grade. The Transportation Research Board recommends completely separate signals for both transit and cars, with consistent application of such signals throughout the system to maximize safety. [16]

In general, exclusive transitway running in the center of the street along a median is the safest type of operation because it minimizes conflicts between turning vehicles at intersections and driveways.

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15 Create a thriving business district, Office of Economic Development, City of Seattle, www.cityofseattle.net, accessed June 30, 2009.

16 Integration of light rail transit into city streets, TCRP report 17, Transit Research Board, 2000.

Center running transit also provides transit operators with more time to see pedestrians stepping into transit right of way and reduces exposure at the curb. For this reason, much of the MAX system constructed on arterial streets is center running (e.g., North Interstate Avenue, East Burnside Street). The new Portland Transit Mall employs a unique mix, with curb-loading stations and center-running transit between stations. If enough right of way is available, provide protected left and right turn lanes to the roadway to safely channel cars in traffic around light rail trains, reducing conflicts.

MULTIMODAL CORRIDORS

The Oregon Department of Transportation requires that any proposed HCT corridor affecting a state highway comply with a variety of ODOT regulations and standards, whether the alignment is within, adjacent to or parallel to existing right of way. This section identifies federal and state policies that would currently apply when an HCT corridor within a state highway right of way is selected for further evaluation.

General transportation and land use planning requirements

Oregon's Transportation Planning Rule[17] is a Land Conservation and Development Commission administrative rule that imposes several general requirements relevant to HCT corridors, including those affecting state facilities.

- Metro and TriMet would need to coordinate with state agencies, owners of transportation facilities and providers of transportation services (including railroads and the ODOT Rail division for rail right of way).
- The Transportation Planning Rule establishes a hierarchy of transportation plans, requiring that the RTP be consistent with state plans and local transportation safety plans be consistent with the RTP.
- The Transportation Planning Rule (Section 660-012-0060) requires that a local government take measures to mitigate significant effects of land use plan amendments on a transportation facility.

Process for further corridor evaluation: refinement plans and project development

The Transportation Planning Rule defines a refinement plan as an amendment to a transportation system plan, such as the Regional Transportation Plan, that "resolves, at a systems level, determinations on function, mode or general location which were deferred during transportation system planning." Corridor refinements are necessary where a transportation need exists, but mode, function and general location of a transportation improvement are not determined.

A refinement plan is the approach ODOT recommends for conducting further analysis of potential corridors identified in the HCT planning process and adopted in the RTP. Regardless of the type of right of way required, this process would facilitate resolution of concerns over the effect of HCT corridors on vehicular mobility and freight on state highways.

During the development of projects in an adopted transportation system plan, the projects are not "subject to further justification with regard to their need, mode, function, or general location," provided that the plan makes decisions about those project characteristics as could be done in a refinement plan. Project development would implement HCT corridors adopted in the RTP by

17 Transportation Planning Rule, OAR 660, State of Oregon.

"determining the precise location, alignment, and preliminary design (of those corridors) based on site-specific engineering and environmental studies."[18]

Mobility

The regional transportation system balances the function of providing mobility, or movement, for people, goods and services with providing the ability for people to access local destinations. The RTP defines an integrated concept of multimodal regional mobility corridors, including both limited access throughways and high capacity transit that facilitate travel through and across the region. These throughways are subject to level of service mobility standards based on the vehicle to capacity ratio defined in the Oregon Highway Plan. Action 1F.3 of the Oregon Highway Plan permits jurisdictions to adopt alternate capacity standards with approval of the Oregon Transportation Commission; Metro adopted such standards in the 2035 Regional Transportation Plan.

ODOT has articulated several options that apply where future detailed analysis of HCT corridors indicates that current or forecasted V/C ratios on an affected state highway do not meet OHP standards.[19]

Option 1: Select a HCT corridor where the state highway meets mobility standards for the region.

Option 2: Mitigate for the negative impact using design or operational strategies and request ODOT approval pursuant to Action 1F.5 of the Oregon Highway Plan. The Oregon Highway Plan lists a number of possible design or management actions that might improve performance under Actions 1F.3 and 1F.5. This approach is applicable to corridor refinement plans as well as an RTP update.

Option 3: Another approach applies to minor RTP amendments subject to Section 660.012.060 of the Transportation Planning Rule,[20] as opposed to major updates or corridor refinement plans. If developing an HCT corridor is found to have a significant effect on a transportation facility (e.g., a degradation in the facility's performance) a request could be made for ODOT approval pursuant to Action 1F.6 of the Oregon Highway Plan, where the performance standard is to avoid further degradation of the facility.

Option 4: Request Oregon Transportation Commission approval of an alternate mobility standard for the particular highway, pursuant to Action 1F.3 of the OHP. This approach is applicable to RTP updates and possibly to corridor refinement plans, if the area "is of a size necessary to support compact development, reduce the use of automobiles and increase the use of other modes of transportation, promote efficient use of transportation infrastructure, and improve air quality."

Reducing vehicle carrying capacity on freight routes

On freight routes designated in the Oregon Highway Plan, through-highway mobility is given greater importance than accessibility. In the Portland metro region, these routes include all or portions of interstate highways 5, 84, 205 and 405, state routes 8 (TV Highway), 99W, 99E, 224, Powell Boulevard and U.S. Route 26, and U.S. Route 30.

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18 Section 660-012-0010 and 660-012-0050 of the Transportation Planning Rule, OAR 660, State of Oregon.

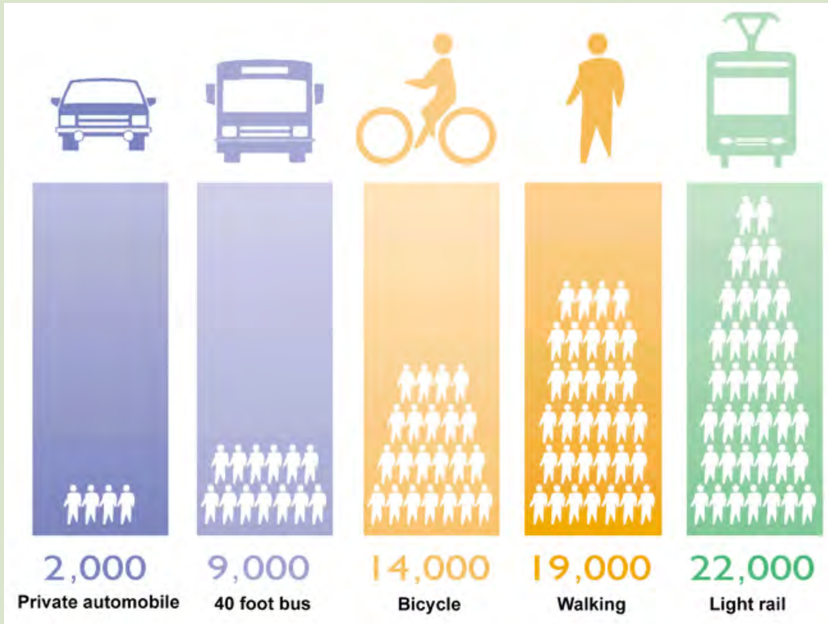
19 Oregon Highway Plan, Actions 1F.3, 1F.5, and 1F.6, p. 80-82, and Policy Element, Tables 6 & 7, State of Oregon, 1999 (amendments through July 2006).

20 "Where an amendment to a functional plan, an acknowledged comprehensive plan, or a land use regulation would significantly affect an existing or planned transportation facility, the local government shall put in place measures… to assure that allowed land uses are consistent with the identified function, capacity, and performance standards… of the facility."

Alternate mobility measures

The region is developing alternative means of measuring mobility, emphasizing person-carrying capacity rather than vehicle capacity. These alternate measures better account for the use of alternate transportation modes and a wider range of transportation options available in existing or planned mixed-use areas.

Figure 4.8: Person capacity per lane eqiuvalent[1]



Number of people crossing a 3.5-meter wide space in an urban environment during a one-hour period.

1 *Ticket to the future: 3 stops to sustainable mobility, UITP, International Association of Public Transport, Brussels, 2003.*

Oregon law precludes the Oregon Transportation Commission from permanently reducing "the vehicle-carrying capacity of an identified freight route when altering, relocating, changing or realigning a state highway unless safety or access considerations require the reduction," unless a local government, including districts such as Metro and TriMet, requests an exemption. According to the law, the commission "shall grant the exemption if it finds that the exemption is in the best interest of the state and that freight movement is not unreasonably impeded by the exemption."[21]

Acquisition of highway right of way land by public agencies

In 1991, the Intermodal Surface Transportation Efficiency Act (federal transportation authorization legislation) directed state departments of transportation to make surplus right of way constructed with at least partial federal funding available for transit projects, if doing so would not adversely impact automotive safety.[22]

An ODOT policy (formalized in 2008) stipulates that there is a reversionary clause for any right of way purchased for a highway project and transferred to a local jurisdiction. The right of way reverts

21 Creation of state highways; reduction in vehicle-carrying capacity, ORS 366.215, State of Oregon.

22 "Where sufficient land or air space exists within the publicly acquired rights of way of any highway, constructed in whole or in part with Federal-aid highway funds, to accommodate needed … public mass transit facilities, the Secretary shall authorize a State to make such … rights of way available with or without charge to a publicly or privately owned authority or company… if such accommodation will not adversely affect automotive safety."

back to ODOT if the land is not used for public road purposes "to protect the constitutionally dedicated Highway Fund contribution to the original purpose of the property."[23]

Policy considerations

Metro has already adopted mobility standards in the 2035 RTP that allow higher vehicle to capacity ratios but is also working to develop alternate measures of mobility. State regulations attempt to address the concern that increased intensity of land use around HCT stations will generate increased trips on state highway facilities and require mitigation measures to maintain highway performance standards. While these regulations are understandable, they can also act as an obstacle to furthering walkable transit-oriented communities needed to reduce regional vehicle miles traveled over the long term. Alternative mobility measures could provide a more comprehensive assessment of these impacts.

Right of way options for developing high capacity transit

Any new HCT line is faced with unique geographic, political and land use challenges and opportunities. Since many of the best opportunities for easily threading HCT lines through the metropolitan area have already been capitalized, future corridors are likely to face even greater challenges. In any one corridor, it is likely that multiple strategies for integrating HCT will be needed. This section outlines key strategies and tradeoffs.

Existing right of way (undeveloped). In urban areas, right of way is often available only along existing transportation corridors, including the roadway medians, highway shoulders and railroad alignments. For example, TriMet's practice is to use public and available railroad rights of way where possible, obtaining easements or purchasing land outright. A downside of existing, undeveloped right of way along transportation corridors is that it may be more challenging to create a high quality pedestrian environment or foster mixed-use, transit-oriented development.

- **Westside Express Service:** WES commuter rail provides an alternate route between Beaverton and Wilsonville during peak hours using 14.7 miles of freight railroad tracks shared with Portland & Western Railroad. The right of way was previously utilized for passenger service by the Oregon Electric Railway and Red Electric line.

Existing right of way

Northeast Holladay Street, before light rail

Northeast Holladay Street, after light rail

MUNI 3rd Street Light Rail, Sunnyside Station

23 Relinquishment of project right of way to local public agen
Transportation, State of Oregon, May 15, 2008.

- **Westside light rail** (**MAX Blue Line**)**:** In order to support concentrated development and land use patterns, the Portland region chose a railroad alignment adjacent to greenfields rather than build the light rail along already developed Highway 26 or Tualatin-Valley Highway.

Existing right of way (reallocate lane usage). Altering the use of lanes to provide exclusive transit right of way can improve travel time and reliability but may require eliminating local access or parking, particularly in mixed-use areas, which can raise community opposition.

- **Banfield light rail corridor:** Prior to MAX Blue Line construction, Northeast Holladay Street was a major westbound arterial carrying high volumes of traffic into downtown Portland. When MAX was constructed the street was converted to a double-track exclusive transitway and two westbound traffic lanes. When the auto lanes reopened after construction, they were

Right of way scenarios

Railroad right of way: Westside Express Service (WES) commuter rail is an example of an active rail corridor that was modified to carry commuter rail (light rail is also possible). There may also be unutilized space in the right of way to construct additional tracks.

Grade separated: MAX trains run on exclusive right of way in the street median, then enter grade-separated right-of-way leading to the bridge..

Side running: Blue and Red Line MAX trains run in exclusive right of way on two sets of tracks on one side of the street, adjacent to a traffic lane and on-street parking. Unutilized right of way may be available or existing traffic lanes could be converted to transit use.

Median: The photo above shows median running light rail in Barcelona, Spain. In Portland, the MAX Yellow Line runs in the median of North Interstate Avenue, which was reconfigured to accommodate the MAX. In other cases, there is unused right of way in street or freeway medians.

so underutilized that the direction was shifted to a safer, eastbound movement and a lane was converted to parking.

- **Interstate MAX:** The Interstate Avenue MAX Yellow Line was constructed at grade within the existing street right of way. It replaced a five-lane arterial with a fully separated double-track median and one traffic lane in each direction with turn lanes. As a result of transferring public right of way to HCT from roadway, the project avoided any home or business displacements. North of the Kenton Street station, it was more cost-effective to build the Expo Center section of the line grade separated but within the right of way, instead of replacing or widening the existing Denver Viaduct and the Columbia Slough Bridge.[24]
- **Third Street light rail, San Francisco:** The Third Street MUNI Metro line, completed in 2006 between the Bayview District and the downtown Caltrain station, operates in a semi-exclusive right of way. Third Street is one of the city's longest north-south routes and runs along its eastern waterfront. Three traffic lanes in each direction were reduced to two lanes, which some residents perceived as a benefit because of the traffic calming impact. The line runs in a median transitway with the exception of a nine-block section in the Bayview commercial core, where it operates in one of the two traffic lanes, with parking preserved. The remaining right of way was used to expand sidewalk width.[25]

Preserved right of way. Preserving right of way for transit use is a cost-effective means of providing right of way for future transit service in developing and undeveloped areas and is identified in the RTP as an investment need and as a fiscal stewardship goal. It is also a desirable approach where HCT service along a corridor is expected to be feasible in the future. In these cases, local land use plans should provide for transit right of way.

I-205/Portland Mall Light Rail Project: The I-205 MAX line largely follows an existing transitway created when I-205 was originally constructed. This right of way allowed for faster construction, fewer traffic disruptions and few community impacts.[26]

Purchase right of way (land in other use or undeveloped). Purchasing new or additional right of way is a complementary strategy to the other right of way options. In some cases, a small strip of additional land may be needed to create sufficient width in a right of way; in other cases, whole new tracts of land in developed or undeveloped areas may be needed.

Costs

There are trade-offs between construction in a street or freeway median and adjacent to the roadway. In the median, the right of way is publicly owned, but there are potentially greater construction costs due to access issues, grade conflicts with other transportation system users and station siting issues. Construction adjacent to a roadway has potential for more displacement of residences or businesses and the need to acquire additional property outside of the public right of way. There is no one answer to whether one approach is more cost-effective the other.

24 Debate of at-grade versus grade separation construction: Interstate MAX Project, Portland, OregonTransportation Research Circular E-C058: 9th National Light Rail Transit Conference, 2003.

25 Community and systems planning for Muni's Third Street Light Rail Project, Transportation Research Circular E-C058: 9th National Light Rail Transit Conference, 2003.

26 About the I-205 Project, TriMet, trimet.org, accessed June 30, 2009.

Figure 4.9: Rough order of magnitude cost estimates for right-of-way configuration

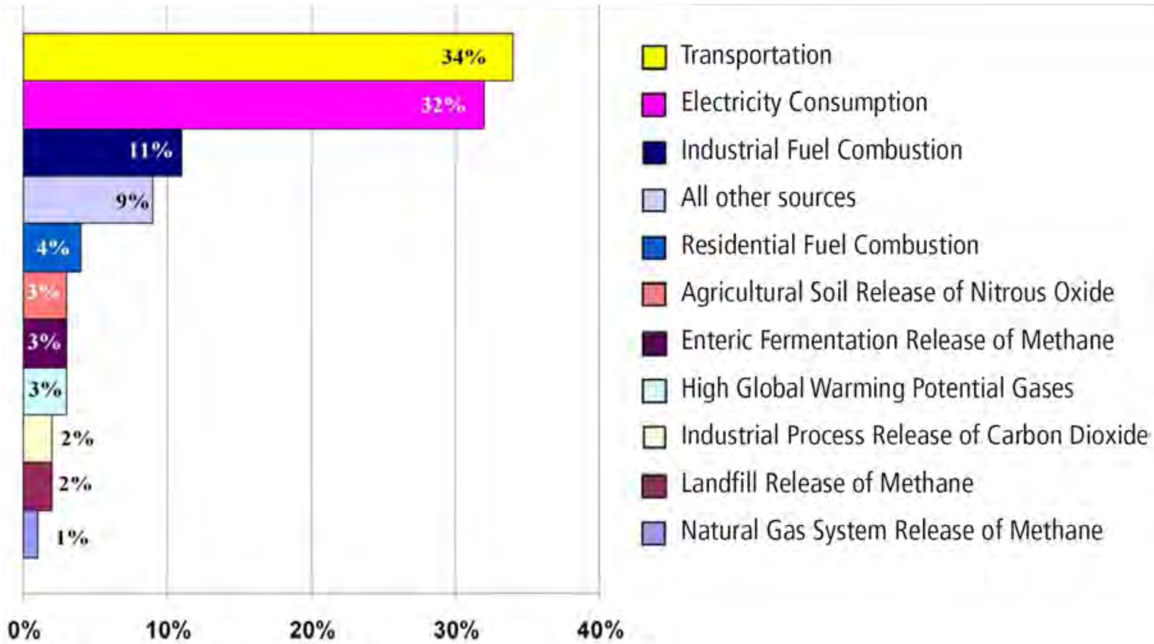
Right of way type	Right of way configuration	Estimated cost per mile (2009 dollars)	Percent difference from existing in-street median (low/high)
Existing	In-street median	$118 - $123M	–
Existing	In freeway	$130M	10%/6%
New	Adjacent to roadway	$113 - $146M	-4% / 19%
New	Adjacent to roadway, with retained fill	$120 - $153M	2%/24%

Figure 4.9 lists low and high estimates of average costs per mile for different HCT right of way configurations. These estimates were developed to evaluate potential HCT corridors and were primarily based upon actual construction costs for MAX Green Line and estimated costs for the South Corridor (Portland-Milwaukie) light rail project. The cost estimates assume light rail and are intended to provide a relative cost comparison. The right-most column shows the percentage difference between each right of way configuration and use of existing right of way in the street median. Use of the freeway median is generally 6 to 10 percent more expensive than a street median. Construction in new right of way adjacent to the existing roadway ranges from 4 percent less expensive to 19 percent more expensive. If adjacent right of way requires fill and a retaining wall, this increase is as as little as 2 percent and as much as 24 percent.

HIGH CAPACITY TRANSIT'S ROLE IN REDUCING CARBON EMISSIONS

Cities and regions across the United States have come to accept that greenhouse gas emissions are a chief cause of global warming. Oregon, a state known for environmental activism, has adopted goals of halting and cutting emissions levels across sectors. Reducing greenhouse gas emissions is especially important for the transportation field, which represents the largest source of emissions in the state (see Figure 4.10).

Figure 4.10: Major sources of Oregon greenhouse gas emissions (2004)[27]



Metro has a key role to play in reducing the region's greenhouse gas emissions because of responsibilities, regional perspective and a commitment to partnerships and collaborative solutions. This includes efforts by the Regional Transporation Plan. Metro is committed to identifying how the region can meet Oregon's greenhouse gas reduction goals, which call for arresting the growth of greenhouse gas emissions by 2010, reducing emissions to at least 10 percent below 1990 levels by 2020, and reducing emissions to at least 75 percent below 1990 levels by 2050.

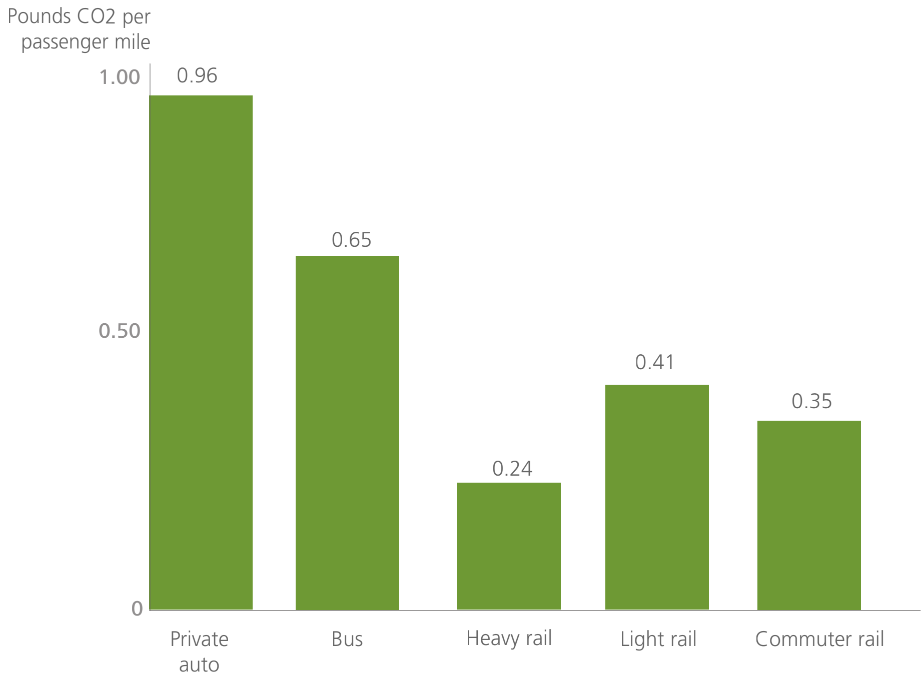
Metro is focusing on:

- developing regional greenhouse gas emissions tools to help Metro and the region assess and prioritize program options;
- coordinating with partners to create a regional climate prosperity strategy premised on the belief that successful reduction of greenhouse gas emissions and protection of the environment translates into competitive advantage and can serve as the foundation for economic growth and wealth creation in a transformed global economy.

Transportation emissions are primarily produced by personal motor vehicles. According to the Environmental Protection Agency, in 2008 passenger cars and light duty vehicles (which include vans and SUVs) accounted for 64 percent of all transportation emissions. Thus, increasing mass transit use and reducing vehicle miles traveled is a key element of a larger regional strategy for reducing the emissions produced by the transportation sector. Public transit emits far fewer emissions than auto travel, as shown in Figure 4.11.

27 A framework for addressing rapid climate change, final report to the governor, The Governor's Climate Change Integration Group, State of Oregon, January 2008.

Figure 4.11: National average greenhouse by gas emissions (2004)



The Federal Transit Administration's statistics are based on average vehicle occupancy of 1.14 for average single-occupancy vehicle work trips and 9.2 passengers per bus. Thus an increase in transit ridership affects emissions reduced: a full bus carrying 40 passengers emits 83 percent fewer greenhouse gas emissions on a per passenger basis than one carrying the average bus load. Most rail systems are powered entirely by electricity, therefore agencies purchasing electricity through clean sources – hydroelectric, wind, nuclear, solar – have a smaller carbon footprint than those using fossil fuel-produced electricity.[28] The Portland region does utilize a higher percentage of hydroelectric and wind powered sources for electricity generation than other regions in the country.

This section highlights how high capacity transit plays a key role in reducing regional greenhouse gas emissions; a particular focus is given to evaluation done locally and in other regions to quantify the most effective means for reducing greenhouse gas emissions. Findings from the review suggest the region should:

- focus on strategies that make more productive use of existing facilities and resources
- tie any transit expansions to land use changes; together they can have a large impact on CO_2
- consider cost effectiveness; some of the most popular means to reduce CO_2 emissions are the least cost-effective, but some of the most effective measures actually earn money for the economy and the implementer.

28 Calculated using carbon dioxide emissions per megawatt hour for the power supplied to the electrical grid in the particular subregion in which the transit agency operates. The data is from the U.S. Environmental Protection Agency's Emissions & Generation Resource Integrated Database (eGRID) 2006 v2.1. Subregion emission factors are used rather than state level emission factors, as regional power grids do not correspond with state lines. In addition, using the eGRID subregion data rather than the state level data is recommended by the California Climate Action Registry's general reporting protocol, chapter 14.

Make better use of what we have

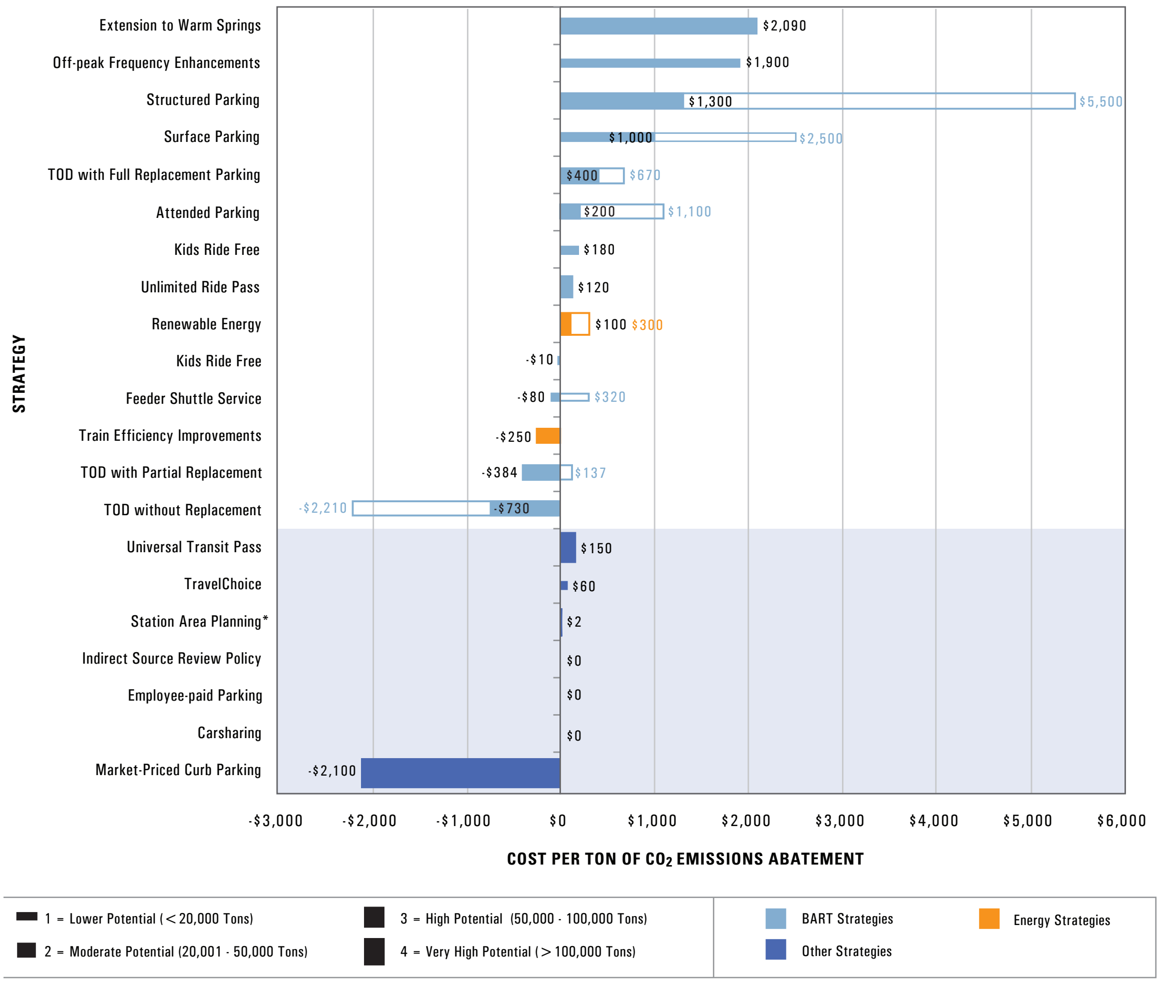
Multimodal intersection: Exclusive bus lane and bike connector crossing MAX tracks at Northeast Wheeler and Holladay streets.

The metropolitan planning organization for the San Francisco Bay Area, the Metropolitan Transportation Commission, has been heavily involved in reducing greenhouse gas emissions by promoting transit-oriented development. In 2005, MTC adopted an incentive program to encourage housing construction along the region's major new transit corridors as a way of fostering growth while minimizing energy consumption. To be awarded a station area planning grant, a municipality must accept corridor level thresholds for minimum levels of development around transit stations, develop a local station area plan to address future land use changes and incorporation of transit-oriented development elements, and create and maintain a corridor working group made of local and county planning staff, transit agencies and other stakeholders. Two cities have been awarded station area planning grants with an average of 2,595 housing units created in each. When taking into consideration the amount of vehicle miles traveled reduced by building transit accessible housing, the program reduces greenhouse gas emissions by 5,300 tons per city. At the same time, the program costs little; the credits produced in emissions reductions over the life cycle of the housing created bring the cost of the project to $2 per ton.[29]

BART recently commissioned a thorough analysis of several programs and their total cost and tons of greenhouse gas emissions reduced. Figure 4.12 illustrates the cost per ton of CO_2 reduced through various transit, land use and parking management programs. Some programs, particularly those that involve charging for parking, make money while reducing emissions; others show a high cost per ton of carbon dioxide reduced. Many of the strategies benefit not just the transit agency and the environment, but cause positive externalities in other areas of public life. For example, building transit-oriented development can improve public health by providing interesting and safe places to walk and bike.

29 BART actions to reduce greenhouse gas emissions: a cost-effectiveness analysis, Nelson\Nygaard Consulting Associates, Bay Area Rapid Transit, 2008.

Figure 4.12: Cost per metric ton of CO_2 emissions by abatement strategy



*Includes planning for land use change: does not include public or private infrastructure investment

Simple strategies such as fare incentive that fill seats at off peak times, station area planning and station access improvements can reduce greenhouse gas emissions at relatively low costs (compared with programs in other sectors) and help meet other regional land use and transportation goals.

Strategies to reduce CO_2 emissions

Fares. One main factor that people consider when making transportation decisions is cost. During times when the system has excess capacity, such as on weekends or off-peak hours, fare incentives can effectively shift drivers to transit, since roadways are less congested. Fare programs must be given careful thought, though, as they may result in reduced revenue for the agency. For example, when New York City Transit introduced unlimited ride weekly and monthly passes, ridership increased but revenue fell nearly 4 percent because the average fare per trip went down. New York Cit Transit did not cut service or raise fares during the 2009 recession and this change made the financial picture worse.

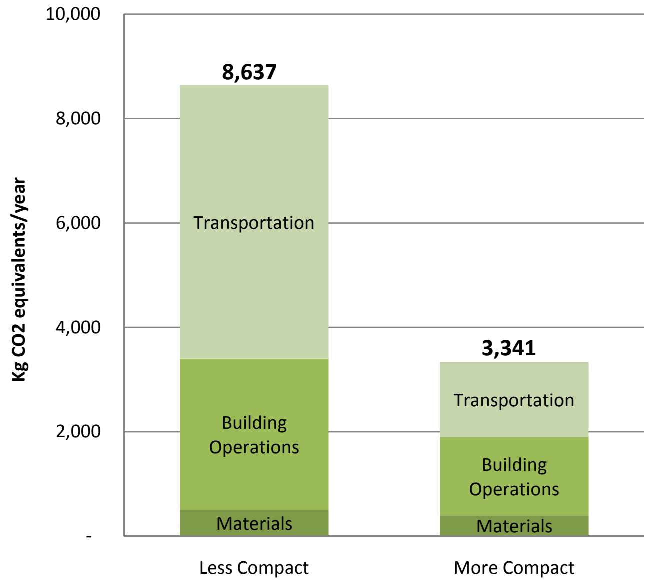
Better access to transit/walkable communities. The most effective way to decrease vehicle miles traveled is building communities that are more transit-oriented. As shown in Figure 4.13, people living in compact developments emit far fewer kilograms of CO_2.

BART's analysis concluded that transit-oriented development has the most potential to produce revenue and reduce emissions. When taking a typical BART station and implementing transit-oriented development in place of parking lots, BART could reduce emissions by 650 to 2,300 tons per project and achieve revenue gains of $600 to $1,400 per ton.[30]

Increasing incentives for developers to build in existing MAX station areas or on frequent bus lines and developing regional and local land use policies that promote transit-oriented development will be the most cost-effective means to reduce regional greenhouse gases.

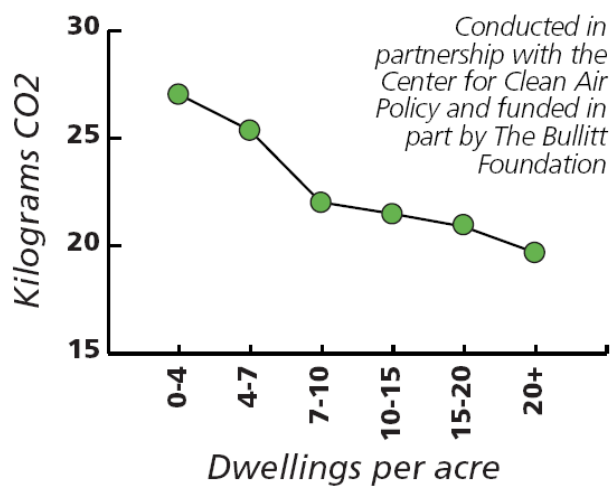
Enhancements to existing service. Transit service strategies that shift travelers from auto travel to transit are the primary focus of efforts to reduce greenhouse gas emissions. Adding service to existing high demand, high ridership lines is an effective strategy. Speeding up existing service is often a more cost-effective strategy, since it allows transit operators to get more service for the same amount of operating cost and increases transit's competitiveness with driving. There is also an important role for local agencies that operate the streets and signal systems, since they can provide priority needed for transit to bypass traffic and speed operations using traffic signal priority, which holds a green signal to allow a train or bus to pass. TriMet is doing its part by focusing on creating a total transit system to attract every choice rider possible. To do this, the agency is focusing on service reliability, adequate capacity and complete information for customers. Measures like real-time arrival information and cell phone service updates improve customer service and play a role in attracting and retaining passengers.

Figure 4.13: Greenhouse gas emissions and compact development



Journal of Urban Planning and Development, March 2006

Figure 4.14: Greenhouse gas emissions and dwellings per acre



Achieving sustainability through healthy community design, King County, 2005

30 BART actions to reduce greenhouse gas emissions: a cost-effectiveness analysis, Nelson\Nygaard Consulting Associates, Bay Area Rapid Transit, 2008.

Marketing. This is a measure that costs little in relation to many other strategies but can reap large rewards in increased ridership and ultimately greenhouse gas reduction. Measuring the effects of marketing campaigns can be difficult, but in general making sure the populace is aware and knowledgeable about available transit service is a critical step in attracting riders. Marketing has the biggest effect in instances where transit is most competitive with driving in terms of price, convenience and travel time. The BART study concluded that targeted marketing of existing transit services might be one of the most cost-effective means for reducing transportation related greenhouse gas emissions.

Transit expansion must be tied to land use changes. Most detailed analyses conducted to identify cost-effective strategies to reduce transportation related greenhouse gas emissions point to the need to increase our efforts to build dense, walkable, transportation-efficient communities and neighborhoods and to transfer the real cost of parking construction and operations to users.

Developing new HCT lines or extending existing lines is a capital intensive endeavor, but one that can drastically reduce greenhouse gas emissions if carefully executed to serve or leverage transit supportive development. A study completed for the American Public Transit Association suggests that transit service has a primary benefit from the act of substituting a mile of travel by car to a mile of travel on transit. It also offers a secondary benefit: Since transit fosters more compact and walkable communities, even those living near transit who don't use it will still reduce vehicle miles traveled as a result of being able to accomplish errands through shorter walking and cycling trips. This secondary benefit may be as much as 1.9 times as large as transit's direct impact.[31]

Strategies to reduce emissions at the agency level

Transit providers can change internal practices to further reduce greenhouse gas emissions, such as by making green practices part of procurement, fostering an environmental workplace, constructing green buildings and facilities and implementing new technologies that can reduce emissions and energy consumption.

TriMet is currently conducting a detailed assessment of its carbon footprint according to American Public Transportation Association's recommended practice for quantifying greenhouse gas emissions. The analysis is not complete yet, but data in the 2007 National Transit Database shows that TriMet's total operational footprint was 76,000 metric tons of CO_2.[32] The more detailed APTA footprint analysis will tell TriMet its debits – the amount of greenhouse gases emitted by source – as well as its credits, or how much greenhouse gases are not emitted because of TriMet's ability to shift mode choice and foster compact development. The footprint analysis will allow TriMet to identify its biggest sources of emissions and create targets for reductions.

One main source of greenhouse gas emissions for transit agencies comes from traction power. TriMet trains currently have wayside regenerative braking capability, which allows power released from braking to be briefly stored in the overhead wire and used by another train. This measure has reduced traction power needs by 20 percent; however, only 50 to 75 percent of potential power released from braking is being retained. TriMet is researching on-board regenerative braking, which allows the braking train to store the energy. This technology has the potential to capture 75 to 100 percent of the energy released from braking.[33] Other initiatives TriMet has undertaken include: using biodiesel blends containing vegetable oil and fats, installing railroad ties made of recycled plastic taken from car gas tanks and developing the South Mall light rail terminus alternative energy

31 The broader connection between public transportation, energy conservation and greenhouse gas reduction, ICF International, American Public Transit Association, February 2008.

32 Eric Hesse, TriMet Strategic Planning Analyst, e-mail message May 15, 2009.

33 Eric Hesse. TriMet Strategic Planning Analyst, phone interview. May 15, 2009.

project. This pilot project, which recently received funding from the federal stimulus package, is also planned to include solar and wind power generators at the South Mall light rail terminus.

The Metropolitan Transportation Association, the state authority running transit systems in New York City, has identified several innovative measures to cut greenhouse gas emissions, including:

- building administrative and maintenance facilities to LEED standards or higher
- using aluminum, which has a lower resistance than steel, for the third rail, resulting in less energy use from braking
- for new track construction, creating humped tracks at platforms so trains can take advantage of gravity and use less power for braking and accelerating
- retrofitting train cars with aluminum where possible to lower the train weight and thus reduce energy needs.[34]

Metro will need to work with its local, regional and national partners to ensure that critical climate change goals are met. While renewable energy sources, cleaner fuels and green technology will help to reduce greenhouse gas emissions, significant changes are needed in how communities are designed and constructed to meet reduction goals. The region's 2040 Growth Concept vision should continue to serve as a blueprint for more detailed strategies; research shows that dense, mixed-use communities that allow people to travel by foot, bike and transit are critical to climate protection.

Achieving emissions reductions requires involvement and leadership at the national, state and regional level. Many greenhouse gas emissions reduction strategies can all be undertaken by transit providers; however, some of the most important policies for reducing greenhouse gas emissions require wider, more systemic change than a transit agency can achieve on its own.

34 Energy/carbon, Metropolitan Transportation Authority, State of New York, www.lirr.org, accessed June 30, 2009.

5. CONCLUSION

> Planning is bringing the future into the present so that you can do something about it now.
> *—Alan Lakein, author*

As the first decade of the 21st century concludes, the world is struggling to confront the reality of global climate change, to realign the global economy toward a more sustainable future and to create energy systems that rely less on fossil fuels to run our grids and transportation systems. In this context, the Portland metro region is committed to being a great place to live and do business. To do so, it must address these issues while continuing to provide equitable and affordable housing, great parks and public spaces, and quality jobs for its residents. The region is challenged to leverage limited financial capacity to create a greater wealth of human, environmental and economic resources. This challenge is reflected in the six fundamentals adopted by Metro as part of the 2040 Growth Concept:

- healthy economy
- vibrant communities
- environment health
- transportation choices
- equity
- fiscal stewardship

The region has performed well so far. This region has on of the highest proportions of green buildings in the country, extensive renewable energy production and development, and is a national leader in growth management and natural resource protection. The Portland metro region has also established itself as a leader in sustainable transportation. Not only does it lead the nation in development of cycling infrastructure, but its public transit system is renowned for quality and innovation. In order to continue to thrive in the face of new challenges, the region must continue its proactive and innovative focus. A review of state of the industry practices summarized in this report points to a few guiding principles to accomplish regional goals:

- The best strategies make use of what we already have (infill transit-oriented development, transit efficiency improvements, etc).
- Transit expansions must be tied to land use; together they are among the most powerful tools we have to meet economic and environmental goals.
- The region's 2040 Growth Concept vision is as relevant today as when it was conceived, but we need to do more, moving quickly to manage the growth of our population while improving the health of environment.

The Regional High Capacity Transit System Plan is intended to set a framework for the continued development of a world class high capacity transit system in the Portland metro region. More importantly, it establishes a clear and measurable relationship between our investments in high capacity transit and the efficient land use patterns, sustainable development practices and placemaking principles to which we aspire.

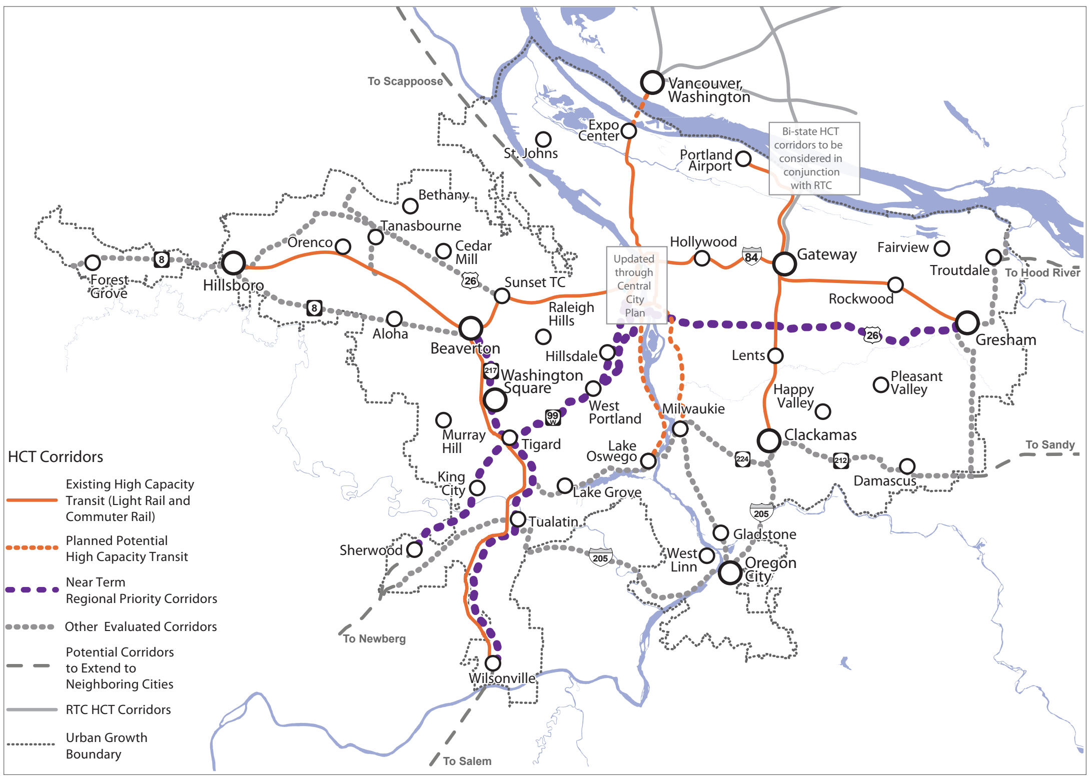
The Regional HCT System Plan makes several important contributions to the Regional Transportation Plan and the region's collaborative long range planning efforts.

Recommends top regional priorities for near-term investments in high capacity transit. Through an extensive screening and evaluation process, the plan uses a bottom line (economy, environment, community and deliverability) evaluation approach to identify the three top priorities for regional investment in high capacity transit (not necessarily listed in order of priority):

- a new HCT corridor in the vicinity of Powell Boulevard from the Portland central city to Gresham,
- a new HCT corridor running in the vicinity of Barbur Boulevard between the Portland central city, Tigard and Sherwood (with possible branch to Washington Square) and
- additional capital improvements to the WES commuter rail line that would will allow for 15-minute peak headways and the addition of midday service.

Figure 5.1 shows these near-term priority corridors alongside the region's existing and planned corridors.

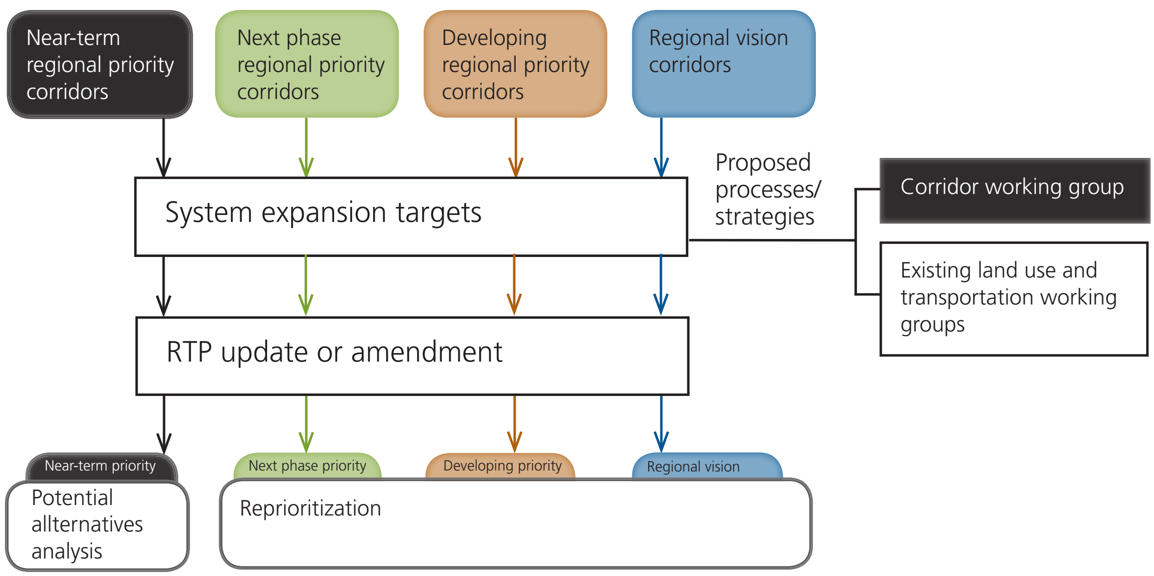
Figure 5.1: Near-term regional priority corridors



Creation of a clear and measurable framework for future system expansion prioritization. The system expansion policy provides a transparent process by which jurisdictions in regional priority corridors can work locally to advance their projects' regional priority status. When adopted as part of the 2010 Regional Transportation Plan update, the policy will set quantitative and qualitative targets that corridor communities, or working groups consisting of multiple jurisdictions, can work toward to advance a specific HCT project. Subsequent RTP updates, scheduled every four years, will serve as an opportunity to reprioritize regional funding for HCT based on interim actions taken by local jurisdictions. The system expansion plan emphasizes fiscal responsibility by ensuring that limited resources for new high capacity transit lines are spent where local jurisdictions have committed to supportive land uses, high quality access systems and management of parking resources, and proven there is broad based political support for the investment.

Figure 5.2 provides a conceptual illustration of how projects would advance between tiers and into the federal funding process.

Figure 5.2: System expansion policy process



Proposal of a new definition of high capacity transit for the Regional Transportation Plan. The plan calls for a functional definition of high capacity transit that is not mode specific, but rather addresses the critical operating and design features that attract a broad range of riders and leverage quality development and placemaking. Specifically, the regional high capacity transit system is designed to carry high volumes of passengers quickly and efficiently between regional centers. Other defining characteristics of HCT service include the ability to bypass traffic and avoid delay by operating in exclusive or semi-exclusive rights of way, faster overall travel speeds due to wide station spacing, frequent service, transit priority street and signal treatments, and premium station and passenger amenities.

This functional definition ties to system expansion policy targets, which ensures that investment outcomes are optimized, and is in line with the RTP performance based approach to prioritizing and measuring transportation investments.

Identification of best practices for high capacity transit system development and operations as well as supportive access, land use and parking strategies. This report describes the mutually supportive relationship between land use, transit service quality, transit accessibility and integration of the complete multimodal transportation system. These features largely define the level of community benefit from high capacity transit investments and require simultaneous attention in investment to optimize the achievement of regional goals.

The relationship between the factors can be described as follows:

> As density increases, more potential riders are given access to transit, if transit is available. Assuming streets and stops are designed to invite passengers, increased density will drive ridership higher. As the level of transit patronage increases in a corridor, transit providers will look to offer more frequent service and to improve the speed and reliability of service for passengers. High quality, permanent high capacity transit service makes an area attractive to

more residents, signaling to developers that the market is good for more dense housing and amenities. This relationship builds over time as long as transit is able to respond to growing demand.

The Portland metro region uses a collaborative regional approach to planning and economic development. Most importantly, the approach recognizes the tight interrelation of land use, economic development and transportation decisions in creating great communities and building a region ready to address the challenges of the 21st century. High capacity transit is an important tool to this end. The Regional HCT System Plan provides a framework by which HCT investments support urban growth, housing, regional affordability, environmental protection and livability goals. Like any element of community development, the plan is not static. Rather, it sets a dynamic course where wholistic system development is a priority, and future investments are measured against targets that advance a broad set of regional goals. As our predecessors have proven, we can accomplish what is beyond common expectation and that which is greater than the goals of any one organization.

If you have accomplished all that you have planned for yourself, you have not planned enough. —*Edward Everett Hale, author*

RESOLUTION NO. 09-4052

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF ACCEPTING THE REGIONAL HIGH CAPACITY TRANSIT SYSTEM TIERS AND CORRIDORS, SYSTEM EXPANSION POLICY FRAMEWORK AND POLICY AMENDMENTS FOR ADDITION TO THE 2035 REGIONAL TRANSPORTATION PLAN, STATE COMPONENT	)))))))	RESOLUTION NO. 09-4052 Introduced by Councilor Carlotta Collette

WHEREAS, in 1975, elected leaders set the stage for the Metro Area's balanced transportation system by rejecting the so-called Mt. Hood Freeway project between the Marquam Bridge and Lents neighborhood after public outcry over its expected cost and the destruction of developed neighborhoods that would be harmed by its construction; and

WHEREAS, the Metro Area chose a different development option and adopted the 1975 Interim Transportation Plan, setting aside plans for large new highway projects in favor of a multitude of street and roadway projects and a network of transitways along major travel corridors to meet future travel demand; and

WHEREAS, a systemwide network examination of regional high capacity transit corridors was completed in 1982 and adopted by Metro that resulted in nearly 90 miles of light rail transit, commuter rail and streetcar being built and/or planned for construction by 2016; and

WHEREAS, the Metro Area's 2040 Growth Concept and 2035 Regional Transportation Plan seek to prepare for the expected increase in growth in the Metro Area by providing multiple transportation options, including having pedestrian, bike and transit play a large role in facilitating growth within the Metro Area's current capacity; and

WHEREAS, expansion of the high capacity transit system will continue to reduce vehicle miles traveled, greenhouse gas emissions and the Metro Area's transportation carbon footprint; and

WHEREAS, high capacity transit is one of many important elements the Metro Area can use to build great communities; and

WHEREAS, a broad list of 55 potential high capacity transit corridors developed with the community and local jurisdictions was screened to the 18 most promising corridors based on criteria including ridership, cost, environmental constraints, social equity, transit connectivity, traffic congestion and region 2040 Growth Concept land uses; and

WHEREAS, the resulting 18 potential high capacity transit corridors were further analyzed based on a set of evaluation criteria that was approved by the Joint Policy Advisory Committee on Transportation (JPACT), Metro Policy Advisory Committee (MPAC) and the Metro Council; and

WHEREAS, the evaluation criteria were derived from the six outcomes of the Metro Council for a successful region, and are based on the three Regional Transportation Plan (RTP) categories of community, environment and economy, and also include a high capacity transit-specific category of deliverability; and

WHEREAS, the resulting 18 potential high capacity transit system corridors are prioritized and placed into the tiers of near term regional priority corridors, next phase regional priority corridors, developing regional priority corridors and regional vision corridors; and

WHEREAS, the regional high capacity transit system plan corridors which have been placed into tiers will be incorporated into the RTP and long-range land use and transportation planning efforts; and the 18 high capacity transit corridors will be regularly reviewed through the RTP; and

WHEREAS, the system expansion policy provides a framework for advancement of regional high capacity transit corridors, and identifies a distinct set of planning and policy actions and targets that will support successful high capacity transit implementation, including proposed amendments to the RTP; and,

WHEREAS, at its meeting on June 12, 2009, the Joint Policy Advisory Committee on Transportation recommended approval of the following; now therefore

BE IT RESOLVED THAT:

1. The Metro Council accepts the regional high capacity transit system plan tiers and corridors (Exhibit A), system expansion policy framework (Exhibit B), and recommended policy amendments (Exhibit C) for addition to the 2035 Regional Transportation Plan, State Component.

2. Acceptance of the regional high capacity transit system tiers and corridors, system expansion policy framework and policy amendments is not a final land use decision. The Metro Council will make a final land use decision on these matters when it adopts the 2035 Regional Transportation Plan, State Component, by ordinance.

ADOPTED by the Metro Council this 9TH day of JULY 2009.

David Bragdon, Council President

Approved as to Form:

Daniel B. Cooper, Metro Attorney

Officially Approved
Approvato Ufficialmente
Consiglio Metropolitano
METRO COUNCIL
Metro Council

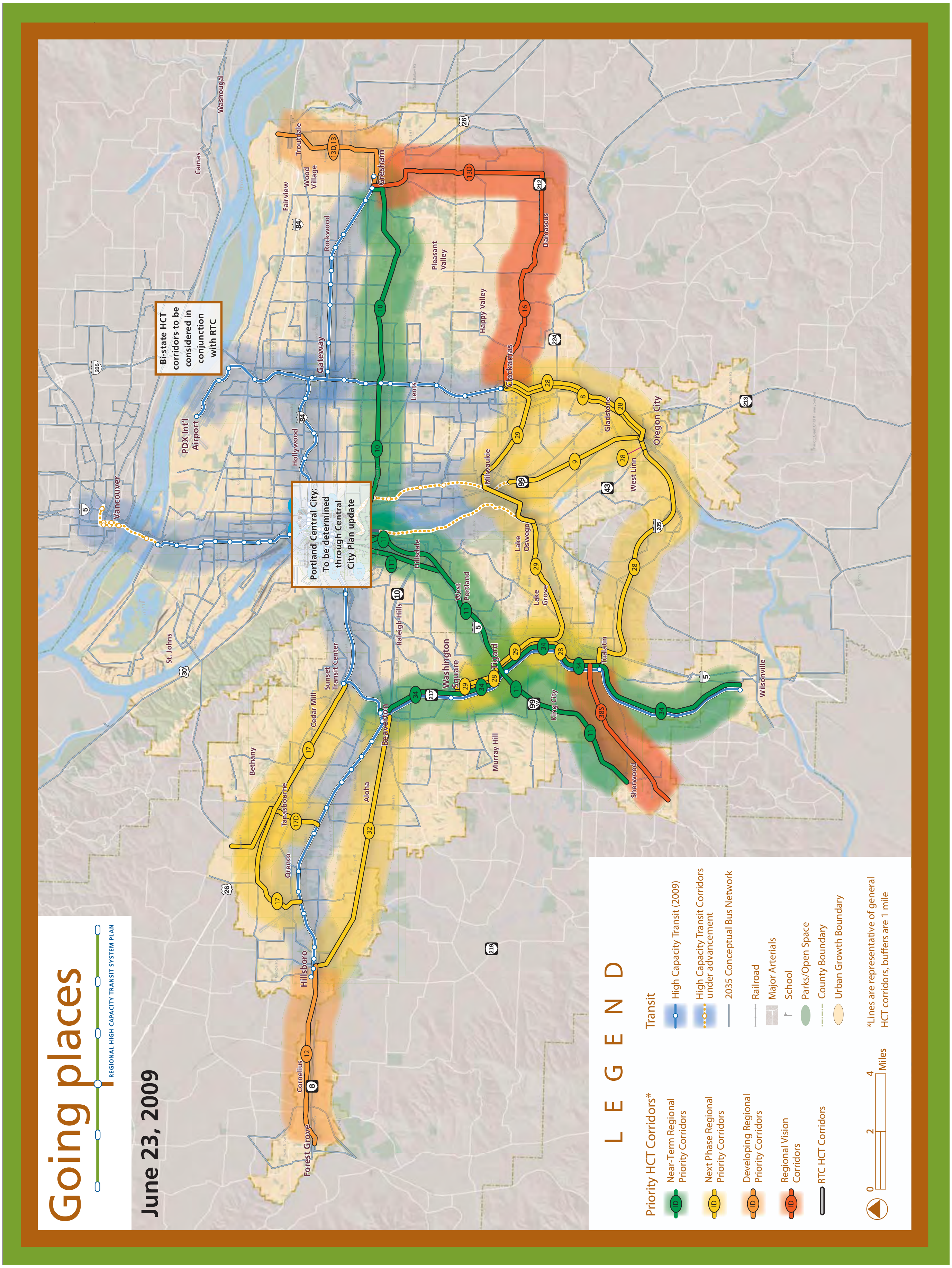
Resolution No. 09-4052 Page 2 of 2

Regional High Capacity Transit System Plan Tiers and Corridors

Corridors are not ranked within the tiers. Corridors are shown in numeric order by the corridor identification number. Also refer to the attached map.

Tier	Corridor Description (Mode As Evaluated) [1]	HCT Corridor Number	RTP Mobility Corridor Reference	Actions		
				Actions for Next 4-Years		
Near Term Regional Priority	Portland to Gresham in the vicinity of Powell Corridor (LRT)	10	5 - Central City – Gateway; 6 – Gateway to Gresham/Fairview/Wood Village/Troutdale	See the System Expansion Policy Framework's potential local actions and potential regional support, figure 2.	The location of High Capacity Transit and local land use actions and investments will influence future capacity for residential and employment in the region.	Location of High Capacity Transit may influence the location of future Urban Reserves and Urban Growth Boundary expansions.
	Portland to Sherwood in the vicinity of Barbur/Hwy 99W Corridor (LRT)	11	2 – Central City – Tigard; 4 – Portland Central City; 20 – Tigard - Sherwood			
	Beaverton to Wilsonville (LRT) in the vicinity of WES[2]	34[2]	2 – Central City – Tigard; 3 - Tualatin – Wilsonville; 19 – Beaverton – Tigard; 22 – Beaverton – North Plains			
Next Phase Regional Priority Corridors	CTC to Oregon City in the vicinity of I-205 Corridor (LRT)[3]	8[3]	8 – Clackamas – Oregon City	See the System Expansion Policy Framework's potential local actions and potential regional support, figure 2.	The location of High Capacity Transit and local land use actions and investments will influence future capacity for residential and employment in the region.	Location of High Capacity Transit may influence the location of future Urban Reserves and Urban Growth Boundary expansions.
	Park Ave to Oregon City in the vicinity of McLoughlin Corridor(LRT extension)[3]	9[3]	8 – Clackamas – Oregon City; 11 – Milwaukie to Clackamas			
	Sunset Transit Center to Hillsboro in the vicinity of Hwy 26 Corridor/ Evergreen (LRT)	17[4]	22 – Beaverton – North Plains; 24 – Beaverton to Forest Grove			
	Tanasborne (LRT extension)[4]	17D[4]	22 – Beaverton – North Plains			
	Clackamas Town Center to Washington Square in the vicinity of I-205/217 Corridors(LRT)	28	2 – Central City – Tigard; 7 – Oregon City – Tualatin; 8 – Clackamas – Oregon City			
	Clackamas Town Center to Washington Square in the vicinity of RR ROW (LRT)	29	2 – Central City – Tigard; 11 – Milwaukie to Clackamas			
	Beaverton to Hillsboro in the vicinity of TV Highway (LRT)	32	24 – Beaverton – Forest Grove			
	Gateway to Salmon Creek in the vicinity of I-205 Corridor[5]	55[5]	9 – Gateway – Clark County			
Developing Regional Priority Corridors	Hillsboro to Forest Grove (LRT extension)	12	24 – Beaverton – Forest Grove	See the System Expansion Policy Framework's potential local actions and potential regional support, figure 2.	The location of High Capacity Transit and local land use actions and investments will influence future capacity for residential and employment in the region.	Location of High Capacity Transit may influence the location of future Urban Reserves and Urban Growth Boundary expansions.
	Gresham to Troutdale Extension (LRT Extension)	13	6 – Gateway – Gresham/Fairview/Wood Village/Troutdale			
Regional Vision Corridors	Troutdale to Damascus (LRT)	13D	15 - Gresham/Fairview/Wood Village/Troutdale – Damascus	See the System Expansion Policy Framework's potential local actions and potential regional support, figure 2.	The location of High Capacity Transit and local land use actions and investments will influence future capacity for residential and employment in the region.	Location of High Capacity Transit may influence the location of future Urban Reserves and Urban Growth Boundary expansions.
	Clackamas Town Center to Damascus (LRT)	16	12 – Clackamas – Happy Valley; 13 – Happy Valley - Damascus			
	Sherwood to Tualatin (LRT)	38S	20 – Tigard – Sherwood/Newberg			

[1] The location of the alignment is to be decided through a corridor refinement plan and/or alternatives analysis.
[2] The WES Corridor (34) service upgrades are currently included in the federal RTP financially constrained list of projects to all day, 15 minute service. Service improvements that mimic light rail service will be examined in phases. Some portions of this corridor are included in corridors 28, 29 and potentially 11.
[3] Corridor 9 to be studied in conjunction with corridor 8.
[4] Corridor 17D to be studied in conjunction with corridor 17.
[5] Corridor 55 was selected as part of Southwest Washington Regional Transportation Council (RTC) HCT System Plan and was not ranked based on the evaluation criteria.


Going places
REGIONAL HIGH CAPACITY TRANSIT SYSTEM PLAN
June 23, 2009
Bi-state HCT corridors to be considered in conjunction with RTC
Portland Central City: To be determined through Central City Plan update
Vancouver
PDX Int'l Airport
Camas
Washougal
St. Johns
Hollywood
Gateway
Rockwood
Fairview
Wood Village
Troutdale
Gresham
Pleasant Valley
Happy Valley
Damascus
Clackamas
Lents
Milwaukie
Gladstone
Oregon City
West Linn
Lake Oswego
Lake Grove
Hillsdale
West Portland
Raleigh Hills
Washington Square
Tigard
Tualatin
King City
Sherwood
Wilsonville
Murray Hill
Beaverton
Sunset Transit Center
Cedar Mill
Bethany
Tanasbourne
Orenco
Aloha
Hillsboro
Cornelius
Forest Grove
LEGEND
Priority HCT Corridors*
Near-Term Regional Priority Corridors
Next Phase Regional Priority Corridors
Developing Regional Priority Corridors
Regional Vision Corridors
RTC HCT Corridors
Transit
High Capacity Transit (2009)
High Capacity Transit Corridors under advancement
2035 Conceptual Bus Network
Railroad
Major Arterials
School
Parks/Open Space
County Boundary
Urban Growth Boundary
*Lines are representative of general HCT corridors, buffers are 1 mile
0
2
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Miles

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Regional high capacity transit system expansion policy framework
6-24-09

BACKGROUND

Making the Greatest Place helps define how regional and local aspirations come together to create vibrant, healthy and sustainable communities. The challenges of climate change, rising energy costs, economic globalization, aging infrastructure and population growth require regional land use and transportation decisions to be supported by local decisions and actions. While regional land use policy has positioned the Portland metro region as a model for transit-supportive development, much of the region remains auto dependent due to the relatively low level of transit supportive land use regionwide. With limited resources, it is essential that future regional investments in high capacity transit (HCT) be used to leverage achievement of land use and economic development goals.

PROCESS FOR HIGH CAPACITY TRANSIT PROJECT ADVANCEMENT - PRIORITY TIERS AND SYSTEM EXPANSION POLICY FRAMEWORK

The regional high capacity transit system tiers and corridors identify near- and long-term regional HCT priorities. The system expansion policy component of the plan provides a framework to advance future regional HCT corridors by setting targets and defining regional and local actions that will guide the selection and advancement of those projects.

High capacity transit priority tiers

As described in Figure 1, regional HCT system corridors are grouped into one of four priority tiers, along with specific targets and various steps local jurisdictions could follow to advance a project to a higher tier. The four tiers relate to an HCT corridor's readiness and regional capacity to study and implement HCT projects. Corridors within each tier would be updated with each RTP or by RTP amendment. The four tiers are:

- **Near-term regional priority corridors**: Corridors most viable for implementation in next four years.
- **Next phase regional priority corridors**: Corridors where future HCT investment may be viable if recommended planning and policy actions are implemented.
- **Developing regional priority corridors**: Corridors where projected 2035 land use and commensurate ridership potential are not supportive of HCT implementation, but which have long-term potential based on political aspirations to create HCT supportive land uses.
- **Regional vision corridors**: Corridors where projected 2035 land use and commensurate ridership potential are not supportive of HCT implementation.

System expansion policy framework

The system expansion policy framework is designed to provide a transparent process agreed to by Metro and local jurisdictions to advance high capacity transit projects through the tiers. The framework is based on a set of targets designed to measure corridor readiness to support a high capacity transit project.

The system expansion policy framework:

1. Identifies which near-term regional priority corridor(s) should move into the federal project development process toward implementation; and
2. Delineates a process by which potential HCT corridors can move closer to implementation, advancing from one tier to the next through a set of coordinated Metro and local jurisdiction actions.

Based on the tiered category, regional actions would be aligned with work in each corridor while local actions would focus on meeting HCT system expansion targets. In near-term corridors, formal **corridor working groups** would be established. Other corridors would coordinate work through existing processes.

Figure 1: System expansion policy framework

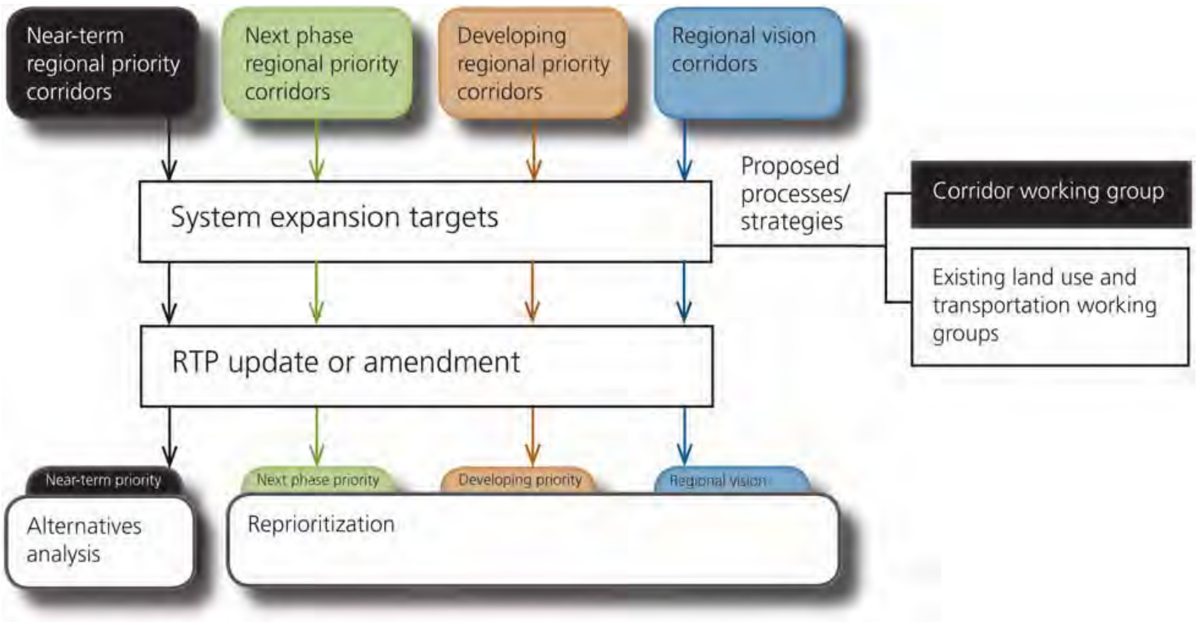

Figure 2: HCT system expansion policy framework concept

Tiers	Summary	Potential methods to reach targets		Potential system expansion targets	Potential strategies
		Potential local actions (applied to each corridor)	Potential regional support (assistance with corridor assessment against system expansion targets)		
Near-term regional priority corridors[1]	Corridors most viable for implementation in next four years.	• Develop corridor problem statement • Define corridor extent • Assess corridor against system expansion targets • Create ridership development plan/ land use/TOD plans for centers and stations • Assess mode and function of HCT • Create multimodal station access and parking plans • Assess financial feasibility	• Create land use/TOD plans for centers and stations • Analyze station siting alternatives • Coordinate with MTIP priorities • Perform multi-modal transportation analysis • Create multimodal station access and parking plans • Start potential Alternatives Analysis	• Transit supportive land use/station context • Community support • Partnership/political leadership • Regional transit network connectivity • Housing needs supportiveness • Financial capacity – capital and operating finance plans • Integrated transportation system development	• Corridor working group • Existing land use and transportation working groups
Next phase regional priority corridors[1]	Corridors where future HCT investment may be viable if recommended planning and policy actions are implemented.	• Develop corridor problem statement • Define corridor extent • Assess corridor against system expansion targets • Create ridership development plan/ land use/TOD plans for centers and stations • Assess mode and function of HCT	• Create land use/TOD plans for centers and stations • Analyze station siting alternatives • Coordinate with MTIP priorities	• Transit supportive land use/station context • Community support • Partnership/political leadership • Regional transit network connectivity • Housing needs supportiveness • Financial capacity – capital and operating finance plans	• Existing land use and transportation working groups

[1] The location of the alignment is to be decided through a corridor refinement plan and/or alternatives analysis.

Tiers	Summary	Potential methods to reach targets		Potential system expansion targets	Potential strategies
		Potential local actions (applied to each corridor)	Potential regional support (assistance with corridor assessment against system expansion targets)		
Developing regional priority corridors[1]	Corridors where projected 2035 land use and commensurate ridership potential are not supportive of HCT implementation, but which have long-term potential based on political aspirations to create HCT supportive land uses.	• Develop corridor problem statement • Define corridor extent • Assess corridor against expansion targets • Create ridership development plan/ land use/TOD plans for centers and stations	• Create land use/TOD plans for centers and stations • Analyze station siting alternatives	• Transit supportive land use/station context • Community support • Partnership/political leadership • Regional transit network connectivity	• Existing land use and transportation working groups
Regional vision corridors[1]	Corridors where projected 2035 land use and commensurate ridership potential are not supportive of HCT implementation.	• Develop corridor problem statement • Define corridor extent • Assess corridor against system expansion targets • Create ridership development plan/ land use/TOD plans for centers and stations	• Create land use/TOD plans for centers and stations	• Transit supportive land use/station context • Community support	• Existing land use and transportation working groups

[1] The location of the alignment is to be decided through a corridor refinement plan and/or alternatives analysis.

Attachment 1 - System expansion policy terms and definitions

This section provides a description of terms and definitions used in this document to describe the proposed process for HCT project advancement.

Local action descriptions

Local actions would be structured to reach tiered targets. Some or all of the following actions could be taken to advance a project, depending on the tier placement.

Develop corridor problem statement: The corridor problem statement defines the purpose of and establishes goals for the proposed HCT investment (i.e., congestion mitigation, economic development, etc.). It assesses the role of the project in addressing other regional transportation priorities and identifies opportunities for integration with other transportation system improvements in the corridor.

Define corridor extent: As in an FTA Alternatives Analysis, the definition of corridor extent could include a project extent that encompasses multiple alignment corridors or options.

Assess corridor against system expansion targets: The identification of progress toward all system expansion targets for the current priority tier.

Create ridership development plan/land use/TOD plans for centers and stations: Assessment of potential future ridership based on current land use projections, identified station areas and local zoning. This might involve demand modeling, but could effectively use Transit Orientation Index (TOI) scores within ½ mile of identified station areas. A ridership development plan could include assessment of: TOI score, residential density, employment density, potential cost effectiveness and transit supportive land uses (zoning and station typology aspirations).

Assess mode and function of HCT: Definition of the HCT modes that are most relevant for meeting the primary function of a corridor's problem statement. Selection of a lower cost mode could improve the corridor's ability to meet targets.

Create multimodal station access and parking plan: The station access plan would ensure that station designs optimize opportunities for intermodal connections and TOD by planning for an urban block pattern. The parking management plan would help local jurisdictions develop transit supportive parking policies that include development of potential parking districts. It could also establish maximum parking requirements, pay-for-parking, park-and-ride development and management plans, and other parking code changes such as unbundling parking for new development.

Assess financial feasibility: Assessment of the financial feasibility of the region to advance an HCT project. The analysis would consider and propose incentives to finance existing and future infrastructure improvements, using tools such as system development charge credits, tax abatement, improvement districts and tax increment financing (TIF).

Regional support descriptions

Regional support will be necessary to advance any corridor. Regional actions may already be in place, such as work coordinated through the transportation system plans; however, specific regional actions to support HCT project advancement would vary based on the tier.

Create land use and transit-oriented development plans for station areas: Land use and TOD plans for corridors would be reviewed for local areas to ensure that station areas within a defined corridor extent can meet defined targets for ridership and transit supportive land use.

Analyze station siting alternatives: Locations of stations is critical to the success of the HCT system. Metro has advanced tools to work in tandem with locals to assess the trade-offs between potential station areas.

Coordinate with MTIP priorities: HCT investments should align with regional priorities for transportation and land use investments. MTIP prioritization would support development or preparation of a corridor as an HCT project.

Perform multi-modal transportation analysis: Metro will assist with the preparation and production of transportation modeling for near-term regional priority corridors. Metro will assist corridors in other tiers as well; however, methods will vary.

Create station access and parking plans: Parking availability is one of the strongest determinants of transit ridership and has the potential to add significant value to leverage regional HCT investment. Metro has tools for the region to review parking plans for all land use types.

Start potential alternatives analysis: The region can begin the process to help projects advance into federal alternatives analysis process.

Proposed system expansion target descriptions

A small set of system expansion targets will be identified to measure project readiness and contribution to regional goals. These targets will provide clear direction to local jurisdictions that desire to advance projects. System expansion targets would vary based on the tier.

Transit supportive land use/station context: Under this target, each station along a proposed alignment should be evaluated for ridership potential based on the jurisdictions' demonstrated willingness to promote transit supportive development. Specific targets could be set for residential, commercial and employment density in station areas. Additionally each station should undergo an evaluation to determine: (1) the capacity for station area development, (2) ability to create good station access for all modes and (3) any issues with station capacity or functionality.

Community support: This measure would be qualitative, based on expressed support for HCT service in the corridor.

Partnership/political leadership: This measure would be qualitative based on demonstrated political leadership, development of strategic partnerships and demonstrated advancement of local aspirations.

Regional transit network connectivity: This measure would assess the role the project plays in filling key regional transit system gaps, connectivity with the existing and planned systems and ability for existing system facilities to support the investment. It would also measure a project's impact on the regional HCT system's ability to increase system capacity to deal with malfunction, incident or construction/maintenance, and the ability for existing station and track infrastructure to support the investment.

Housing needs supportiveness: This measure would assess the contribution of the project to improve overall housing and transportation affordability for populations of concern.

Financial capacity – capital and operating finance plans: This measure would assess the capacity to fund capital and operations with no significant negative consequences on existing infrastructure or transit system operations. This evaluation could include:

- **Capital finance plan**: A qualitative rating based on whether a project is partially or fully funded, the availability of local capital funds and competition for funding that is needed for core system capacity enhancements or maintenance.

- **Operating finance plan**: A preliminary analysis of the financial capacity to operate using measures such as estimated farebox recovery, cost effectiveness (total annualized operating and capital cost per passenger), and the stability, reliability and availability of proposed operating subsidy.

Integrated transportation system development: This measure would quantitatively assess the role each project would play in addressing a broad range of regional transportation priorities, particularly those priorities for the Mobility Corridor in which the corridor is located.

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This document describes elements of the federal 2008 Regional Transportation Plan recommended for update based on the work concluded through the High Capacity Transit System Plan.

1. Define the function of high capacity transit within an integrated transportation system

Current Regional Transportation Plan policy: As defined in the Regional Transportation Plan, page G-7, "High capacity transit is characterized by carrying a larger volume of passengers using larger vehicles and/or more frequent service than a standard fixed route bus system. It operates on a fixed guideway or within an exclusive right-of-way, to the extent possible. Service frequencies vary by type of service. Passenger infrastructure is provided at transit stations and station communities, including real-time schedule information, ticket machines, special lighting, benches, shelters, bicycle parking, and commercial services. Using transit signal priority at at-grade crossings and/or intersections preserves speed and schedule reliability. Park and-ride lots provide important and necessary access to the high capacity transit network."

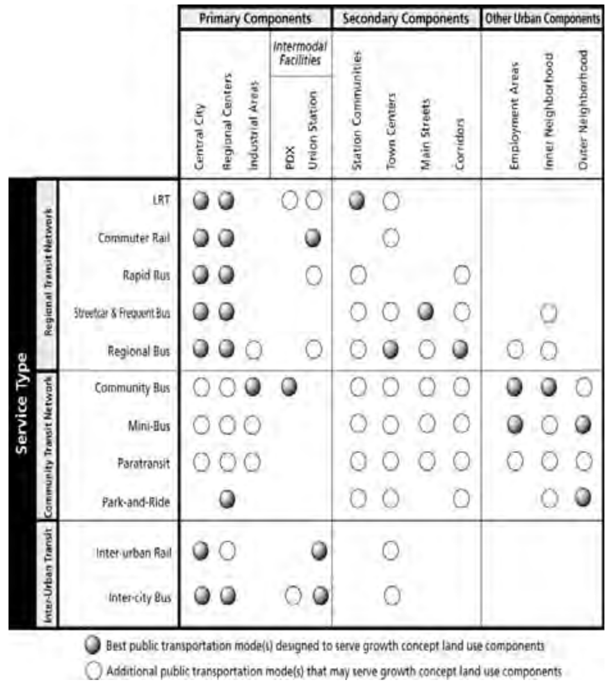
What we've heard: In public involvement efforts and committees, staff has heard conflicting understanding and opinions about the purpose and function of high capacity transit. High capacity transit could serve corridors with access and many stops or it could serve centers with speed and few stops. Some participants wanted more suburban-to-suburban service and faster service through downtown Portland.

Recommendation: Update the RTP to define the function of high capacity transit as carrying a larger volume of passengers using larger vehicles and/or more frequent service than a standard fixed route bus, with a majority of an HCT line separated from traffic. The update should include language to reflect that the level of investment in High Capacity Transit should be warranted based on performance targets. HCT targets would be based on the ability of a capital investment to move people more efficiently than can be achieved by a fixed-route bus in traffic.

RTP update method: Regional High Capacity Transit System Plan system expansion policy targets would set clear guidelines about what HCT investment is fiscally appropriate based on projected demand. This would help guide the level of investment necessary for individual corridors.

2. <u>Define the role of HCT in providing service to town centers and employment areas</u>

RTP Figure 3.14



Current Regional Transportation Plan policy: Under the current Regional Transportation Plan, Figure 3.14, high capacity transit (LRT, commuter rail, and rapid bus) is designed to provide core transit service to primary components, which include the central city, regional centers, and Union Station, and to the secondary component, station communities. High capacity transit (LRT, commuter rail, and rapid bus) is designed to provide additional public transportation modes that may serve growth concept land use components include the Portland Airport (PDX) and town centers.

What we've heard: In public involvement efforts and committees, staff has heard a desire for town centers, employment areas and major activity centers (e.g., the Oregon Zoo) to be served by high capacity transit.

Recommendation: Update the RTP with defined targets for mode-neutral transit service frequencies to serve each of the 2040 Growth Concept land uses. Performance targets would guide the mode type and clarify what major investment is appropriate. Activity centers are not clarified in the 2040 Growth Concept, and no specific service targets are recommended.

RTP update method: Regional High Capacity Transit System Plan system expansion policy targets would set clear guidelines about what HCT investment is fiscally appropriate based on projected demand. This would help guide the level of investment necessary for individual corridors.

3. <u>Define HCT modes and resolve if rapid streetcar should be added as potential high capacity transit mode and clarify the role of commuter rail</u>

Current Regional Transportation Plan policy: Under the current Regional Transportation Plan, page 3-38, high capacity transit facilities and services include light rail transit, commuter rail, bus rapid transit, intermodal passenger facilities and park-and-ride lots.

The Regional Transportation Plan, page G-15, defines streetcar as: "Fixed-route transit service mixed in traffic for locally oriented trips within or between higher density mixed-use centers. Streetcar services provide local circulator service and may also serve as a potent incentive for denser development in centers. Service runs typically every 15 minutes and streetcar routes may include transit preferential treatments, such as transit signal priority systems, and enhanced passenger infrastructure, such as covered bus shelters, curb extensions and special lighting."

The Regional Transportation Plan, page G-3, defines commuter rail as: "Short-haul rail passenger service operated within and between metropolitan areas and neighboring communities. This transit service operates in a separate right-or-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 demands exists and where 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."

The Regional Transportation Plan, page G-8, defines inter-rail as "Inter-city passenger rail that 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. These systems should be integrated with other transit services within the metropolitan region with connections at passenger intermodal facilities."

What we've heard: In public involvement efforts and committees, staff has heard that there are discrepancies existing in the current RTP. Rapid streetcar is being proposed in the Portland to Lake Oswego corridor, but rapid streetcar is not defined in the RTP. The High Capacity Transit System Plan has identified potential commuter rail lines to neighboring communities, but these lines would fall in between the RTP definitions of commuter rail definition and inter-city rail.

Recommendation: Update the RTP to replace the mode description type with mode function and performance targets. Targets for all modes performing as high capacity transit will be added, including the modes of commuter rail and rapid streetcar.

RTP update method: Regional High Capacity Transit System Plan system expansion policy targets would set clear guidelines about what HCT investment is fiscally appropriate based on projected demand. This would help guide the level of investment necessary for individual corridors.

4. Define the coordination of land use, station area and transportation investments with HCT investments

Current Regional Transportation Plan policy: There is currently no Regional Transportation Plan policy directing concurrent land use, transportation and transit planning in high capacity transit corridors.

What we've heard: In public involvement efforts and committees, staff has heard an emphasis on the importance of combining placemaking efforts and land use planning with future high capacity transit investments. Public participants were interested in creating links between stations and neighborhoods by integrating stations into surrounding communities, considering pedestrian and bike facilities around stations, and providing good local transit service to get people to HCT stations.

Recommendation: Update the RTP to incorporate the system expansion policy for advancement of high capacity transit corridors to include land use coordination and action by local communities to advance HCT projects.

RTP update method: Regional High Capacity Transit System Plan system expansion policy targets will include land use targets in association with measuring the value of potential future HCT investments.

STAFF REPORT

IN CONSIDERATION OF RESOLUTION NO. 09-4052 FOR THE PURPOSE OF ACCEPTING THE REGIONAL HIGH CAPACITY TRANSIT SYSTEM TIERS AND CORRIDORS, SYSTEM EXPANSION POLICY FRAMEWORK AND POLICY AMENDMENTS FOR ADDITION TO THE 2035 REGIONAL TRANSPORTATION PLAN STATE COMPONENT

Date: June 25, 2009 Prepared by: Tony Mendoza 503-797-1726

BACKGROUND

The Regional High Capacity Transit (HCT) System Plan identifies corridors where new HCT could be developed over the next 30 years and prioritizes corridors based on evaluation criteria adopted by the region, and sets a framework to advance projects in the future. This staff report summarizes the study process, provides key results and describes proposed policy changes.

Role of high capacity transit

Metro's *Making the Greatest Place* process will position the region as a national leader in addressing the 21st century challenges of energy independence, carbon neutrality, population growth, sustainable economic development and human health. Continued development of a world class, HCT system is part of an integrated strategy to accommodate the region's rapidly increasing population, while reducing the negative impacts of growth on land, air and water quality and the ability to get around. Regional land use policy has positioned the Portland metro area to effectively employ transit supportive development policy and implementation. It is essential that HCT future investments leverage achievement of land use and economic development goals.

Regional HCT System Plan outcomes

The Regional HCT System Plan is not intended as a review of the regional transit structure or its management, or as a complete service analysis of the existing HCT system. Rather, the plan applies technical evaluation of possible investments to set near- and long-term priorities and aligns HCT project advancement in a way that supports and enhances the goals of the Regional Transportation Plan (RTP) and the region's 2040 Growth Concept. HCT system capital investments must be implemented as part of a broad corridor strategy that includes supportive land use and transit-oriented development (TOD), comprehensive parking programs, access systems for pedestrians and cyclists, park and rides and feeder bus networks. The Regional HCT System Plan creates a new policy framework where these elements lead or parallel investment in HCT.

Regional HCT System Plan process

Significant work has been done by Metro's technical team as well as the HCT MTAC/TPAC Subcommittee and other Metro policy committees. Steps completed in the process to date include:

- early plan public outreach and stakeholder interviews to identify major issues and objectives, and to develop an initial universe of corridors to be evaluated

- formation of and meetings with a “Think Tank” group, a group of regional leaders in a number of related fields formed to provide high-level concept development to guide the Regional HCT System Plan
- development of a long list of 55 potential regional high capacity transit corridors
- development and application of a set of eight screening criteria to narrow the 55 corridors to 18 promising corridors.
- development and adoption of 25 detailed evaluation criteria used to prioritize the 18 corridors
- stakeholder and public review of evaluation criteria
- evaluation and prioritization of the 18 adopted regional HCT system corridors
- development of a system expansion policy which sets a framework to advance HCT corridors into development.

RESOLUTION MATERIALS

Exhibit A delineates HCT system plan tiers and corridors. These tiers and corridors are the result of months of technical work and iterations of review by the MTAC/TPAC HCT Subcommittee, TPAC, MTAC, MPAC, and JPACT.

Exhibit B explains the system expansion policy framework, as described in more detail below.

Exhibit C illustrates recommended policy amendments for addition to the 2035 RTP, State Component based on lessons learned through the HCT planning process.

EXHIBIT A: Regional high capacity transit system plan tiers and corridors

An intense evaluation process revealed that ridership, though not weighted, is an important indicator of how a corridor scores since many of the evaluation criteria relate to ridership. In short, the more use a corridor has, the more benefits the corridor will produce. In addition to the technical analysis, public outreach efforts and a survey of Metro’s standing committees revealed that ridership (or ridership potential) was seen as the most important single factor in determining where new HCT investments should be made.

HCT modes

To ensure that all corridors were evaluated evenly, all HCT corridors were examined as light rail. This was also done to limit the potential for subjective judgments about appropriate modes for a corridor, which could favor one corridor over another.

Mode selection will be a critical component of the system expansion policy for future selection of priority corridors, and targets will be set to help guide what the appropriate investment should be for each corridor.

EXHIBIT B: Regional high capacity transit system expansion policy

System expansion policy framework

The system expansion policy framework is designed to provide a transparent process to advance high capacity transit projects through the tiers. The framework is based on a set of targets designed to measure corridor readiness to support a high capacity transit project, as described in *Exhibit B.*

System expansion targets

The targets or thresholds set through the system expansion policy will provide clarity for actions local jurisdictions can take to move a corridor to a higher tier or prepare a corridor for advancement. Regional actions will also be required to ensure projects move forward in partnership. Targets will be based on measurable factors that support ridership such as household and employment densities and sidewalk connectivity. Additionally, targets will be set for community support and political leadership. These targets will be finalized in conjunction with the completion of the 2035 RTP, State Component.

EXHIBIT C: Recommendations for regional transportation plan updates

Over the course of the HCT System Plan process, several policy questions arose. These policy questions are addressed in *Exhibit C.* This document seeks to address policy questions of the function of HCT and definitions of HCT modes and to define the framework of the system expansion policy.

ANALYSIS/INFORMATION

Known opposition

Representatives from Forest Grove (including the mayor) and Cornelius have concurred with the validity of the technical analysis but are on record as opposing the tiered ranking of Corridor 12 (Hillsboro to Forest Grove) in the developing regional priority category.

Legal antecedents

Resolution No. 09-4025 *For the Purpose of Adopting the Regional High Capacity Transit System Plan Screened Corridors and Evaluation Criteria.*

Ordinance No. 82-135 *For the Purpose of Adopting the Regional Transportation Plan*

Resolution No. 83-383 *For the Purpose of Endorsing the Regional Light Rail Transit (LRT) System Plan Scope of Work and Authorizing Funds for Related Engineering Services*

Resolution 07-383 1B *For the Purpose Of Approving the Federal Component of the 2035 Regional Transportation Plan (RTP) Update, Pending Air Quality Conformity Analysis*

Anticipated effects

Adoption of this resolution would enable the prioritized HCT corridors to be included in the RTP, State Component, set a policy framework for the advancement of high capacity transit projects through the system expansion policy, and set a policy framework for HCT within the RTP, State Component.

Budget impacts

There would be no direct impact on the Metro budget as a result of taking action on this resolution.

RECOMMENDED ACTION

Approve Resolution No. 09-4052 For the Purpose of Accepting the Regional High Capacity Transit System Tiers and Corridors, System Expansion Policy Framework and Policy Amendments for Addition to the 2035 Regional Transportation Plan State Component

Resolution exhibits

Exhibit A: High capacity transit system plan tiers and corridors
Exhibit B: System expansion policy framework
Exhibit C: Recommended policy amendments for addition to the 2035 Regional Transportation Plan, State Component

Staff report attachments

Council has previously received the following document in the draft form:

- High Capacity Transit System detailed evaluation report on May 12, 2009

Council will receive the following documents when they have been finalized after council's final adoption of Resolution:

- High Capacity Transit System detailed evaluation report
- Regional High Capacity Transit System Plan summary report
- Public outreach summary report

NONDISCRIMINATION NOTICE TO THE PUBLIC

Metro hereby gives public notice that it is the policy of the Metro Council to assure full compliance with Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987, Executive Order 12898 on Environmental Justice and related statutes and regulations in all programs and activities. Title VI requires that no person in the United States of America shall, on the grounds of race, color, sex, or national origin, be excluded from the participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which Metro receives federal financial assistance. Any person who believes they have been aggrieved by an unlawful discriminatory practice under Title VI has a right to file a formal complaint with Metro. Any such complaint must be in writing and filed the Metro's Title VI Coordinator within one hundred eighty (180) days following the date of the alleged discriminatory occurrence. For more information, or to obtain a Title VI Discrimination Complaint Form, see the web site at www.oregonmetro.gov or call 503-797-1536.

Metro | *People places. Open spaces.*

Clean air and clean water do not stop at city limits or county lines. Neither does the need for jobs, a thriving economy and good transportation choices for people and businesses in our region. Voters have asked Metro to help with the challenges that cross those lines and affect the 25 cities and three counties in the Portland metropolitan area.

A regional approach simply makes sense when it comes to protecting open space, caring for parks, planning for the best use of land, managing garbage disposal and increasing recycling. Metro oversees world-class facilities such as the Oregon Zoo, which contributes to conservation and education, and the Oregon Convention Center, which benefits the region's economy.

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June 2010

REGIONAL FREIGHT PLAN

2035

June 2010

Metro | *Joint Policy Advisory Committee on Transportation*

5905

Metro is the federally mandated metropolitan planning organization designated by the governor to develop an overall transportation plan and to allocate federal funds for the region.

The Joint Policy Advisory Committee on Transportation (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 assures a well-balanced regional transportation system and involves local elected officials directly in decisions that help the Metro Council develop regional transportation policies, including allocating transportation funds.

Project web site: www.oregonmetro.gov

This project is partially funded by a grant from the Transportation and Growth Management (TGM) Program, a joint program of the Oregon Department of Transportation and the Oregon Department of Land Conservation and Development. This TGM grant is financed, in part, by federal Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), local government, and State of Oregon funds. The contents of this document do not necessarily reflect views or policies of the State of Oregon.

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

CONTENTS

EXECUTIVE SUMMARY

Investment in efficient freight transportation improves mobility and creates jobs

Our region is a great place to live, work and play, and we've worked hard to keep it that way. But whether we are harvesting the fruits of sustainable economic growth, or facing tough times together, it's important to understand that much of our prosperity is directly tied to the investments we make in our regional freight infrastructure, by making consumer goods readily available to us, providing multimodal systems that help our businesses efficiently reach global and domestic marketplaces and developing high-quality regional jobs. This Regional Freight Plan defines goals, strategies and actions designed to guide the stewardship of our critical multimodal regional freight infrastructure and industrial land supply, to support a sustainable, balanced and prosperous tomorrow.

Our natural and built resources – and our people – also make the Portland-Vancouver region a globally competitive international gateway and domestic hub for commerce. Since 1994, every study that has examined the Portland-Vancouver area (and the Oregon and Washington economies in general) has found a much higher-than-average link between economic health, creation and retention of family wage jobs, and infrastructure that helps goods move more quickly to destinations through our multimodal freight

Trade-dependent economies

Oregon is ninth and Washington is first in the United States*

Exports: 2007 Oregon exports totaled $16.5 billion; 2007 Portland/Vancouver exports totaled $15.8 billion.

Businesses: Thousands of Oregon companies depend on Portland's marine, rail, air and road facilities for access to resources and markets: onions, apples, hazelnuts, grass seed, seafood, wood products, Les Schwab, Fred Meyer, Intel, Nike, Columbia Sportswear, etc.

Jobs: One of five statewide jobs relies on effective transportation network for operations**.** In 2008, 14,800 direct jobs and $530 million in direct income were tied to marine and air terminals at Port of Portland. Sharing the same regional and national transportation network, the Port of Vancouver (2005) generated nearly 2,300 direct marine and industrial jobs. Thousands more indirect jobs were also created in the region, along with associated millions of dollars in income.

Local revenue: $182 million in local/state taxes generated by the Port of Portland (2008) help make this greatest place.

Sources: U.S. Department of Commerce industry trade data and analysis; EDRG white paper (2008); Port of Portland (2009); Port of Vancouver (2009); Martin & Associates (2006, 2009).

* "Trade-dependency" rankings are based on value of state exports as a percentage of gross state product.

network.[1] Increased transportation capacity, efficiency, flexibility and travel time reliability reduce transportation costs for firms (improving access to markets and inputs) and individuals (reducing travel costs and time). A multimodal system, with connections between modes, also means more competitive shipping rates for our local businesses. By increasing productivity, our investments increase this region's ability to compete in the global marketplace. That advantage facilitates retention or expansion of existing businesses, supports homegrown startups and attracts new businesses to the region. Regional benefits of the resulting increase or retention of employment include direct, indirect and induced jobs, income, taxes and spending; in fact, one in ten regional jobs are associated with transportation, distribution or the logistics industry.

The Regional Freight Plan positions us for the economic rebound

This Regional Freight Plan is an element of the RTP update and has been guided by the Metro Council-appointed 33-member private-public sector Regional Freight and Goods Movement (RFGM) Task Force and a technical advisory committee. The plan is built on a foundation of technical work, including research on the region's freight transportation systems and facilities, needs and issues.

It may seem counterintuitive to focus on freight and goods movement issues during the depths of a severe global recession.[2] Why should the region focus attention on freight planning when volumes are down, wholesale and consumer demand is stagnant, shippers aren't shipping, and rail cars are mothballed? Because we know from experience that our challenging global and regional economic downturn is only a temporary retreat from a generally upward trend line. Recovery – even this one, which is likely to include significant structural changes – will again put pressure on the functional capacity of the intermodal freight system and its ability to deliver local goods and services, link regional suppliers and producers to domestic and global trading partners, and provide efficient access to industrial lands and employment areas. This downturn is an opportunity to catch our collective breath and collect data, implement needed projects as funding and other priorities permit. And it's an opportunity to sharpen our planning and analysis methods, to better define

Logistics supplies family wage jobs

Logistics provides living wage jobs and a career path for workers without a college education, picking up the slack as manufacturing jobs continue to decline. The mean annual income for logistics jobs (2006) was about $47,000 which is $5,000 per year higher than construction jobs.

Source: Portland/Vancouver international and domestic trade capacity analysis, executive summary, page 6.

[1] Studies include the *Portland/Vancouver International and Domestic Trade Capacity Analysis* (Port of Portland, 2006); *Profile of the Regional Freight Transportation System* (Metro, 2007); *The Cost of Congestion to the Economy of the Portland Region* (2005);*Comprehensive Economic Development Strategy for the Portland-Vancouver Metropolitan Region* (ECONorthwest, June 2005); *The Cost of Highway Limitations and Traffic Delay to Oregon's Economy* (EDR Group, March 2007); *Use of Freight and Business Impact Criteria for Evaluating Transportation Investments* (EDR Group, 2008); *Freight Moves the Economy* (ODOT, 1999).

[2] Oregon Department of Transportation is updating the state's commodity flow forecast through 2035, taking into account the effects of the recent economic downturn. This work, which can be disaggregated to identify county level impacts and trends, will be available in late 2009.

future projects that we'll need to manage post-recovery growth.

The region's goods movement system must improve and adapt if the region is to maintain its economic competiveness in the global economy and its status as an international freight gateway. Immediate action is required to meet the economic opportunities of the 21st century. This Regional Freight Plan highlights the key issues for the regional freight transportation system and suggests policies and investments to address them.

The Importance of a regional plan for freight and goods movement

Currently, the Oregon Department of Transportation (ODOT) is examining all freight modes (highway, rail, port, airport, pipeline and intermodal) to create a comprehensive freight plan at the state level. And within the Metro region, the City of Portland has recently completed a Freight Master Plan for the City of Portland (adopted 2006). The Southwest Washington Regional Transportation Council in Clark County, Wash. is preparing its own regional freight transportation plan, to be completed by spring 2010. Between the statewide scale of issues, concerns and solutions and those associated with the scale of the City of Portland and Clark County lies the metro region.

> "Regions – not states or cities – are the essential geography for economic development and competition… Leaders in both the public and private sectors realize they must work together to keep the region competitive."
>
> Source: *Portland-Vancouver Region Comprehensive Economic Development Strategy* (2005), page i.

A freight plan at the regional level is important because the movement of freight and goods transcends local jurisdictional boundaries, and includes multiple modes, employment and industrial centers, economic clusters and major regional access points. A region has a larger scope of reference and more resources to direct appropriate attention and funding to tackle these problems than a city, and its focus on interstate and inter-regional movements is more refined than are the view taken from the statewide level.

This region also functions as the trade and transportation gateway for Oregon and provides market access for many southwest Washington businesses. In that regard, the Metro region can take Clark County dynamics, trip patterns and commodity flows into consideration in a way that the state cannot. Finally, through federally established metropolitan planning organization functions, prioritizing among competing modes and subregions is also an important function to be handled regionally.

Freight goals reinforce other important regional goals

The freight and goods movement community shares some common goals with advocates of other transportation modes. Our desired outcomes are not so very different. Under business as usual, we are all impacted by traffic congestion. Just as individuals need to get places in a reasonable time at a reasonable cost, so too do our regional employers need to service electric lines, meet airline schedules and receive and ship goods on a reliable multimodal network. Shippers often have fewer good travel choices than do passengers – especially in the Portland area where good alternatives to the automobile abound. Again, a multimodal approach to freight mobility means shippers will have a choice of cost-effective shipping options, which reduces their reliance on any single mode of transport. By more closely matching each trip purpose to the optimal mode, we can reduce freight's environmental and community footprints as well.

What is the "traded sector"?

As defined in ORS 285A.010, (8), "traded sector" means industries in which member firms sell their goods or services into markets for which national or international competition exists. As a result of their exchange earnings, these industries increase spending power within their regional or state economies.

Preservation of urban, rural and industrial lands, protection of public investment in infrastructure for its intended purpose, innovation in reducing waste, energy use, pollutants and greenhouse gases – all these are important to businesses and communities alike. The "traded sector" aids in realizing this common vision by bringing in money from outside the region through robust exports with our domestic and international trading partners.

Regional freight goals and outcome-driven action

The RFGM Task Force described six goals or outcomes, concerns and needs associated with the desired outcomes listed below:

- We must use a systems approach to plan and manage our multimodal freight transportation infrastructure, recognizing and coordinating both regional and local decisions to maintain seamless flow and access for freight movement that benefits all of us.
- We must adequately fund and sustain investment in our multimodal freight transportation system to ensure that the region and its businesses stay economically competitive.
- We must create first-rate multimodal freight networks that reduce delay, increase reliability, improve safety and provide choices.
- We must 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.
- We must ensure that our multimodal freight transportation system supports the health of the economy and the environment.

- We must enlighten our region's citizens and decision-makers about the importance of freight movement on our daily lives and economic well-being.

In addition, the RFGM Task Force has highlighted the need for better emergency planning to consider the freight component associated with natural or manmade disasters. Another issue that is costly to overlook is the need to preserve access routes for occasional, but critical, oversize and overweight loads for a variety of public and private construction and maintenance purposes as well as for disaster response.

A set of specific actions designed to move the region closer to these outcomes is described in Section 10 of this document.

RFGM Task Force targets top freight focus areas

In line with sound regional planning practice in the area, the task force believes that a systems approach must be taken in order to produce important outcomes such as reduced delay, better travel time reliability, safer travel across all modes and trip types, and broader shipping choices and better customer service to help area businesses remain competitive. Such an approach must also consider the economic context in which projects are built, using measures such as return on investment to link transportation investment decisions to the local, regional and national economy. The task force targeted the following top issues:

Metro's RFGM Task Force calls for comprehensive data collection, robust analysis and modeling

"Despite the wealth of information on transportation's contribution to the economy, debate continues on the linkages between transportation improvements and economic performance and the relative strength of these links… Decision-makers need detailed information and analytical tools to prioritize projects and determine spending levels."

Source: *Freight Transportation Improvements and the Economy* (FHWA, 2004), page iii.

- congestion and hotspots – chronic road and rail network bottlenecks that impede regional freight/goods movement
- reliability – as distinct from congestion, unpredictable travel time due to crashes, construction, special events and weather (often exacerbated by capacity constraints)
- capacity constraints due to physical and operational issues as well as lack of capacity in critical corridors
- network barriers – safety concerns and out of direction travel resulting from weight-limited bridges, low bridge clearances, steep grades, at-grade rail crossings and poorly designed turns or intersections
- land use – system capacity and land for industrial uses that is being lost to other activities
- environmental and other impacts – managing adverse impacts including diesel emissions, greenhouse gas emissions, water quality, noise and land use conflicts.

Invest now to boost the triple bottom line: People, planet, profit

> **The cost of doing nothing**
>
> "Failure to invest adequately in transportation improvements will result in a potential loss valued at $844 million annually by 2025 –that's $882 per household—and 6,500 jobs [emphasis original]."
>
> Source: The Cost of Congestion to the Economy of the Portland Region, Executive Summary (2005), page 1.

With nearly 1.2 million more people[3] expected in the Portland metro region by 2035, family wage job creation is going to be of paramount importance. If the Portland metro region is to fairly share expanded economic opportunities across a broad spectrum of the population, and maintain the economic engine that sustains the health of our communities and environment, it must fully utilize its unique location and transportation infrastructure that keeps the traded sector competitive. In addition to smaller scale, phased system management and operational fixes, this will require medium and larger-scale strategic investment in the multimodal regional freight and goods movement system. Regional infrastructure investment discussions should consider impacts to the local, regional and national economy, in addition to looking for cost-effective solutions. Identified benefits—including those accruing to freight—must be conserved over time through regional policy and system management and monitoring.

To maximize the return on public investment, these freight-oriented preservation, management and investment priorities should focus on:

- more carefully evaluating what, where and when the freight problems occur (noting, for example, that they do not always coincide with the commute peaks)
- addressing core throughway system bottlenecks with substantial freight impacts, to improve truck mobility in and through the region. Examples include the Columbia River Crossing influence area, the I-5/I-405 loop with connection to US 26, OR 99W through Tigard, and the I-5 corridor south to Wilsonville
- improving and protecting the throughway interchanges that provide access to major industrial areas, particularly: I-5/Marine Drive and I-5/Columbia Blvd serving the Columbia Corridor and Rivergate industrial areas, I-205/OR 212 serving the Clackamas and Milwaukie industrial areas, and I-205/Airport Way serving Portland International Airport and east Columbia Corridor industrial areas
- improving arterial connections to current and emerging industrial areas. Examples include Sunrise Corridor phased improvements and last mile local industry connectors, e.g., Columbia/Cascade River District projects, including the I-84/257th Avenue Troutdale interchange and SW 124th from Tualatin-Sherwood Road to the I-5/North Stafford interchange

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[3] *Draft 2035 Regional Transportation Plan (September 2009, Table 1.6: Forecasted Population Growth by County) shows a population increase for the four-county metro area from 1,961,104 in 2005 to 3,097,402 in 2035--a 58% increase. Counties include Multnomah, Clackamas, Washington and Clark County in Washington State.*

- ensuring safe transport of hazardous loads with a regional routing strategy
- looking beyond the roadway network to address critical marine and freight rail transportation needs such as completing the Columbia River channel deepening and upgrading main line and rail yard infrastructure

Going forward: from freight goals to implementation

Section 9 of this Regional Freight Plan includes a "tool kit" of freight strategies designed to address the broad range of needs and issues clustered around the six goals articulated by the RFGM Task Force. Section 10 constitutes the action plan, with specific improvements and, in some cases, general timeframes for implementation and responsibilities identified. As federal, state and regional funding programs are developed and implemented to allow progress on projects and programs (including those important to freight and economic development stakeholders) the large list of possible actions identified in Section 10 will be prioritized, with some selected for refinement and inclusion in a work program for the 2010 to 2013 time period.

1 INTRODUCTION

1.1 Trade, transportation and economic health

Portland and Vancouver were founded and grew on the basis of vibrant and profitable statewide, regional and international trade. Access to the Pacific Ocean via the Columbia River from the inland empire to the east created the region's original economic engine. The Willamette River delivered the wealth of the various river valleys south and west of the Portland metro region in much the same way. It was through this trade that the Portland metro region established itself as a trade hub and prospered.

In 2005 *The Cost of Congestion to the Economy of the Portland Region* reported that the region has a higher than average dependency on traded sector industries, particularly computer and electronic products, wholesale distribution services, metals, forestry, wood and paper products, and publishing. These business sectors 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.

What is the "traded sector"?

As defined in ORS 285A.010, (8), "traded sector" means industries in which member firms sell their goods or services into markets for which national or international competition exists. As a result of their exchange earnings, these industries increase spending power within their regional or state economies.

As an international gateway and domestic freight hub, the region is particularly influenced by the dynamic trends affecting distribution and logistics. The 2002 commodity flow survey projected an overall doubling of freight tonnage moved in the region by 2030. The region's forecasted population and job growth – an additional 1.13 million residents and 767,000 jobs by 2035[4] – along with the associated boost in the consumption of goods and services are significant drivers of projected increases in local freight volume. Much of the projected doubling of freight tonnage passing through the Portland metropolitan region doesn't terminate here but instead moves well beyond the region's boundaries to the rest of the country.

Today, notwithstanding the current downturn, the Portland-Vancouver area boasts an underlying foundation for a strong and diverse regional economy that will continue to support an enviable quality of life. The local economy is still very dependent upon an efficient, reliable and safe freight transportation system that recognizes the region's role as an international gateway and key domestic freight hub.

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[4] 2035 Regional Transportation Plan (January 2008, Chapter 2, Tables 2.2 and 2.3).Population and employment forecasts include Multnomah, Clackamas, Washington counties in Oregon, and Clark County in southwest Washington. The percentage increases from 2005 are 58% (population) and 74% (employment).

1.2 Jobs and infrastructure

One critical element of sustaining the region's high quality of life is ensuring that residents have access to family wage employment. As the region grows, the health of residents and communities will depend on decision-makers who appreciate the interdependence of economic, transportation and land use goals.

The logistics and (freight) transportation sectors provide 46,000 jobs to the region by facilitating the transport or trans-shipment of goods entering the region via various modes and routes to intermediate or end users. These firms also perform the vital task of distributing the myriad goods that Oregonians consider essential to the maintenance of our households, businesses and communities. Transportation system and service owners and operators have a responsibility to provide a goods movement system that functions effectively.

1.3 Regional competitiveness requires regional cooperation across jurisdictions and sectors

The Portland-Vancouver area is a globally competitive international gateway and domestic hub for commerce. While Portland's status as Oregon's economic crossroads permits the region to have a vibrant, diverse and flourishing economy, it also carries certain responsibilities. The multimodal freight transportation system 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.

This Regional Freight Plan identifies mode-specific issues, policies, strategies and investments designed to meet those responsibilities and support a truly multimodal, sustainable freight network within the Portland metro region. A systems approach to planning and managing our multimodal freight transportation infrastructure must recognize and coordinate both regional and local transportation and land use decisions to maintain seamless freight and goods flow and access that benefit us all.

The recommended actions will necessarily require collaboration between public and private sectors, the coordination of freight modes that are often competitors, and the reconciliation of institutional, jurisdictional and political perspectives. Yet stakeholders have shown a strong interest in and commitment to improving freight mobility and access and reducing freight's impacts on the communities it serves. In a volatile economy that demands a thoughtful and dynamic response, that level of engagement will be needed to move strategic projects along the path to implementation.[5]

[5] Freight volumes are down—temporarily, but substantially, since the draft *Regional Freight Plan* was completed in the early fall of 2008. Although most observers expect a turnaround to result in an increase in those volumes, the timeline and robustness of the recovery is not known. The downturn does offer the region an opportunity to plan and implement vital freight projects in time for the eventual transition to a healthier economy over the long term.

1.4 Portland is a global gateway

The ports of Portland and Vancouver processed over 20 million U.S. tons of cargo in 2007. Another 8 to 10 million tons of inland barge cargo also moves through these facilities. In addition to being the leading grain and mineral bulk harbor on the West Coast, the ports processed nearly 500,000 automobiles in 2007. In total, $12 billion in foreign trade moved through Portland Harbor in 2007. Most of this cargo is transported beyond the Portland metro region, generally by truck and rail. There is also a huge support industry located in Portland associated with moving this freight.

- The Port of Portland also operates the largest international airport in Oregon. Portland International Airport acts as the air freight hub for much of Oregon and Southwest Washington. Approximately 288,000 tons of domestic and international air freight shipped through Portland International during 2005.
- The 2002 commodity flow survey projects an overall doubling of freight tonnage moved in the region by 2030. Currently one in 10 jobs in Oregon is transportation related. Though the Port of Portland is sufficiently diversified to bear this downturn better than some, there are many hard-hit employers, large and small, who make up the Port of Portland's customer base.
- Mounting congestion and capacity issues on several freight modes could impede the region's ability to compete globally. Regional congestion and capacity issues already impact several national goods movement corridors traversing the region, including freight rail and trucking corridors.

Made in Oregon: the ninth most trade-dependent state

The Portland metro region is home to several traded sector industries that help drive the regional economy by serving as an economic pump, bringing in money from outside the region. Traded sector businesses in our region include Nike, Adidas, Columbia Sportswear, Intel, Lattice Semiconductor, FLIR, Genentech, Precision Cast Parts, Boeing, Oregon Steel Mills and Boise Cascade.

If the region is to maintain its status as an international freight gateway, immediate steps must be taken to ensure that a flexible, adaptable, efficient and reliable goods movement system is in place. Cooperation with agencies and stakeholders across the state border with Washington is critical to make sure that freight throughways and access to primary hubs are seamless and that needed improvements are coordinated.

Deliveries of daily necessities increase with population and jobs

Modern urban life would be impossible without local goods movement. Nearly all the foodstuffs, clothing, housing materials, medical supplies, etc. that residents rely on daily come from outside the region.

The region is forecast to have an additional 1.13 million residents (a 58 percent increase) and 767,000 jobs (up 74 percent) by 2035, which should drive a proportional increase in local freight volumes.

Local suppliers and retailers require good connections to regional, national and international goods movement systems. They also need reasonably sized lane widths, curve and curb radii and loading zones.

Roadway congestion and deteriorated system reliability within the region heavily impact the productivity of local parcel, store and fuel delivery firms. This leads to decreases in equipment productivity, inefficient use of fuel, increased pollution and higher operating costs.

Shippers and distributors also operate in a more time sensitive production environment, with each operating under a unique set of parameters. System failure costs these firms significant sums of money and can also result in a loss of customers over time. This can drive these firms to reevaluate their choice of location.

1.5 Congestion's costs

Traded sector industries require well-integrated and highly efficient international and domestic transportation connections to stay competitive in the global economy. These firms have historically located in the region to take advantage of the pipeline, rail, marine, aviation and highway connections it offers.

Increased roadway congestion and decreased system reliability have adversely impacted the productivity of traded sector firms throughout the region. This has led to decreases in equipment productivity, increased labor costs and inefficient use of fuel, leading to increased pollution for combined air cargo, trucking, pipeline, marine and rail carriers. Each of these modes relies on the regional road system for some portion of their operations, and all are impacted by congestion.

Manufacturers, shippers and distributors in the region operate in a time sensitive production environment, with each operating under a unique set of parameters. Missing critical connections due to transportation system failure costs these firms significant sums of money and can also result in a loss of customers over time. This can drive companies to consider relocating outside the region or prevent companies from starting up operations in the region.

1.6 Land supply

Preserving essential industrial lands in the Portland metro region has proven difficult over time. The region's industrial areas are also experiencing diminished access to rail infrastructure and deteriorating performance on freight route connections. Road and rail freight corridors, and the industrial lands they serve, need buffers from residential land uses surrounding them. Further, the types of industries being accommodated in industrial areas are changing. Many new industries are better characterized as light industrial or distribution operations, with very different operational requirements than their heavy industrial predecessors. Redevelopment of existing industrial lands for modern industrial uses should be studied and supported.

Additionally, in order to be fully utilized, industrial land must be correctly located. For shipping access, this often means competing with residential, commercial, tourist, recreational and environmental users for highly sought and environmentally sensitive waterfront acreage.

1.7 Freight trends

The global economy is in the midst of a profound change. Twenty-first century innovations in trade policy, communications and transportation have altered the sourcing, production and marketing of products on a global scale. Some of the most important trends are identified below:

- Due to open trade policies, more freight than ever before is moving across international boundaries.
- The rise of worldwide communications networks allow for the inexpensive and instantaneous transfer of information around the globe. These networks have allowed businesses to expand operations and markets and have given rise to new business models like e-commerce, leading to a higher volume of smaller, demand-responsive shipments.
- Access to good transportation services has allowed businesses to develop increasingly complex supply chains that are longer and far more specialized, yet increasingly fragile.

As a result of these global trends, U.S. international and domestic trade volumes are expected to grow at an accelerated rate. Trade volumes in Portland are expected to double by 2035, to 600 million tons annually.[6] This is expected to have a profound effect on shippers and the infrastructure they depend upon.

West Coast ports have been struggling to keep pace with the increasing volumes of marine and air cargo coming from Pacific Rim trading partners like Japan, China, South Korea and Taiwan. While 2008 and 2009 witnessed a temporary slowing of this trend nationally, Portland Harbor still posted an overall increase in volumes for 2008 and will likely return to the longer-term trend of growth in freight volumes as the economic recovery proceeds. In addition, the ports of Portland and Vancouver are not as constrained by dockside capacity as a number of other West Coast ports, so additional growth here can be handled at the ports.

In total, Pacific Rim trade amounted to $359.2 billion in 2002. Much of the Pacific Rim freight processed by West Coast ports is destined for the rest of the country. However, the financial burden of maintaining and expanding the publicly owned transportation system serving this national need falls to local West Coast trade gateway jurisdictions.

The North America Free Trade Agreement has also generated large volumes of trade between the U.S., Canada and Mexico on the West Coast, amounting to $73.4 billion in 2002 and growing annually. Trade between major West Coast cities within the U.S. amounted to $182 billion in 2002, for a total of approximately $255 billion in north-south coastal trade. This number has continued to expand rapidly since 2002.

The goods movement industry has responded to this capacity crunch by employing larger trucks, rail cars, ships and planes. This trend places new demands on the goods movement

[6] Metro, ODOT, PDC, Port of Portland, Port of Vancouver, *Portland and Vancouver International and Domestic Trade Capacity Analysis*, 2006.

infrastructure and reinforces the need to reconsider our approach to providing goods movement infrastructure. Government and industry must also work together to address increasingly stringent safety and security requirements being placed on the goods movement system.

Against this backdrop of sustained expansion in global trade the region must prepare to compete globally. The viability of the regional and state economy, and the ability to attract and sustain business investment in both, depend on it. Industry needs tangible and continuous improvements in the operating efficiency, capacity, modal redundancy and reliability of the regional goods movement system to remain competitive globally. Government must do its best to work with private sector stakeholders to accomplish this in a sustainable, environmentally sensitive and cost effective manner. Recent fluctuations in fuel prices have merely underscored the importance to industry of having an efficient, reliable and redundant regional goods movement system.

The regional goods movement system is failing certain large shippers: several traded sector firms in the region must truck loads to San Francisco or Seattle/Tacoma to achieve satisfactory international aviation or marine connections. Other resource based industries in, or served by, the Portland metropolitan region's goods movement system are very sensitive to transportation costs and can easily lose global market share with shipping cost increases measured in pennies per pound. Still other area manufacturers have had to repeatedly adjust production schedules to compensate for congestion on the region's runways, roads and rail lines, leading to increased production costs and reduced productivity.

As shippers' supply chain logistics evolve, the definition of "state of the art" warehousing and distribution centers continues to change dramatically. Larger, increasingly truck-biased cross dock facilities are becoming the new standard. Higher fuel costs could lead to decentralization of regional distribution centers nationally, in an effort to reduce the distance trucks need to move to their final destinations. The Portland metro region is well positioned to take advantage of this opportunity.

The local component of the goods movement system is also critically important to the economy and daily life. The local movement of goods and services is focused primarily on trucks. The ability to maneuver on local streets and to park to unload freight is vital for those trying to deliver goods and services to local communities.

The region's goods movement infrastructure and unique geographic location are competitive advantages that have created transportation sector jobs for more than a century. These jobs, in turn, serve the industrial and local freight needs of the Portland metro region, the state, the Pacific Northwest, the West Coast and the nation.

1.8 Ready for the rebound

It is true that the world economy is currently strained. However, current and future economic stimulus package components, including funds to reduce the backlog of long-deferred infrastructure maintenance, are coming on line. And though the reauthorization of the surface transportation act may be delayed for 18 months, early indications are that key freight corridors and infrastructure will be targeted for special consideration. It is in this context that the region's freight plan will operate and for which regional partners must prepare.

In the post-recovery world economy, strong growth in international, national and regional trade will once again drive the need for a flexible, adaptable, high performance multimodal freight transportation system. Efforts must consider these new stresses on marine, air, road, rail and pipeline networks and facilities. The region's goods movement system will need to absorb a doubling of freight volumes by 2035, with approximately 75 percent of that dependent on trucks to link producers and consumers, or to reach intermodal nodes for import and export.

Many local manufacturing firms that trade internationally, and who could locate globally, have chosen to make the greater Portland-Vancouver area their home because of its connections as an international transportation hub. These firms require a smoothly functioning goods movement system to operate efficiently and maintain profitability. In the absence of such a system, they will consider relocating to an area that meets these requirements.

And as the global economy recovers and grows, the Portland metro region will be called upon to address vastly expanded regional, national and international shipping needs reliably, safely, efficiently and sustainably. We have a responsibility to the region, the state and the nation to maintain an efficient and flexible goods movement system of sufficient capacity to meet future needs.

1.9 Invest now to boost the triple bottom line: People, planet, profit

The Portland-Vancouver area is a globally competitive international gateway and domestic hub for commerce. The multimodal freight transportation system 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. And with so many new residents expected in the Portland metro region by 2035, family wage job creation is going to be of paramount importance. Policies and programs designed to take advantage of the opportunities hidden in the downturn should begin to be refined and implemented, to ensure that the Portland metro region is flexibly and securely positioned for the future of freight and goods movement.

However, in addition to regional policy and program development and implementation, concrete freight-related projects must be built to ensure that the goals of the Regional Freight Plan are met. Maintaining the Portland region's historic preeminence as a goods movement and industrial hub must remain a regional priority; our economic future depends on it. Regional infrastructure investment discussions should consider impacts to the local, regional and national economy, in addition to looking for cost-effective solutions. Identified benefits—including those accruing to freight—must be conserved over time through regional policy and system management and monitoring. Investment in smart, strategic and green freight system improvements now can help Portland secure not only its economic future by increasing its share of family wage jobs but also support development of a green economy that is the Portland area's trademark.

1.10 Regional Freight and Goods Movement Task Force Members

Engaging stakeholders to develop a regional freight plan

The center point for the engagement of stakeholders was the Metro Council appointed Regional Freight and Goods Movement Task Force. The 33-member task force included representatives from the multimodal freight industry, community and government agencies. The group was charged with guiding the formation of policy and strategy recommendations for the region's multimodal freight transportation system. Metro Councilor Rod Park served as chairperson for the task force. The list of members included:

Steve Akre OIA Global Logistics	**Tom Dechenne** Norris, Beggs & Simpson	**Susie Lahsene** Port of Portland	**Paul Smith** City of Portland
Grant Armbruster Columbia Sportswear	**John Drew** Far West Fibers	**Brian McMullen** WSDOT	**John Speight** Portland & Western RR
Steve Bates Redmond Heavy Haul	**Ann Gardner** Schnitzer Steel Industries	**Jeanne Morgan** Xerox	**Paul Thalhofer** City of Troutdale
Scott Bricker Bicycle Transportation Alliance	**Pete George** PW George Consulting	**James Nave** Union Pacific RR	**Jason Tell** ODOT
Katy Brooks Port of Vancouver	**Cam Gilmour** Clackamas County	**Rod Park** Metro	**Elizabeth Wainwright** Merchants Exchange
Gary Cardwell NW Container Service	**Van Hooper** Sysco Foods	**Michael Powell** Powell's Books	**Tracy Ann Whalen** ESCO Corporation
Terry Cleaver Columbia Grain	**Tom Hughes** City of Hillsboro	**Warren Rosenfeld** Calbag Metals	**Rick Williams** Lloyd District TMA
Lynda David Southwest Washington RTC	**Monica Isbell** Starboard Alliance	**Robert Russell** Oregon Trucking Association	

The RFGM Task Force met 11 times between July 2006 and October 2007. Additionally, the task force worked in ad hoc subcommittees to tackle specific issues, such as a regional vision for freight, freight-related RTP goals and objectives, and project prioritization criteria, and brought back recommendations to the full task force. Task Force members also participated in a combined Metropolitan Policy Advisory Committee and Joint Policy Advisory Committee on Transportation meeting held in October 2007.

The long-standing Metro committee on regional freight coordination, the Regional Freight Advisory Committee, served as the technical advisory committee on this plan, providing data, input on analysis, and review of memorandums and reports. The committee is loosely comprised of transportation agencies in the region with an interest in freight issues. Active participants include:

Oregon Department of Transportation
Washington Department of Transportation
Metro
Southwest Washington Regional Transportation Council
Port of Portland
Port of Vancouver
FHWA
Clackamas County
Washington County
Multnomah County
City of Gresham
City of Milwaukie
City of Portland
City of Tualatin
City of Wilsonville

The Regional Freight Advisory Committee met monthly during the course of the planning effort. Some members participated in RFGM Task Force subcommittee meetings, as well. Targeted stakeholder workshops and presentations were conducted within the 2035 Regional Transportation Plan outreach process. A series of targeted workshops were held in Fall 2006 with various stakeholder groups, including one specifically targeted to the business community, to gather needs and issues. The role of freight in the transportation system was address in each of these targeted workshops. Additionally, several Metro Councilors and key Metro staff were enlisted to talk with business groups in the region about the role of transportation in Portland's economy. Metro spoke with 29 business and advisory groups over the course of the project. Collectively, these outreach efforts and strategies have educated stakeholders and informed the technical and policy development work on community values, desired outcomes and transportation needs, investment priorities and implementation strategies.

2 REGIONAL FREIGHT POLICY FRAMEWORK

2.1 Freight goals within a regional policy framework

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 system 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. After much deliberation, the RGFM Task Force developed the following goal statement to elaborate a policy framework that would protect and improve the cost-effective functioning of the critical regional freight network:

- We must use a systems approach to plan and manage our multimodal freight transportation infrastructure, recognizing and coordinating both regional and local decisions to maintain seamless flow and access for freight movement that benefits all of us.
- We must adequately fund and sustain investment in our multimodal freight transportation system to ensure that the region and its businesses stay economically competitive.
- We must create first-rate multimodal freight networks that reduce delay, increase reliability, improve safety and provide choices.
- We must 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.
- We must ensure that our multimodal freight transportation system supports the health of the economy and the environment.
- We must enlighten our region's citizens and decision makers about the importance of freight movement on our daily lives and economic well-being.

2.2 Integration with the Metro planning process

The Regional Freight Plan is being developed along with broader Metro initiatives evaluating implementation of the regional growth concept (a set of activities under the umbrella of "Making the Greatest Place," was developed earlier under the name "New Look") and the update of the region's overall transportation system plan (2035 Regional Transportation Plan Update). This project has coordinated both its technical analysis and public participation elements with these other efforts to ensure a consistent and integrated planning approach.

The work program included a New Look (Making the Greatest Place)/RTP coordinated public involvement process that established desired outcomes specific to the regional freight transportation system. It has provided a common base of knowledge about the different elements of the system and has identified issues, needs and deficiencies within the system. The project has also refined existing regional freight policies and updated the multimodal freight network map. Infrastructure improvements for freight have been called out and prioritized. Implementation strategies for addressing environmental and community impacts, system management, economic development and financing have been reviewed and recommended. The project will also put forth recommendations for better incorporating truck movement into Metro's creating livable streets design guide.

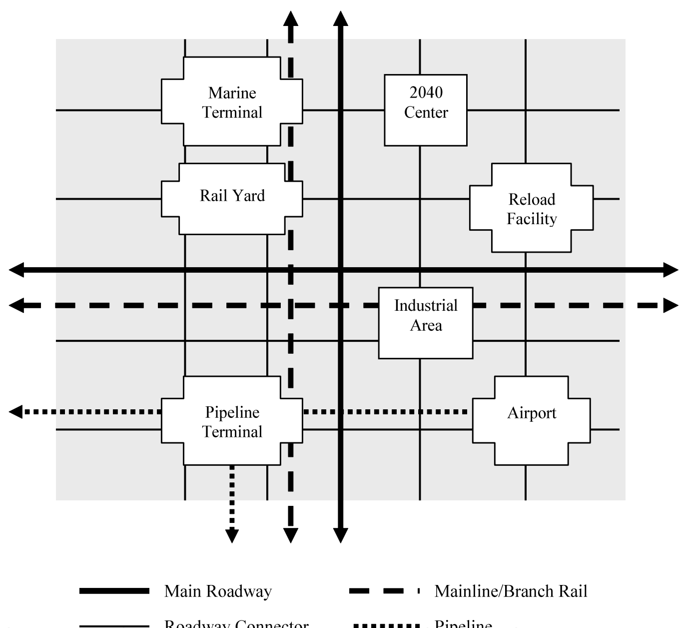
2035 Regional Transportation Plan

Metro periodically reviews and updates the Regional Transportation Plan (RTP) to keep it current with transportation challenges facing the region, and to incorporate new information, technologies and strategies. The plan provides a blueprint for building a sustainable transportation future that allows the region to compete in the global economy and preserve the unique qualities and natural beauty that define our region. An overarching aim of the RTP is to move the region closer to the vision of the region's long-range strategy for managing growth, the 2040 Growth Concept. Fundamentally, the RTP defines a framework for making choices about the future of the region – choices about where to allocate limited transportation resources and choices about the future residents wish to see for our region and, by extension, the state of Oregon. The Regional Freight Plan for the Portland metro region is an element of the RTP. While the plan targets needs and issues specific to the freight transportation system, key policies and actions are incorporated into the comprehensive RTP.

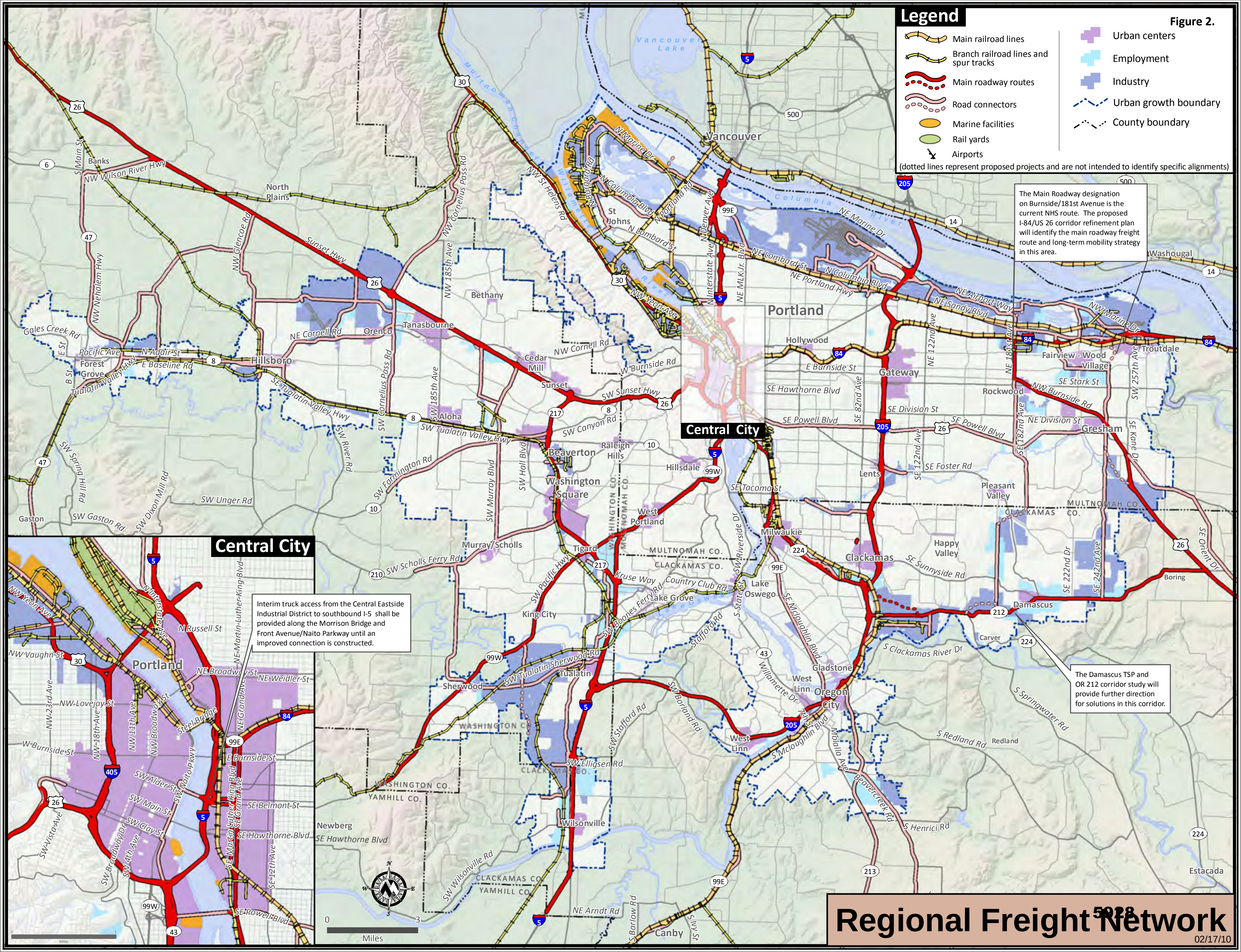
2.3 RTP freight transportation system

The transport and distribution of freight occurs via the regional freight system, a combination of interconnected publicly and privately owned networks and terminal facilities. The concept in Figure 1 shows the components of the regional freight system and their relationships. Rivers, mainline rail, pipeline, air routes and arterial streets and throughways connect the region to international and domestic markets and suppliers beyond local boundaries.

Figure 1. Regional freight concept



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 connect industrial areas, marine terminals and pipeline terminals to rail yards. Pipelines transport petroleum products to and from terminal facilities. The Regional Freight System Map, shown in Figure 2, applies the regional freight concept on the ground to identify the transportation networks and facilities that serve the region and state's freight mobility needs.


Legend
Figure 2.
Main railroad lines
Branch railroad lines and spur tracks
Main roadway routes
Road connectors
Marine facilities
Rail yards
Airports
Urban centers
Employment
Industry
Urban growth boundary
County boundary
(dotted lines represent proposed projects and are not intended to identify specific alignments)
The Main Roadway designation on Burnside/181st Avenue is the current NHS route. The proposed I-84/US 26 corridor refinement plan will identify the main roadway freight route and long-term mobility strategy in this area.
Interim truck access from the Central Eastside Industrial District to southbound I-5 shall be provided along the Morrison Bridge and Front Avenue/Naito Parkway until an improved connection is constructed.
The Damascus TSP and OR 212 corridor study will provide further direction for solutions in this corridor.
Central City
Portland
Vancouver
Hillsboro
Beaverton
Gresham
Tigard
Lake Oswego
Oregon City
Wilsonville
Miles
Regional Freight Network
5028
02/17/10

3 KEY ISSUES ON THE REGIONAL FREIGHT TRANSPORTATION SYSTEM

3.1 Top general freight-related issues

In terms of broadly important regional freight issues, the task force identified six problem areas to target: The task force targeted the following top issues from a broad perspective:

- **congestion and hotspots** – chronic road and rail network bottlenecks that impede regional freight/goods movement
- **reliability** – unpredictable travel time due to crashes, construction, special events and weather
- **capacity constraints** due to physical and operational issues as well as lack of capacity in critical corridors
- **network barriers** – safety concerns and out of direction travel resulting from weight-limited bridges, low bridge clearances, steep grades, at-grade rail crossings and poorly designed turns or intersections
- **land use** – system capacity and land for industrial uses that is being lost to other activities
- **impacts** – managing adverse impacts including diesel emissions, greenhouse gas emissions, water quality, noise and land use conflicts

In line with sound regional planning practice in the area, the task force believes that a systems approach must be taken in order to produce important outcomes such as reduced delay, better travel time reliability, safer travel across all modes and trip types, and broader shipping choices and better customer service to help area businesses remain competitive. Such an approach must also consider the economic context in which projects are built, using measures such as return on investment to link transportation investment decisions to the local, regional and national economy.

3.2 Specific issue identification

Between April 2006 and February 2007, Metro staff interviewed nearly two dozen individuals and facilitated discussions at more than 35 meetings with regional stakeholders and analysts.[7] The result was more than 225 discrete comments reflecting desires and concerns regarding the state of the region's freight transportation system. With input from the Regional Freight and Goods Movement Task Force, the collection of comments was refined into a list of key issues that the plan should begin to address.

[7] Ibid.

Table 3.1, below, provides a categorized list of the key issues and needs. Appendix A summarizes the comments from those interviewed.

Table 3.1. Priority issues for freight

Issue category	Key issues
Mobility and accessibility	• Road congestion on regional truck routes • Travel time reliability on regional truck routes • Accessibility between intermodal terminals, industrial areas, centers and interstate system • Class 1/short line rail – throughput and velocity, capacity constraints in rail yards, sidings • Improved rail access and service for regional shippers • Barriers: weight/vertical clearance issues on bridges; gaps in connectivity (new roads/bridges) • Safe barge navigation in I-5/BNSF bridges area • At-grade rail crossings – grade separation • River channel deepening
System management	• Preservation and efficient use of existing capacity • Intelligent Transportation System tools (signal timing, cameras) • Access management • Increase in truck crash rate • Faster response to roadway incidents (crashes) • Truck parking: hours of service limitations • Efficient loading/unloading operations in commercial centers • Advances in traveler information (road conditions, directional signage) • Workforce access to industrial and employment areas • Maintenance dredging and lock repair • Rail system management (directional running, grade crossing info) • Modal redundancy
Land use	• General population growth and impacts to transportation system • Competition between industrial and other uses for interchange capacity • Adequate supply of industrial land served by transportation system (i.e., marine accessible) • Incompatible land uses along rail lines and major truck corridors • Accommodation of truck delivery in pedestrian-friendly areas and corridors (street design trade-offs)
Environment	• Air quality impacts from diesel engine emissions • Residential noise impacts from truck, rail and air cargo operations • Water quality

Issue category	Key issues
Investment strategies	• Link transportation investment decisions to regional, state and national economy. • Expand types and amounts of funding for infrastructure and programs (i.e., gas tax indexing, user pays cost responsibility). • Use public-private partnerships to fund improvements. • Create a role for the public sector in funding private operations. • Use a building block approach to fix corridors (i.e., ITS first, then graduate to other solutions). • Incorporate lifecycle cost (maintenance) into project.
Coordination	• Create better coordination between freight system stakeholders in the region. • Educate decision makers and public about importance of region's freight transportation system. • Consider rail service needs for regional shippers. • Consider freight/goods movement needs in project development.
Research and data	• Freight system performance over time • Ongoing truck count program • Economic impact assessments of investments

4 FREIGHT GENERATION IN THE REGION

4.1 Manufacturing, warehousing and distribution

The Portland metro region is home to a number of traded sector firms engaged in a broad array of activities. These firms bring wealth from outside the local economy into the region, helping communities to prosper. All of these enterprises have unique goods movement needs, some local, others national or international.

Unlike many areas of the country which have witnessed a substantial decline in manufacturing/industrial employment, the region has experienced growth in the manufacturing sector of the economy during the last two decades. This has created a need to efficiently deliver the materials needed for production (domestically and internationally) and to cost effectively ship finished products. Manufacturers in the region assemble products from components delivered from around the globe and ship components for assembly internationally. The mobility needed to support commerce in the region is as diverse as the commerce itself.

Manufacturers and shippers from throughout Oregon and Southwest Washington depend on the Portland metro region's warehousing, distribution, logistics, customs and multimodal goods movement infrastructure to move raw materials, semi-finished and finished products. These activities create substantial quantities of regional jobs. Warehousing, distribution services and related activities, are major employers within the Portland metro region, with at least 46,000 local jobs attributed to this sector.

These activities are spread throughout the region, with concentrations in the Rivergate, Columbia Corridor, Sunset Corridor, Swan Island, Clackamas-Milwaukee, Springwater-Damascus, inner Eastside, North Wilsonville-Tualatin-Sherwood, Beaverton-Tigard, Beavercreek and Northwest Portland industrial areas.

4.2 Port activities

The ports of Portland and Vancouver host more than 1,000 ocean-going ships each year. These vessels transport 18 to 20 million short tons of cargo annually to and from public and private facilities located in the Portland-Vancouver Harbor. Another 8 to 10 million tons of inland barge cargo also moves through these facilities. In total, $12 billion in foreign trade moved through Portland Harbor in 2007. Much of this cargo is transported beyond the Portland metropolitan area, through key truck and rail corridors.

In addition, the Port of Portland operates the largest international airport in Oregon. It is the hub for the vast majority of air freight activity in the Portland metro region, western Oregon and Southwest Washington. Approximately 288,000 tons of domestic and international air freight shipped through Portland International during 2005.

5 REGIONAL GOODS MOVEMENT

5.1 Highway

Trucks will remain the predominant mode of freight transport for the foreseeable future, due to their flexibility, speed, adaptability and availability. West Coast truck traffic is expected to increase 200 percent by 2035[8], placing increasing pressure on the interstate highway system and local freight corridors. And though more than 90 percent of total regional truck trips begin and/or end within our region, as much as 52 percent of the total truck traffic entering the region via the interstate system is through traffic.[9] This reflects the importance of our stewardship role for maintaining the through-put efficiency of the interstate freeway system for national freight movement, but also provides a basis for requesting national assistance.

Maintaining access to, and adequate capacity on, designated freight corridors, the National Network and the National Highway System within the region will remain critical to efficient goods movement. Performance of NN and NHS roads within the region varies, but there are locations with regularly recurring chokepoints. It is not unusual for these chokepoint locations to experience frequent failures, particularly during peak weekday travel times, greatly reducing overall system efficiency and reliability.

Below are some key examples of recurring highway system chokepoint locations within the region identified by the RFGM Task Force as having broad impacts to goods movement.

- I-5/CRC (Columbia River Crossing) and Delta Park: North Marine Drive to Columbia Boulevard operates near or over capacity during all peaks.
- I-5/I-84 Interchange: Operates at or over capacity during the a.m., p.m. and mid-day peaks.
- I-5/I-405/US 26 Loop: Is congested through the central city area.
- I-5 Corridor, south of OR 217 interchange: the South Metro I-5 Corridor and Boone Bridge is reaching capacity and carries a larger percentage of trucks than the CRC.
- I-205/OR 224 Interchange: Operates near capacity during the mid-day and p.m. peak hour.
- I-205: I-84 to Northeast Marine Drive: Several interchanges connecting to and sections of I-84 and I-205 within these limits operate near or over capacity during the p.m. peak hour.
- I-205: OR 212 to I-5: I-205, particularly south of the Oregon City I-205 bridge has long had capacity issues; enhanced merge lanes to I-205 are also needed.
- OR 217: Inadequate interchange spacing leads to merge/weave congestion chokepoints as well as accidents in the area of the Southwest Beaverton-Hillsdale Highway, Allen Boulevard and Denney Road interchanges.

[8] *Portland/Vancouver International and Domestic Trade Capacity Analysis, Port of Portland, 2006*

[9] Figures obtained from 4,159 roadside intercept surveys reported as *Task 10, Portland Freight Data Collection Phase II, Final Summary Report* (March 2007) prepared for the Portland Freight Data Collection Team.

- I-205/Airport Way: Eastbound to northbound on-ramp is a bottleneck to providing access to and from Portland International Airport
- Non-continuous or awkward parallel arterials and connections: Improving arterial connections to current and emerging industrial areas (e.g., Sunrise Corridor phased connectors, I-5/OR 99W connector area) are needed.
- Last-mile chokepoints: Various locations experience congested last-mile local industry connectors (e.g., Columbia/Cascade River District Projects, including the I-84/257th Avenue Troutdale interchange and SW 124th from Tualatin-Sherwood Road to the I-5/North Stafford interchange)

Several of these highway segments and interchanges have also been identified as projects of statewide significance due, in part, to their negative impact on the statewide or national goods movement systems.

5.2 Rail

Class 1 rail lines[10] operating in the Portland metropolitan area (BNSF Railway and Union Pacific Railroad) have been capacity-constrained due to several long-standing and well documented historical factors. These constraints will worsen as freight volumes at the region's ports and intermodal facilities increase. Capacity chokepoints for the Class 1 railroads in the Portland metropolitan area have primarily centered on the Portland Triangle, located in the industrial/port areas of North Portland and Southwest Vancouver.

Issues in the Portland Triangle area include inadequate siding lengths (Class 1 railroads are now fielding up to 8,000 foot long unit trains), rail bridges with inadequate capacity and lowered sufficiency ratings, at-grade rail crossings, sidings and mainline track sections that are over capacity. Other Class 1 capacity constraints within the region include switch control at the Steel Bridge and inadequate rail and intermodal yard capacity for current and future needs. Outside the region, railcar clearances and increasing weights will need to be addressed, as the Class 1 railroads look to longer trains and heavier carloads to increase their operating efficiency and revenues.

Short line rail operators have taken over many of the local and regional rail functions formerly performed by the Class 1 railroads. Rail car weights are a critical issue for short line railroads. The Class 1 railroads are now considering rail car weights above 286,000 pounds, which will exceed the carrying capacity of many short line tracks in the region. Assisting regional short line railroads with track upgrades could reduce the risk of derailments, a potential public safety issue and certainly a productivity issue for the railroads. It also keeps trucks off the road. The short lines are also having to make-up more trains in their yards, which have limited capacity, before delivering them to the Class 1 rail yards. Assisting short line railroads requires

[10] Railroads are classified according to their revenue; following decades of decline and mergers, there are now seven Class 1 railroads—constituting largest companies--currently operating in the United States. Class II railroads are also known as regional railroads; Class III includes the short line railroads.

government to show a clear public benefit, since these facilities are privately owned and operated.

Government and the railroads have historically cooperated to implement rail crossing safety improvements. The Class 1 and short line railroads have multiple at-grade crossings of their lines in the region, limiting train speeds and increasing the risk of conflicts between trains, vehicles, pedestrians and bicycles. Improving, eliminating, or grade separating at-grade crossings improves safety as the number and size of trains increase. Crossing improvements increase rail and road system productivity by helping longer trains clear crossings more quickly. Crossing improvements are the first step in applying for quiet zone status with the Federal Railroad Administration.

5.3 Aviation

Combined air cargo providers generally operate on a hub-and-spoke system, where freight is picked up at airports throughout the country in the early evening, flown back to a central destination to be sorted and then reloaded and flown to its final destination in the early hours of the morning for next day delivery. In order for this system to work, schedules must be maintained. This generally places air freight carriers' trucks on the road during evening peak hour traffic.

While traffic flows on the roadways immediately adjacent to Portland International have improved within the last decade, trucks carrying air freight to the airport during the evening peak hour face increasing congestion on several area highways leading to the airport. I-205, I-84, I-5, I-405 and US 26 all serve locations feeding generating air freight but have failing evening peak hour level of service.

Several traded sector manufacturers within the region are heavy users of air freight. Frequent roadway congestion forces many of these users to move shipping deadlines up, causing firms to lose valuable production time and increasing their production costs. Many shippers in the region were disappointed when direct air freight connections to Asia were lost. They now have to truck their shipments to Sea-Tac or San Francisco International airports to make their desired connections.

In May 2009, Portland International Airport began to implement a project to extend its north runway, as well as a complete overhaul of its south runway. With these improvements runway and taxiway capacity at the airport should be adequate to meet the needs of air freight carriers through the next decade, based on recent statements by the Port of Portland.

5.4 Marine

Modern commercial navigation of the Columbia River began in 1877, when Congress approved dredging a navigation channel between the Portland-Vancouver area and the mouth of the river in Astoria. Currently, more than 1,000 ocean-going vessels call on the Portland-Vancouver Harbor each year. 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. Channel deepening has been pursued for several decades, balanced by the need to protect various fish stocks migrating on the river.

The ports of Portland and Vancouver, as well as the other ports located along the lower Columbia River, lead the nation in the shipment of grain. They also ship large quantities of other bulk agricultural commodities from Oregon, Idaho and Washington to the rest of the world. The region's ports will still manage to grow by moving a wide range of marine cargoes, such as energy and transportation project related materials, manufactured goods, automobiles, agricultural and mining related products and fuel. The ability of the ports of Portland and Vancouver to serve as major ports will be hampered by the size of ships that can traverse the Columbia River channel, since ocean carriers try to reduce per slot vessel (docking) cost by using larger ships.

The ports generate significant volumes of truck and rail traffic in the West Vancouver and Rivergate areas. Congestion during peak commute hours adversely impacts these truck movements. Intermittent congestion also impacts the Class 1 and shortline railroads serving the area.

Barge operators on the Columbia/Snake River system use equipment specifically constructed to operate in the locks on those rivers, adding significantly to their capital costs. In 2004, these barge operators moved 16,262 TEU's[11] and 9,779,000 tons of containers, bulk (wet and dry) and break bulk cargoes on the Columbia/Snake River system. Barges are also used to transport grain, fuel, steel and aggregate related products on the lower Willamette River. It should be noted, however, that most import and export shippers prefer to use truck and rail for any higher value products moving through the ports.

The primary limiting factors to barge movement in the region are the BNSF rail and I-5 bridges crossing the Columbia River and the maintenance of navigable locks on the Columbia and Snake rivers.

5.5 Pipelines

The Olympic Pipe Line transports 65 percent of the petroleum products that Oregon uses. The pipeline delivers the equivalent of 750 tanker trucks of fuel between the Puget Sound and the Portland tank farm located in the Northwest Portland industrial area every day. The product in the petroleum pipeline generally moves at approximately 4 to 5 miles per hour. The pipeline is privately owned and is regulated by the federal government. [12]

Regional distribution occurs from the tank farm through a Chevron owned pipeline to Portland International Airport and through the Kinder-Morgan pipelines to users and distributors throughout the region. Maintaining good quality access to the tank farm facility is critical, particularly in light of a recent at-grade rail crossing closure on an access road to the tank farm.

[11] Standard container measurements, known as twenty-foot equivalent units.
[12] www.phmsa.dot.gov/index.html

The Williams Northwest Pipeline transports natural gas products to northwestern Oregon and Southwest Washington. Northwest Natural Gas operates a private natural gas network that connects to the Williams Northwest Pipeline and radiates through and beyond the Portland metro region. This pipeline network delivers gas directly to end users within and beyond the Portland metropolitan area.

6 GOODS MOVEMENT AND LAND USE

While the success of the region's economy is directly tied to its ability to efficiently move freight, it is true that freight movement and operations can potentially produce adverse impacts on local communities in the form of:

- increased emissions, noise and vibration, lighting and safety concerns
- impacts to land uses, community access and bicycle and pedestrian movements
- competition for highway and parking capacity
- a perceived (though less often real) reduction in land values
- impediments to visual quality and redevelopment efforts

These concerns are likely to increase over time as freight volumes increase. Many of the typical complaints voiced regarding truck and rail operations could be minimized or avoided with thoughtful and appropriate land use planning, which, like a good fence, makes better neighbors. It's important to note that these types of impacts are not the exclusive domain of freight operations – highways, transit and other transportation systems and services, even hospitals and schools – can engender comparable concerns over impacts to nearby residents.

On the other side, freight carriers and shippers can themselves be impacted when communities seek to restrict access by trucks on certain streets, limit night-time operations[13], reduce the number of truck loading zones, increase water recreation activities and public access within working waterfront areas, or when communities seek to use a freight railroad's track for passenger rail service. As shippers' supply chain logistics continue to evolve, the definition of "state of the art" warehousing and distribution centers changes as well. Larger, increasingly truck-biased facilities are becoming the new standard. In addition, higher fuel costs could lead to decentralization of regional distribution centers nationally, with the Portland metro region well positioned to take advantage of this opportunity.[14]

Certain key regional intermodal rail to truck transfer facilities are quickly reaching their capacity and are constrained by the physical dimensions of their facilities. A regional discussion regarding retaining or restoring rail access into industrial areas should occur among the warehousing, manufacturing and distribution sectors, local governments and the short line rail operators.

There has been a demand, at times, for conversion of industrial property to mixed-use residential. This is often incompatible with surrounding industrial operations and freight movement. Appropriate models of residential and commercial development should be planned for truck and rail corridors and areas adjacent to industrial sanctuaries to preserve the

[13] The cost of congestion within a spreading peak period has pushed some shippers and businesses toward night-time operations, which often elicits its own push back from neighbors objecting to nocturnal disturbances.

[14] *CSCMP Explores, Vol. 5, Spring 2008

effectiveness of truck and rail corridors for industrial and freight use. From the viewpoint of freight carriers and shippers, allowing new, incompatible land uses into industrial areas impedes business operations and access, resulting in higher operating costs, reduced safety and efficiency.

There is often fierce competition for land, a finite resource. Siting, protecting and redeveloping industrial areas for industrial uses is in keeping with the goal of creating and preserving industrial sanctuaries in the 2040 Growth Concept, but managing and balancing competing land uses will continue to be difficult as the region grows. Maintaining reliable multi-modal transport options to our industrial areas is critical, particularly truck and rail connections. Providing rail service is becoming particularly difficult as rail operating practices continue to change rapidly.

7 TECHNOLOGY AND PLANNING FOR SUSTAINABLE FREIGHT TRANSPORT

7.1 Going green

There are at least two variables that every commercial carrier must come to grips with: fuel cost and fuel use. The former frequently dictates the lengths to which a carrier will go to conserve fuel, while the later directly impacts the production of greenhouse gases and PM 2.5[15] emissions. The goods movement industry is responding to the prospect of sustained higher fuel costs and tightening emissions standards. Tools being used to improve powertrain operating efficiency and reduce stationary idling of truck diesel engines include:

- clean diesel technologies, more efficient powertrains and improved aerodynamics
- low sulfur and bio-diesel fuels
- on board auxiliary power units
- parking area power and HVAC hook-ups for trucks
- ongoing and innovative operational changes that reduce the carbon footprint of freight

Every operator of commercial vehicles, be they aircraft, marine, rail or truck, has grown increasingly sophisticated at load, route, operator and vehicle optimization in an effort to minimize equipment downtime and maximize profit. Recent increases in the cost of fuel have only intensified efforts to increase operational efficiencies. Still, there is little evidence of a shift to alternative modes due to fuel costs.

The public sector needs to complement these efforts by optimizing its own facilities and strategies to gain maximum through-put capacity and efficiency where it matters most. This effort needs to include multi-jurisdictional coordination and ongoing participation from the private sector goods movement community. The challenge of increasing the capacity of the goods movement system while remaining environmentally sustainable will require close coordination and cooperation between the private and public sectors.

7.2 Transportation system management

Several tools are available for transportation system management on the corridor level. These tools include variable message signs, traveler information systems, incident management and response, traffic signal progression, ramp metering and demand (traffic volume) responsive signal timing. Truck signal priority might also be considered in certain situations.

The public sector would benefit by managing its roadway infrastructure with the understanding that roadway capacity is valuable and costly to expand. For example, managing roadway

[15] Particulate matter smaller than 2.5 microns have been shown to affect human health.

performance through congestion pricing can include electronically charging road users a fee for using a road that might vary depending on changing real-time demand for roadway capacity throughout the day, with higher prices charged at periods of peak travel demand. Market-based road user fees, if properly implemented, can free up scarce road capacity for both passenger and freight needs, and provide revenue for alternative transportation and/or improvements to existing facilities.

Weigh-in-motion scales have been in use for several years, allowing trucks to bypass conventional truck scales, saving time, fuel and wear. Weigh-in-motion systems could be improved through the use of a single, common transponder system for commercial vehicles operating throughout several western states.

Some industrial areas within the Portland metro region have freed up roadway capacity by forming transportation management associations. These associations can facilitate and promote enhanced pedestrian, transit, carpooling and bicycle alternatives to the daily commute. These associations also work with employees to tailor transit services to their work shifts and with employers to facilitate staggered shifts, compressed work weeks and work-from-home programs. These efforts can reduce single occupant vehicle travel within industrial areas during critical peak travel times.

7.3 Freight data collection and analysis

Portland State University's Intelligent Transportation Systems Laboratory has begun a project to produce truck travel time estimates using the transponder information from ODOT's Green Light weigh-in-motion system. The system can supplement Tripcheck's traveler information system as well as help calculate key freight measurements by linking the other data collected by the weigh stations to the travel time estimates. The ITS lab at PSU houses and maintains the Portland Oregon Regional Transportation Archive Listing. PORTAL collects data from all of the in-bed loop detection sensors in the Portland area as well as free floating dynamic sensors that can be placed in TriMet buses or other vehicles. The archive also collects weather and incident reports, all of which can be accessed in a variety of methods to help monitor and evaluate traffic improvements and patterns.

7.4 Planning, coordination and education

The RFGM Task Force requested that freight coordination continue at the regional level. Metro staff would like to honor the task force's efforts and contributions but recommends sunsetting this particular advisory group. However, in recognition of the importance to maintain and improve Metro's relationship with the commerce, freight and goods movement community, staff recommends that an *ad hoc* bench, with an expanded membership, be established (see Section 10 of this report.) In addition, a wide variety of ongoing coordination, planning and data collection efforts would allow Metro to be more responsive to requests from the goods movement community. The RFGM Task Force also recommended that efforts to educate the public on the importance of goods movement, and the critical role it plays in the economy, continue on an ongoing basis.

8 REGIONAL FREIGHT PLAN FINDINGS

The following findings were developed or compiled by Metro staff but are based on RFGM Task Force input as well as data collected as part of this project.

8.1 Trade and the Portland economy

- Trade volumes in the Portland/Vancouver region will double by 2035.
- Continued trade growth will create economic opportunities for the region and state that are dependent on adequate transportation infrastructure.
- The goods movement needs of the Portland-Vancouver region, and the markets it serves, require access to a broad range of modal options and service providers.
- The ability to transport goods into, out of, through and within the region in an efficient, timely and reliable manner is critically important to the economic health of the region and the state as well as West Coast trade.
- Maintaining an efficient, accessible, multimodal goods movement system is essential to attracting and retaining traded sector companies. These firms require access to the global marketplace comparable or superior to any firm they might compete against.

8.2 Industrial land supply

- There will be an increased need for industrial waterfront lands to support growth in maritime trade. Industrial land uses are frequently incompatible with, and pressured by, residential development. Extra care must also be taken when placing industrial land uses in close proximity to recreational or environmental resources.
- Industrial sanctuaries should continue to be considered a unique and protected land use. Preserving the region's existing industrial sanctuaries is essential to maintaining economic growth. As industrial land in the region becomes increasingly scarce, active protection of the region's industrial sanctuaries will become critical.
- Protection of industrial sanctuaries should include modernization of existing sites as needed, as long as the industrial nature of the land use is maintained.
- Industrial land users consider residential development incompatible with their operations, while residential property owners take issue with aspects of industrial development. Appropriate models of residential and commercial development should be planned for truck and rail corridors and areas adjacent to industrial sanctuaries to preserve the effectiveness of truck and rail corridors for industrial and freight use.
- Maintaining and improving multimodal freight access to the 2040 industrial sanctuaries is critically important to ensuring long-term viability of industry in the region.

8.3 Freight rail

- Rail service characteristics are changing. Class 1 railroads, and even certain short line railroads, are moving towards a "hook (up) and haul" business model, where the railroad focuses on pulling assembled trains long distances between cities.
- Class 1 railroads are currently struggling to meet existing freight demand. They are facing shortages in rolling stock and siding, yard and track capacity. They are attempting to address these deficiencies in a timely manner but are struggling to do so.
- In response to projected increases in rail freight volumes, Class 1 railroads intend to haul heavier per car loads and employ longer trains. The former will require upgrading tracks throughout their systems, and the later will likely increase the need to grade separate more intersections over time.
- The current Class 1 railroad business model focuses on delivering service to railheads with intermodal yards or directly to port facilities. The Class 1 railroad intermodal yards in the region are operating near capacity now, and they will need to be expanded. These intermodal yards are predominantly dependent on trucks to move freight to and from their facilities. This may require use of scarce lands within certain Industrial Sanctuaries.
- Short line railroads have generally taken over the role of distributing rail cars throughout the region on their rail networks to end users requiring direct local rail service. Lack of space in Class 1 rail yards means short line railroads need additional marshalling yards on their own properties to make up trains. Identifying locations for these yards is challenging, as it often requires the acquisition of scarce lands within certain industrial sanctuaries.
- Short line railroads and certain private operators are also operating intermodal facilities, frequently offering additional logistics services to shippers. Maintaining and improving both truck and rail access to these satellite intermodal locations is critical.

8.4 Trucking

- Trucks will continue to be the dominant mode of transport in the freight transportation system, with West Coast truck volumes expected to increase over 250 percent by 2035. Even though the use of other modes will expand, trucks will maintain their preeminent status as the first and last links in delivering goods to the end user due to their flexibility.
- A trend toward lighter weight, higher value, increasingly time sensitive, producer to retailer shipments is expected to continue, again reinforcing the role of trucking in the freight transportation system hierarchy.

Did you know?

- Trucks are the primary movers of freight and goods
- Trucks carried 67 percent of the total tonnage in 2000 and are expected to move 75 percent of the tonnage by 2035

Source: 2035 RTP p. 2-21

- Truck access between port facilities, industrial sanctuaries and the National Highway System is critically important to shippers, carriers and distributors of freight. These connections are commonly referred to as "first mile/last mile" connections.
- Motor carriers identified correcting regional bottlenecks on the principal NHS roads as their first priority. Motor carriers are also supportive of active Transportation System Management, to include incident management.
- Transportation service providers identified the Columbia River Crossing, I-5 through Delta Park, the I-84/I-5 interchange area, I-205 from OR 224 to I-5 and the Sunrise Corridor projects as well as improved access to the North Wilsonville-Tualatin-Sherwood and Clackamas industrial areas as their highest regional road improvement priorities.

8.5 Air cargo

Air cargo continues to require efficient access for perishable and high-value goods and production-critical components. However, area industries producing goods shipped via air freight have had to adjust their production schedules repeatedly due to roadway congestion in order to meet air freight departure deadlines. This has led, in turn, to higher production costs and reduced productivity.

8.6 General concerns and observations

- The rail, truck, marine, pipeline and air cargo carriers all invest in their own equipment and infrastructure and are privately owned for-profit businesses. This complicates public sector investment in safety, access, reliability or capacity improvements for these modes.
- Every privately owned carrier, of whatever mode, relies on publicly owned infrastructure for at least a portion of their activities.
- Firms relying on the goods movement system monitor the efficiency, reliability and speed of the existing transportation system and use these measures to evaluate system performance. The vast majority of this information is considered proprietary and is used by shippers to gain an advantage over competitors. Much of this data is also derived from proprietary systems that generate unique data outputs focused on parameters specific to that firm. This can make even anonymous data sharing very difficult.
- The goods movement industry provides over 46,000 family wage jobs within the region.
- Maintaining the Portland metro region's historic preeminence as a goods movement and industrial hub should remain a regional priority.
- Long-term under investment in transportation infrastructure within the region, for both maintenance and capacity improvements, has led to congestion, weight limits and frequent system breakdown.
- Transportation revenues to fund maintenance and capacity enhancements are at an historical low on the federal, state and local levels.

- An ongoing regional freight data collection effort needs to be undertaken and sustained over time. One of the better efforts to date is PORTAL, operated by PSU, but several other efforts under development also show promise.
- A component of regional freight data collection efforts needs to include interviewing shippers directly on ongoing basis, to capture current supply chain dynamics.
- The importance of freight transportation to the regional economy needs to be reinforced through an ongoing public education effort.

8.7 The transportation funding challenge

Funding background

Change is needed: Federal and state fuel tax revenues have been in decline for several years. Funding for transportation projects has historically come from several federal, state, regional and local funding sources, as reflected in the following lists. There are several programs funded under the current federal transportation act, the Safe, Accountable, Flexible, Transportation Equity Act: A Legacy for Users (SAFETEA-LU), that can be directed towards freight. The next federal transportation act is expected to specifically address freight movement. Funding for transportation was taken up by the Oregon Legislature during its recently concluded session.

The consequences of long-stagnant state transportation funding

Public sector funding for transportation infrastructure, particularly targeting freight movement, has diminished over time. Even with recent federal recovery efforts and state legislation, competition for available funds will increase, and most (road) funds are likely to be funneled into critical safety projects. The region's funding dilemma is real: until the July 2009 HB 2001 hikes, the state of Oregon hadn't had a gas tax increase since 1993[16] and the federal Highway Trust Fund is teetering on insolvency. For most of the first decade of this century, the cost of construction materials has risen significantly on the global market, greatly increasing the cost to construct infrastructure improvements. Simply put, costs to construct improvements having been trending upward rapidly, while available revenues to pay for them have been declining. Deferred maintenance and delayed projects have cost individuals and businesses in terms of lost time and opportunities, increased vehicle wear and tear and threatened or lost jobs. This lack of investment in the US transportation infrastructure is weakening our ability to compete globally against China, India and the European Union, all of which are investing heavily in transportation. The successful implementation of any programs or projects in these times requires coordination at all levels of government with the business community to address the immediate and long term freight transportation funding needs.

HB 2001 provides new state transportation resources

On July 30, 2009, Oregon Governor Ted Kulongoski signed House Bill 2001 (HB 2001) into law. The bill provides for a gas tax increase of 6 cents, from 24 cents per gallon to 30 cents per

[16] However, Oregon's Weight-Mile Tax levied on trucks over 26,000 pounds (GCW) has increased since that date.

gallon, as well as increasing vehicle license plates from $54 to $86 every two years. Vehicle title fees will rise from $23 to $78. All told, the changes will make approximately $300 million per year available for transportation projects, of which $136 million will be directed into the state highway program. Counties will receive $82 million; cities will receive $55 million. The remaining $24 million will fund non-road alternative transportation projects. Among the projects funded through this bill that will benefit freight and goods movement in the Portland area are Hwy 26 widening from 185th Ave to Cornell Rd. ($20 million), the Hwy. 26/Shute Rd. interchange ($45 million), and Hwy. 26/Glencoe Rd. interchange ($32 million).

Uncertainty at the federal level

Nationally, funding for transportation projects has become scarce. The need to replace aging transportation infrastructure and expand facilities in areas of the country experiencing growth has exploded. This need comes at a time when infrastructure project costs have increased significantly during the last several years. Federal reauthorization of the multi-year omnibus transportation bill is now expected to be delayed 18 months past the expiration of the current bill, SAFETEA-LU, in September 2009. The private sector portion of the goods movement community has been making great strides in adopting sustainable technologies and wringing efficiencies out of their respective portions of the goods movement system. The public sector must also effectively weigh policies, programs and investments to achieve the maximum benefit for the goods movement system, particularly during a time of uncertain funding for transportation.

Funding sources

The following funding sources are currently available to the region.

Federal funding sources or programs (FHWA programs, unless otherwise noted):

- Modernization (freight chokepoints, capacity enhancements, dimensional issues on NN/NHS freight routes)
- Preservation (road and bridge maintenance)
- Surface Transportation Program
- National Corridor Infrastructure Improvement Program
- Congestion Management and Air Quality Improvement Program
- Transportation Infrastructure Finance and Innovation Act of 1998 – allowed the creation of state infrastructure banks through a federal credit, generally fund state infrastructure banks (Funds are expected to be repaid.)
- Truck Parking Facilities
- Freight Intermodal Distribution Pilot Grant Program
- Transportation, Community and System Preservation Program
- Elimination of Hazards and Installation of Protective Devices at Rail-Highway Crossing

- High Risk Rural Roads (e.g., Cornelius Pass)
- Intelligent Transportation Systems Research
- FTA dollars for TDM measures on truck corridors and in industrial areas
- MARAD: provides funding for harbor and channel maintenance
- FAA: various programs for providing airside, landside and runway protection zone funding

State funding sources:

The following list of funding sources is generally administered through ODOT:

- Oregon Gas Tax/Vehicle Registration Fees: With passage of HB 2001, an additional $300 million annually we be raised for transportation purposes, statewide.
- Oregon Weight Mile Tax: Charged to trucks weighing over 26,000 pounds, the tax is the primary source of tax revenue raised by trucks in the state. Weight Mile Tax receipts are primarily directed at roadway maintenance and system preservation efforts throughout Oregon, with a smaller amount allocated to administering the program.
- Oregon Energy Income Tax Credit: The Oregon Department of Energy offers a tax credit for businesses that invest in reducing energy consumption. Under this program transportation projects that reduce the number of single-occupancy vehicle trips are eligible for the credit. The credit covers up to 35 percent of eligible project costs.
- Connect Oregon I & II: Funded through lottery proceeds, this effort has focused on projects that enhance intermodal connections and improve freight mobility for several modes, to include aviation, marine and freight rail. It was allocated a total of $200 million for both phases.
- OTIA: The various OTIA funding programs relied on bond proceeds to raise funding for critical statewide infrastructure needs. While this program was a success, these bonds now need to be paid off.

The Connect Oregon and OTIA programs have shown that government and the private sector can collaborate successfully. These programs have delivered tangible benefits to freight movement within the Portland metro region and the state. The Connect Oregon program should be continued. The program has proven particularly useful in funding much needed projects for off-highway modes. Dedicating the loan revenues from the Connect Oregon program into a revolving fund could help the program be more self sustaining.

Regional funding sources:

- Congestion pricing/use-based toll: Set up a regional congestion pricing program, starting with CRC (both bridges). Enforce through WMT transponders or cell phones. Dedicate revenues generated by trucks to truck oriented projects.
- Vehicle registration fee: Apply a uniform vehicle registration fee to all vehicles.

- Regional funding initiative: Regional transportation improvement districts have experienced success in the Northwest. These packages use increments of vehicle registration fees, fuel taxes and/or property taxes to fund a specific list of infrastructure improvements. A regional transportation improvement fee is under development for consideration.
- Value capture: Certain transportation projects generate greater tax revenues for a community during their construction and throughout their active lifespan. Projecting this value and using it to help bond the project is another way to help fund certain capital projects, such as shortline railroad intermodal facilities.
- Freight innovation initiative: A fund for innovative, freight-oriented technological and operational efforts using commercial vehicle congestion pricing tolls. Revenues could fund freight-oriented TSM, ITS, fuel consumption reduction or alternative fuel efforts and technology proof of concepts, trials and demonstration projects. A small percentage of these funds could also support a regional freight database and associated freight movement research.

Local transportation funding efforts in other regions and states have illustrated that the public is willing to pay for infrastructure under certain conditions. The public needs to see a demonstrable need for the project and how the proposed project will meet that need; it has to feel confident in the cost estimate and projected schedule and also in the constructing agency's ability to deliver a project within that cost and schedule.

9 DEVELOPING A FREIGHT STRATEGY TOOL KIT

9.1 Linking freight plan goals and issues to targeted solutions

The RFGM Task Force identified specific issues associated with the RTP goals for freight movement. These issues, summarized in the table below, require an ongoing, creative and collaborative approach to problems that are sometimes systemic, sometimes localized and usually complex. The task force recognized that freight problems occur on a multimodal system and that even when problems appear to be localized bottlenecks or network barriers, there are often multiple underlying causes that extend far beyond the apparent problem. The interdependent nature of our transportation system, economy and environment all demand that a rigorous analysis of potential solutions be performed, in order to avoid downstream impacts or unintended consequences.

The tables are structured around the Regional Freight Plan goals developed by the task force and found in Section 2 of this document. Two critical goals are for the related, yet distinct categories of congestion reduction and improvement of travel-time reliability. These and other freight goals have been addressed in the following categories:

System planning for efficient freight mobility and access. This category of issues and solutions speaks to Metro's mission as the Metropolitan Planning Organization for the Portland metro area. It seeks to provide better freight and goods movement data, to analyze that date with freight considerations in mind and to implement a multimodal plan that facilitates freight movements required for a vibrant regional and state economy.

System management to increase network efficiency. This category comprises 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.

Public understanding of freight issues. To gain public support for projects and funding of freight initiatives, and to help the public and elected officials make wiser land use decisions, a program of public education is required.

Sustainable freight transportation system. This category of issues and solutions 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 greenhouse gas curtailments.

Freight-sensitive land use planning. This category 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.

Strategic transportation investments. This category of solutions focuses on planning and building capital projects and developing the funding sources, partnerships and coordination to implement them. It includes the list of regional freight project priorities attached as Appendix B to this report, identifying a wide range of projects from preservation and maintenance to major facility construction.

To maximize the return on public investment, these freight-oriented preservation, management and investment priorities should focus on:

- **more carefully evaluating what, where and when the freight problems occur** (noting, for example, that they do not always coincide with the commute peaks)
- **addressing core throughway system bottlenecks with substantial freight impacts**, to improve truck mobility in and through the region. Examples include the Columbia River Crossing influence area, the I-5/I-405 with connection to US 26, OR 99W through Tigard, and the I-5 corridor south to Wilsonville
- **improving and protecting the throughway interchanges that provide access to major industrial areas**, particularly: I-5/Marine Drive and I-5/Columbia Blvd serving the Columbia Corridor and Rivergate industrial areas, I-205/OR 212 serving the Clackamas and Milwaukie industrial areas, and I-205/Airport Way serving Portland International Airport and east Columbia Corridor industrial areas
- **improving arterial connections to current and emerging industrial areas**. Examples include Sunrise Corridor phased improvements and last mile local industry connectors, e.g., Columbia/Cascade River District projects, including the I-84/257th Avenue Troutdale interchange and SW 124th from Tualatin-Sherwood Road to the I-5/North Stafford interchange
- **ensuring safe transport of hazardous loads** with a regional routing strategy
- **looking beyond the roadway network to address critical marine and freight rail transportation needs** such as completing the Columbia River channel deepening and upgrading main line and rail yard infrastructure.

Several issues raised by the stakeholders are difficult to resolve, primarily because the improvements suggested involve infrastructure that is under private ownership. In these instances, identified public benefits must be rigorously quantified to demonstrate net benefits associated with public investment. In addition, qualitative benefits must be logically articulated and assessed.

Freight plan goal	Key issues identified by stakeholders	Potential solutions/strategies
System planning for efficient freight mobility and access We must use a systems approach to plan and manage our multimodal freight transportation infrastructure, recognizing and coordinating both regional and local decisions to maintain seamless flow and access for freight movement that benefits all of us.	Inability to track freight system performance over time Inability to measure economic impact of investments Inability to account for land use needs generated by non-truck (rail, air, pipeline) commodity flows Accessibility between intermodal terminals, industrial areas, commercial centers and the interstate system Improved rail access and service for regional shippers Consideration of freight and goods movement needs in project development Protection of modal redundancy Through-truck travel in neighborhoods Need to maintain freight route and mode choice	**Data, research, modeling and analysis** • Improve Metro's truck module within the regional travel forecast model • Explore methods of linking non-highway commodity flows and land use needs • Investigate predictive risk analysis, economic models and/or manual estimates of monetary benefits based on predicted travel time savings, incident clearance, enforcement, etc. • Submit proposals for relevant regional, state and national freight-related research or pilot project opportunities (e.g., Transportation Research Board projects) • Continue and expand work with Portland State University faculty and research staff to improve tools for freight analysis (e.g., truck counts) **Planning and coordination** • Maintain Regional Freight Technical Advisory Committee meetings (monthly) and hold twice-yearly Task Force meetings (or as needed to provide timely input) • Periodic development, refinement and ongoing advocacy for RTP freight projects list • Coordinate with and through Portland Freight Committee, ODOT, Oregon Freight Advisory Committee (OFAC) and Southwest Washington Regional Transportation Council/Clark County/WSDOT on statewide and regional freight, port and rail planning to ensure regional issues are addressed • Monitor freight innovations across the country and globally to mine for Portland metro application • Ensure that freight needs are included in all Metro planning efforts, such as corridor refinement plans, transit and land use planning

Freight plan goal	Key issues identified by stakeholders	Potential solutions/strategies
System management to increase network efficiency RFGM Task Force: We must use a systems approach to plan and manage our multimodal freight transportation infrastructure, recognizing and coordinating both regional and local decisions to maintain seamless flow and access for freight movement that benefits all of us.	Travel time reliability on regional truck routes Efficient use of existing capacity Continuing to reduce state and regional truck crash rate Need for faster response to roadway incidents Improved traveler information – road conditions, directional signage Maintenance dredging and lock repair	**Data collection, analysis and planning** • Regional Transportation System Management Plan • Monitor/comment on ODOT statewide freight planning studies (Statewide Freight Plan, related studies for ports and rail at the state level) • Continued support for use and expansion of tools such as the PORTAL program of real-time traffic delay, etc. • Periodic surveys/interviews with shippers about the services provided by the region's carriers in the multimodal system **Projects (operations, build options)** • Access management • Improved incident management • VMS/GPS active (in cab) truck route management • Truck-only lanes, ramp meter bypass lanes, next generation ITS infrastructure for commercial vehicles • Road pricing, congestion pricing, managed lanes studies, pilots or deployment if appropriate • Rail track/yard improvements • At-grade rail/highway projects to eliminate rail/highway conflicts and increase rail functional capacity • Facilitate multiple shippers' combined shipments to meet railroad's operating plans • Increase enforcement of traffic/carrier regulations • Expand rest areas/better utilization of rest areas for extended truck rest areas, including smart truck parking • To improve workforce access to jobs, support Regional Transportation Options program, Transportation Management Associations, expanded transit service/vanpools, bicycle and pedestrian facility improvements in industrial/employment areas

Freight plan goal	Key issues identified by stakeholders	Potential solutions/strategies
Better public understanding of freight issues RFGM Task Force: We must enlighten our region's citizens and decision-makers about the importance of freight movement on our daily lives and economic well-being.	Better coordination between freight system stakeholders in region Education of decision makers and public about importance of region's freight transportation system, including the economic relationship between freight and community sustainability	**Education and coordination** • Improve information exchange between public and private stakeholders via existing state, regional and local freight advisory groups • Improve analysis and communication of freight impacts on regional economy • Quarterly regional freight transportation system stakeholder roundtable • Annual state of regional freight report • Help local freight initiatives through providing strategic and technical assistance
Sustainable freight transportation system RFGM Task Force: We must ensure that our multimodal freight transportation system supports the health of the economy and the environment.	Regional and local air quality impacts from diesel emissions, which, if not addressed, will grow as freight volumes increase Marine freight movement impact on water quality and habitat (e.g., invasive species introduced through ballast water)	**Air quality** Promotion of existing programs such as diesel retrofit technologies, idle reduction regulations, transportation system management tools **Water quality** Support of regulations that address environmental quality in riparian areas **Other environmental** • Aggressively implement clean, green and smart best practices, as appropriate • Legislation to regulate and enforce ballast water release • Reduction of light sources and/or filtering or redirecting lighting • Proactive public outreach strategies • Performance monitoring and review following public and regulatory processes such as environmental justice mitigation, where appropriate

Freight plan goal	Key issues identified by stakeholders	Potential solutions/strategies
Freight-sensitive land use planning RFGM Task Force: We must 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.	Inadequate supply of industrial land well served by transportation infrastructure Incompatible land uses along rail lines and major truck corridors Incompatible land uses often adjacent to one another resulting in complaints about, and adverse impacts to, freight movement Inadequate areas for trucks to conduct off and on-street loading and unloading Competition between industrial and other uses for system capacity Truck deliveries to local commercial and neighborhood districts that are difficult due to narrow lanes/turning radii Growing noise impacts from truck, rail and air cargo operations in residential areas Limited truck parking to meet needs of drivers (hours of service limitations) Workforce access to industrial areas	**Planning and coordination** • Coordinate with land use planning efforts to ensure that current and future freight/industrial needs are addressed • Expand regional Brownfields programs to allow return of industrial land to industrial uses • Take advantage of Regional Freight Task Force experts to inform Metro planning activities, e.g., in creating better linkages between commodity flow data and employment projections in determining long-term land use and freight routes • Consider revising “regionally significant industrial land” designation to protect high value industrial areas • Use interchange management plans to protect capacity at key industrial areas • Support affordable housing with access to employment/industrial centers • Support enforcement of required full disclosure to property buyers adjacent to freight/industrial uses • Explore strategies where businesses co-locate in order to share resources (e.g. the local “resourceful use pilot”) to conserve resources and use transportation system efficiently **Design and projects** • Prioritize infrastructure investment to support existing industrial areas • Develop neighborhood agreements between facilities and residential neighborhoods that balance freight and community needs • Create “quiet zones” for rail corridors. • Updating livable streets design guide to better incorporate truck movement and operations • Appropriate models of residential and commercial development should be planned for truck and rail corridors and areas adjacent to industrial sanctuaries to preserve the effectiveness of truck and rail corridors for industrial and freight use

Freight plan goal	Key issues identified by stakeholders	Potential solutions/strategies
Strategic transportation investments RFGM Task Force: We must create first-rate multimodal freight networks that reduce delay, increase reliability, improve safety and provide choices. RFGM Task Force: We must adequately fund and sustain investment in our multimodal freight transportation system to ensure that its businesses stay economically competitive.	Network barrier deficiencies such as weight and vertical clearance issues on bridges, at-grade rail crossings Existing capacity constraints in rail yards and sidings Road congestion on regional truck routes Main line rail congestion Expand types and amounts of funding for freight transportation infrastructure and programs Role of public sector in funding private operations Need for public-private partnerships to fund improvements Transportation investment decisions linked to economy Concerns about safe barge navigation in I-5/BNSF bridge area	**Project development and implementation (not all-inclusive)** • Implement RTP freight projects with focus on identified Task Force priorities, (see Appendix B) • Fill in gaps in truck route alternatives to interstate (e.g., parallel arterials for emergency detours) **Funding policy and partnering** • Expanded use of public-private partnerships to fund transportation system expansion • Expanded ability to invest public dollars in private facilities when improvements in those facilities result in public benefits • When funds aren't available for major system improvements, make incremental improvements to those facilities through Intelligent Transportation System and traffic demand strategies, access management and less-costly strategies • Common ground and linkages in the needs of different funding sources and the opportunities presented by them • Expanded types of programs and amounts of funding for freight transportation infrastructure (e.g., MTIP, STIP, gas tax indexing, user fee strategies) • Appropriate coordination with planning, political and advocacy groups, including Oregon delegation, OFAC, West Coast Corridor Coalition, etc., to ensure adequate funding for freight priorities • Regional Freight TAC/RFGM Task Force participation in any regional road pricing pilots or planning studies • Support regional ConnectOregon freight and goods movement projects

10 THE FREIGHT ACTION PLAN – FROM GOALS TO IMPLEMENTATION

Section 9 of this Regional Freight Plan includes a "tool kit" of freight strategies that respond to a broad range of needs and issues clustered around the six goals articulated by the RFGM Task Force. Section 10 constitutes the regional freight action plan. Its elements have primarily been pulled from the tool kit and elaborated.

The action items described below are the result of review with the Regional Freight and Goods Movement Task Force and the Regional Freight Technical Advisory Committee. Many of the actions described are foundational activities that constitute the glue holding the regional freight action plan together – planning, coordinating, research and policy making that take place on both an ongoing and cyclic basis. The list of efforts will need to find staff, time and funding resources, whether that includes Metro, members of the freight, goods movement and economic development community, or other agencies or organizations.

In 2008, the RFGM Task Force developed a long list of prioritized freight projects submitted for consideration as part of the July/August 2009 RTP project solicitation process. These are included in an appendix to this plan and are also included by reference as part of Action F1.

In addition, a handful of important, achievable near-term items are included and recommended for implementation within this RTP cycle of 2009-2013, to support the approved regional freight and goods movement goals. Although circumstances and regional priorities may shift, the task force believes that a four year period is short enough to be relevant to the freight community, yet long enough for activities to be programmed, refined and deployed, as described in this section.

As federal, state and regional funding programs are developed and implemented to allow progress on projects and programs, this section will be winnowed into a smaller selection of important, achievable near-term actions. It will be refined to identify who does what and detailed to include a timeframe for implementation, and necessary staffing and funding amounts and sources for selected efforts.

Goal A. Multimodal system planning for efficient freight mobility and access

This goal, as well as its related actions, speaks to Metro's mission as the metropolitan planning organization for the Portland metro area. Actions described below will give us better freight and goods movement data and will guide planning efforts to ensure that freight considerations in mind and to implement a multimodal plan that facilitates freight movements required for a vibrant regional and state economy.

A1: Maintain private sector cooperation with Metro planning by forming a sustainable freight, jobs and economic development bench

The current Regional Freight and Goods Movement Task Force has been a great asset in preparing the Regional Freight Plan. Its mission now accomplished, the task force will sunset.

However, Task Force members find that continued private sector input in some form to Metro would be valuable and recommend that Metro hold periodic meetings to maintain engagement with private sector representatives. They also believe that, going forward, the group could be broadened across a more diverse regional cross section that would include multimodal carriers, shippers, producers and business, members of the economic development community and facility operators. Metro freight staff suggests that subsets of members drawn from the "bench" could be formed based on changing circumstances and regional issues, on an *ad hoc* or a more formal basis as needed, to focus on specific projects, corridors or topics that involve freight within the region. The bench may be thought of more broadly as a think tank, a speakers' bureau, a listening post and a sounding board. In short, this wider group of stakeholders constitutes a deep bench of regional freight and business acumen that will serve Metro well to keep handy. The bench would necessarily overlap with other regional groups such as the Portland Freight Committee, and Metro staff would work to coordinate freight initiatives of common interest.

Areas where members of the proposed bench could provide value to Metro include:

Implementation of the Regional Freight Plan

- Review, assist, comment, contribute and/or lead various elements of the action plan
- Contribute to future freight plan refinements and updates

Regional planning efforts

- System planning, modeling and analysis
- Freight access/industrial land aspects of land use planning
- Input into selecting and carrying out regional corridor refinement plans
- Metropolitan Transportation Improvement Program (MTIP) funding and project selection processes
- Provide input into ConnectOregon criteria and selection
- Development of analytical tools, data bases, performance measures and policies
- Prioritization of investments and projects with a freight and economic development perspective
- Assisting localities with transportation system plan (TSP) freight components

Freight and goods movement, jobs and economic development

- Develop policy and business support for transportation funding initiatives, including possible fees or pricing strategies
- Define economic development context and goals for freight and goods movement policies and investments
- Support for broad regional prosperity and environmental justice with an economic development strategy

Sustainability

- Greening freight and industry while promoting sustainable jobs and economic growth
- Greenhouse gas and other environmental impact reduction strategy development

Public education and stakeholder engagement

- Participate in a Speakers' Bureau on freight, goods movement and economic development for use by local and regional groups

A2: Continue baseline freight and goods movement policy and technical coordination

In addition to maintaining Metro's monthly meetings with the Regional Freight Advisory Committee, Metro's freight program staff will participate on effective local, state and national freight-relevant organizations, such as the Portland Freight Committee, the Columbia Corridor Association, the Columbia River Crossing freight working group, ODOT's statewide freight planning committees, the Oregon Freight Advisory Committee, the West Coast Corridor Coalition and the Bi-State Coordinating Committee.

A3: Continue baseline freight and goods movement data collection and reporting activities

Keeping current in an environment that is volatile, in an era which is increasingly unpredictable, is as challenging as it is essential. This recommended action ensures needed support for ongoing data collection and necessary or desired expansions to existing efforts, such as PORTAL, ensuring updates to the commodity flow matrix, continuing to seek more detailed freight and goods movement flow data at the regional level, etc. Freight and business stakeholder interviews should be held periodically, to provide updates to the "cost of congestion" data and to provide early detection of problems and opportunities affecting the flow of goods and our regional economy. Collecting data sufficient to support other tasks, including Action C3, will mean the region will be able to assess a wide variety of outcomes, including jobs creation, value/tons moved, economic impacts, cost of delays, emissions, energy use, neighborhood impacts and others associated with freight movement. In addition, new goals and programs for greenhouse gas reduction, and possibly a regional congestion pricing pilot program, may add to or change regional data needs.

A4: Ensure that freight needs are included in local and regional planning efforts

Metro freight staff and the Bench members will be responsible to deliver the freight and goods movement and economic sustainability perspective during development and refinement of corridor plans, transit and land use planning, etc. This effort could include development of a comprehensive freight "check-off" list for use in planning or project development.

A5: Develop and conduct freight and goods movement research program

In general, freight is a less well understood component of the regional transportation system; many regions are struggling to improve and integrate such tools as basic freight data, performance measures and analytic and modeling tools. The Regional Freight Plan distinguishes between the specialized needs for moving industrial/agricultural commodities through and beyond the region and the day-to-day needs of urban goods movement within and between 2040 centers. Yet this distinction requires the use of analytical tools which can shed light on those two categories of goods movement within our region. It also requires close coordination between Metro and ODOT to ensure that the statewide model addresses regional needs.

In order to develop and/or refine freight-relevant analytical tools that can help Metro and its partners better predict, manage and invest for freight and goods movement, the task force recommends that Metro develop and nominate a program of applied research. To accomplish that, Metro will coordinate a research agenda between in-house research/modeling units and OTREC, PSU or other appropriate research institutions and Metro's freight partners. Possible elements of a research program could include:

- convening a Regional Freight Analysis Improvement Symposium to share best freight modeling practices and ideas for improving Metro's model at a reasonable cost, with the least intensive data requirements

- continuing to develop the regional truck model
- developing explicit linkages between improvements to freight components of Metro's regional model and the Oregon statewide model, focusing on taking intercity flows to enhance the regional distribution component
- more fully incorporating freight trip time reliability performance measures into Metro's transportation and land use planning and project prioritization criteria, no later than for the 2013 RTP cycle
- pursuing Transportation Research Board research programs, such as C15: Integrating Freight Considerations into Collaborative Decision Making for Additions to Highway Capacity
- investigating predictive risk analysis, economic models and/or manual estimates of monetary benefits based on predicted travel time savings, incident clearance, enforcement, etc.
- finding and evaluating solutions for reliability and economic impacts for next RTP
- seeking funding for desired elements of a research program through existing and new programs, as appropriate

A6: Coordinate research, modeling and planning with Oregon Department of Transportation (ODOT)

Coordination with ODOT is sufficiently important to be called out specifically. All efforts in recommendation A4 should include ODOT as a partner. Metro staff will work with ODOT's freight mobility manager to consult and coordinate with respect to the statewide freight plan as well as regionally recommended changes to the National Highway System/National Network freight designations.

Goal B. System management to increase network efficiency

This category comprises 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.

B1: Better define, preserve and enhance freight function of existing system

In order to fill gaps and preserve functionality of existing freight system, including needed parallel truck routes, the task force recommends that Metro further examine and clarify functions of essential truck route alternatives to the interstate system. In addition to normal access functions, freight route alternatives are needed for emergencies, construction or congestion, and system flexibility and redundancy for future mobility patterns. The role, use and need for parallel arterials must be better understood as part of a wider and more effective system management effort.

B2: Assess need to develop and fund better incident management and traveler information

Real-time travel information (focused on truckers) to avoid incidents and find detours is increasingly important, particularly to improving reliability performance. Incident clearing resources and regionally coordinated efforts to manage incidents must be sufficiently funded. This action item would direct attention on deficiencies to be addressed, if they exist.

B3: Continue support for use and expansion of ITS system management tools

Begin to address need for 24/7 congestion mapping for the multimodal freight system, among other needs. Support PORTAL's program of real-time traffic delay; provide VMS/GPS active (in cab) truck route management, electronic routing and signage.

B4: Support workforce access to the region's industrial jobs through Metro RTO/TDM programs

The task force recognizes the need for Metro's transportation demand management programs and supports non-auto mobility choices for workers to get to their jobs. If options are limited in certain industrial areas, deficiencies will be highlighted for the region to address. Efforts to improve alternative transportation options for workers will include partnering with TriMet and other service providers to ensure good access to high employment areas.

Goal C. Public understanding of freight and goods movement issues

To gain public support for projects and funding of freight initiatives, and to help the public and elected officials make wiser land use decisions, a program of public education is required.

C1: Establish stakeholder outreach program

Make use of an ongoing relationship with the freight community to provide topical and informative briefings to Metro's various audiences. This could be led by members of the expanded Bench and include a speakers' bureau service to groups within the region.

C2: Provide support for topical fact-based fact sheets, white papers, guest columns and editorials

Apart from any advocacy, Metro's freight staff would coordinate with technical resources within and outside Metro to help improve the analysis and communication of freight impacts on the regional economy and environment. Coherent, logically argued and factually based analysis of freight and goods movement problems, or investments under consideration within the region, are key to gaining public understanding. Creating stories that can carry technical messages to a lay audience is also necessary. The task force recommends using Metro's analytic capability in support of appropriate, balanced responses to news and editorials, in order to clarify and highlight freight, goods movement and economic development issues. A key topic to articulate better is the link between freight and goods movement investments and environmental justice (reducing hot spot congestion and pollutants) and economic equity (good, family wage jobs in one of the few sectors that do not always require higher education).

C3: Create “state of freight” report for the region

Metro staff will coordinate with its stakeholders to develop an outcomes-based report that summarizes the most salient freight, goods movement and economic development issues in terms of regionally vetted benchmarks and performance measures. This could be a piece that is updated on a regular basis, which could be used to improve public and policy-maker awareness of regional freight issues. The report would highlight traditional and emerging industries’ mobility and access needs during a challenging and volatile economic period.

C4: Coordinate with and include the economic development community

As part of expanding the current Task Force into a broader sustainable freight, jobs and economic development bench, Metro will reach out to the economic development community, including the Portland Business Alliance, Project Greenlight, the Columbia Corridor Association, the East Side Economic Alliance, West Side Economic Alliance and others. Metro staff will work with these partners to support development of an economic development strategy for the region that is coordinated with infrastructure investment.

C5: Host Operation Lifesaver training session

This action involves sponsoring a “train the trainer” session to disseminate Operation Lifesaver’s latest information and techniques to teach the public, especially young people, about how to be safe around trains (both freight and passenger).

Goal D. Sustainable freight transportation system

This category of issues and solutions 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 greenhouse gas curtailments.

D1: Provide useful “green freight” links from Metro’s freight program webpage

This would be a simple web resource that could direct our regional stakeholders to useful local, state and national programs and resources.

D2: Establish a regional “green freight, goods and jobs” roundtable series

To help identify what emission and greenhouse gas reductions can be expected from regional freight and goods movement activities, and to improve the effectiveness and reduce business impacts of such reductions, Metro will hold one or more “green freight, goods and jobs” symposia or roundtables. These will be designed to share best practices and discuss funding for effective freight-related environmental programs. Include PDC clusters in our thinking, for example, the electric vehicle cluster. Examine small business strategies for sharing space, industrial processes, using waste streams, etc. This venue would also provide a conduit for technology transfer, the sharing of research or practical experience and similar activities.

D3: Pursue greenhouse gas and other pollutant reduction policies and strategies for freight

Coming out of item D2, and drawing from other initiatives within and beyond the Metro region, staff will explore and define potential environmental benefits in the following areas:

- procedures for identifying greenhouse gas impacts of freight and evaluating the net greenhouse gas impact of freight projects
- programs, policies and projects for cost-effective net reduction of greenhouse gas and other pollutants, such as industrial symbiosis (businesses sharing resources and possibly using neighbors' waste products in their processes); and
- leveraging and possibly expanding diesel retrofit programs, promote idle reduction regulations, etc.

Goal E. Freight-sensitive land use planning

Quality of life begins with a job. With that fact in mind, this category 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.

E1: Develop strategies to protect existing supply of industrial land

Staff will identify lessons learned from previous efforts in the region and look at the most effective ways to protect high-value industrial land and prioritize and protect the value of freight investments to serve such areas. This action will also focus on the economic impacts of failing to preserve and serve industrial lands. It would be tied in with action C4, above.

E2: Examine need for additional industrial land

The region must ensure a continued adequate supply of appropriate industrial land. In addition to internal coordination between Metro planning and land use staff, and coordination with local jurisdictions and industry sectors, an understanding of how the City of Portland succeeded in this area could aid the larger regional effort to meet future industrial land needs.

E3: Provide freight perspective to revision of Metro's livable street design guide

The devil is truly in the details of neighborhood provisioning (delivering to retailers and restaurants), designing for utility and street access for oversize construction equipment and providing needed arterial redundancy for freight and goods movement, all of which can impact local streets and communities. However, all these things are also critical for the very vitality we value in our region. As Metro updates its 2002 edition of Creating livable streets: Street design guidelines for 2040, Metro's freight program staff will coordinate with regional stakeholders to ensure that previously recommended freight considerations are kept in mind and incorporated into any revisions. This action will also require coordination with local jurisdictions (especially with the City of Portland's staff and its Freight Master Plan elements such as the Working Harbor study) to integrate finer grained land use and transit stop issues into the regional framework.

This update will begin in fall 2009. Metro freight staff will provide direction on appropriate freight and goods movement representation on the technical advisory committee that will oversee the revision of the guidelines and will develop "lessons learned" based on recent regional case studies.

E4: Explore and develop regional industrial sustainability and co-location strategies

This action item (which also supports Goal D, above) directs Metro staff to assist its freight/goods movement and agency partners in exploring co-location of business to share resources (heat, energy, transportation, infrastructure) and use the transportation system efficiently. Metro could consider partnering with the Zero Waste Alliance and the Pollution Prevention Resource Center to further their existing efforts in this area. Further exploration of "freight villages" could be included. One of the semi-annual bench meetings could be devoted to national and international best practices in this important emerging area.

Goal F. Strategic transportation investments

This category of solutions focuses on planning and building capital projects and developing the funding sources, partnerships and coordination to implement them. It includes the list of regional freight project priorities attached as Appendix B to this report, identifying a wide range of projects from preservation and maintenance to major facility construction.

F1: Work toward implementation of the RTP freight priority projects

Bench members will continue to advocate for the prioritized list of regional freight projects within the approved RTP project list. This will include supporting funding needs and initiatives to build desired projects. In general, consistent with the message presented throughout this action plan, major investments for freight-oriented preservation, management and "build" projects should focus on:

- more carefully evaluating what, where and when the freight problems occur (noting, e.g., that they do not always coincide with the commute peaks)
- addressing core throughway system bottlenecks with substantial freight impacts, to improve truck mobility in and through the region. Examples include the Columbia River Crossing influence area, the I-5/I-405 loop with connection to US 26, OR 99W through Tigard, and the I-5 corridor south to Wilsonville
- improving and protecting the throughway interchanges that provide access to major industrial areas, particularly: I-5/Marine Drive and I-5/Columbia Blvd serving the

Columbia Corridor and Rivergate industrial areas, I-205/OR 212 serving the Clackamas and Milwaukie industrial areas, and I-205/Airport Way serving Portland International Airport and east Columbia Corridor industrial areas

- improving arterial connections to current and emerging industrial areas. Examples include Sunrise Corridor phased improvements and last mile local industry connectors, e.g., Columbia/Cascade River District projects, including the I-84/257th Avenue Troutdale interchange and SW 124th from Tualatin-Sherwood Road to the I-5/North Stafford interchange
- ensuring safe transport of hazardous loads with a regional routing strategy
- looking beyond the roadway network to address critical marine and freight rail transportation needs such as completing the Columbia River channel deepening and upgrading main line and rail yard infrastructure

F2: Strengthen the tie between project prioritization and the framework for freight performance

Metro recognizes that, while autos and trucks must share the same network, auto trips can more easily be diverted off the highway system via a number of satisfactory existing or planned alternatives, including high capacity transit, a supporting bus network, and regional and corridor bicycle and pedestrian systems in various stages of completeness. Thus, the dependence of trucks and truck-related commerce on the highway system should be recognized as a factor in roadway project prioritization. This action item relies in part on improving the understanding and rigor of freight-related performance measures within Metro's modeling protocols: are we measuring what is relevant to know about freight? In addition, this action depends on technical staff and the freight/jobs/economic development community's ability to articulate fact-based net benefits of strategic goods movement and business-friendly investments and to compete effectively for regional dollars and attention within the decision-making structure of their respective local jurisdictions.

F3: When appropriate, focus regional funds on large capital projects

Based on solid performance measures and other indicators of need and effectiveness fully vetted through regional planning processes, it makes sense in some cases for the region to focus its funding on one large project. In such cases, freight staff and the Bench would work to identify funding sources for identified projects.

F4: Make strategic incremental improvements when large capital projects are unfunded

When funds are not available for major system improvements, make incremental improvements to those facilities through less costly strategies using tools such as intelligent transportation systems, transportation system management and transportation demand management. Also, phase larger improvements, or ensure that projects move along through completing preliminary engineering, right-of-way acquisition or other steps toward construction. Projects need to be in the pipeline should funding become available.

F5: Ensure that unfunded freight projects are on an aspirational or illustrative RTP project list

The region should be prepared to ensure that unfunded projects could at least be considered if unusual, one-time, or new funding sources became available (e.g., American Recovery and Reinvestment Act of 2009)

F6: Develop policy and evaluation tools to guide public investment in private freight infrastructure (notably rail projects)

More clearly define private and public sector roles, including incorporation of the identified state role in freight infrastructure planning and investment that is emerging from the statewide freight planning effort. This planning and analytical effort would answer the question "what are we trying to do with our investments?" And it would yield practical and usable performance measures and investment guidelines for public development of freight assets or services, when they are wholly or partially private. It would also help to correctly phase developments, based on public benefits, and identify equitable funding strategies. Rail/roadway grade separation projects and a shortline investment strategy could be key focus areas for such policy development.

Public investment could be appropriate, for example, when it:

- leverages private investment
- allows progression of a needed project that would otherwise not occur for a relatively modest investment
- involves a facility's yard or terminal but has regional impacts
- pays for intermodal links
- creates new passenger capacity by solving freight bottlenecks
- preserves or creates jobs, generates wealth and taxes
- allows for more competition, modes or choices to shippers, businesses or consumers
- increases overall benefits more than it improves any single mode or facility

Note that private investment in public infrastructure—apart from development fees—should also be part of this policy discussion.

F7: Develop regional freight rail strategy

Many hopes are pinned on the potential for regional freight rail to accommodate a greater share of the future demand for goods movement capacity. However, there is a lack of depth in understanding from an operational or investment perspective how that potential could be realized. For example, the I-5 Trade and Capacity studies indicated that there was adequate capacity for the existing level of passenger train frequency along the north/south corridor. However, that capacity would be at the expense of freight train operations for both UP and

BNSF region-wide, create hot spot congestion, minimize the possibility of growing freight rail commerce and degrade freight rail service throughout the Pacific Northwest, resulting in more trucks on the region's highways. The Portland metro region is committed to a variety of passenger rail modes and must reckon with the interactions with the freight rail system.

In addition, regional demand and support for pedestrian and bicycle trails frequently puts pressure on existing freight rail capacity and operations. Issues of freight rail capacity, liability, safety, cost and efficiency must be balanced with other regional goals, based on common factual understanding of the underlying issues.

This recommendation contemplates a consultant-assisted technical regional rail study that would provide a foundation for developing the policy framework described in F6, above, and could incorporate that work as part of the study. Development of the strategy could include evaluation of public ownership and control of current or potential future passenger rail routes within the region or state, as part of a regional freight management strategy.

In addition to Metro's local jurisdictional partners, both Class 1 railroads, the regional short line operator, TriMet, ODOT Region 1, ODOT Rail Division, the Ports and major shippers/customers would be critical stakeholders.

11 CONCLUSION

The Portland metro region has a vibrant and flourishing economy that is more diversified than ever before. Industry has historically located in the region to take advantage of regional and global connections via pipeline, rail, marine, aviation and highway infrastructure. Today, the region is both an international gateway for trade and a hub for distribution and warehousing activities.

Policies and programs designed to take advantage of the opportunities hidden in the current economic downturn should begin to be refined and implemented to ensure that the Portland metro region is flexibly and securely positioned for the future of freight and goods movement. However, in addition to regional policy and program development and implementation, concrete freight-related projects ranging from modest system management fixes to multi-year construction projects must be built when they are needed, to ensure that the goals of the Regional Freight Plan are met.

The private sector portion of the goods movement community has been making great strides in adopting sustainable technologies and wringing efficiencies out of its portion of the goods movement system. The public sector must also find ways to determine the effectiveness of a variety of freight-related policies (e.g., river channel policies), programs and investments to achieve the maximum benefit for the goods movement network, particularly during a time of uncertain funding for transportation.

Maintaining the region's historic preeminence as a goods movement and industrial hub must remain a regional priority; our economic future depends on it. Investment in smart, strategic and green freight system improvements now can help the region secure not only its economic future by increasing its share of family wage jobs but also support development of a green economy that is the Portland area's trademark.

The region's goods movement system must improve and adapt if the region is to maintain its economic competiveness in the global economy and its status as an international freight gateway. Immediate action is required to meet the economic opportunities of the 21st century. This Regional Freight Plan highlights the key issues for the regional freight transportation system and suggests policies and investments to address them.

APPENDIX A: STAKEHOLDER INTERVIEWS – NEEDS AND ISSUES

Regional Freight and Goods Movement Task Force

Summary of 9/27/06 Issues and Needs Discussion

Industrial-Employment Lands Accessibility
Improve accessibility to major roads
Access to industrial and Port lands from interstate corridors - need to protect the arterial truck routes
Maintenance of good truck corridors between major industrial and commercial centers and between those centers and the primary freight systems (interstates and major regional highways, ocean ports; rail centers for container transload)
Local businesses/constituents need enhanced accessibility to and from the Portland/I-5 multimodal freight infrastructure hub. Limited routes also congested by commuter demand, make freight movement time delays extensive and unpredictable. No or very limited choices of routes
Protect truck corridors connecting industry to interstate system - I-5 & I-205 to Port and Airport
Improve access for trucks to major corridors
I-84/257th interchange - serve freight and industrial districts
99W Bypass
Need better route west to south than Hwy 26 through downtown Portland
Improve access between Port & rail mainline
Enable protection of truck corridors connecting industrial districts
Congestion and Capacity
Today's transportation system does not have the capacity to move freight efficiently or safely. Additional capacity is needed. Without additional capacity, existing shippers will leave (with associated jobs) and growing the industrial job base will be curtailed.
Need infrastructure for growth
Interstate congestion, especially at chokepoints and bottlenecks such as the Interstate Bridge
Relief of congestion on I-5 form Tualatin to Wilsonville, I-205 and Hwy 217
Congestion due to long haul trucking - does it help our region, is there a way to highway congestion through multimodal shipping?
Issue with congestion as it equates to time
Real time delivery of freight to and from facilities - import and international export
Freeway congestion in peak hours
Trucks and Street Design
Access for 28' semi-trailers in urban areas
For local delivery, ensure quality street and pedestrian districts with effective delivery - parking and loading
Main street design
Community Impacts
Where do you put it? How do you balance impacts on communities and environment with economic benefits
Transportation Financing
Increase types and amounts of monies for transportation infrastructure improvements
Steer public/private funding of transportation projects
How to pay for new capacity - wt mile tax has been an issue for 20 years - need different means to finance improvements
Plan needs to be financially constrained - identify elements that can be implemented over time
Who pays for transportation investments needed to move freight - public-private issues
How do you pay for it?
Tax breaks for instructure growth - feds
Policy changes react to market changes in real time = private land use investments mismatched with public infrastructure investments
Balance rail vs. urban housing growth
Promote industrial land use adjacent to the waterways that would encourage distribution centers locating next to waterways - this could help take some traffic off the roadways
Ensure land for heavy industrial use along rail corridors - land use conflict with goals for commuter rail land use
Diversification of private facilities nationally

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Marine
Safer navigation through I-5/BNSF bridge area
Maintenance (and rehab) of federal waterway system - maintenance dredging as needed; replacing lock gates before they fail
Operations and Maintenance
Faster responses to incidents and crashes is also needed
System needs to be predictable - congestion is predictable and repeats, incidents cause excess delays, must be cleared quickly to maintain schedules
Increase trucking parking
Principal freight route arterials need to have signals synchronized to minimize stops, thereby decreasing air and noise pollution
Truck loading zones use by construction crews
Balance passenger and freight movements
Truck parking
Better access between the Port and I-5, particularly for trucks, they require sequence signals with length between intersections
Commercial garbage franchising
Rail
Encourage rail carriers to improve expedited rail service
Rail capacity including preservation of short line railroads
Shorten time constraints on intermodal and rail shipments
Improve short and long haul rail delivery - can this potentially effectively reduce (road) congestion?
We need longer tracks in rail yards. Class I railroads have indicated that they prefer to move trains of 100 to 110 cars - however, many of the tracks in the area are only long enough to hold 50 - 60 railcars
Need to move unit trains in and out of the congested metro area promptly and efficiently
Rail capacity issues - yards, short lines, double-track main lines, sidings - who pays and how?
Business Environment
Distributors - direct to customers with e-commerce, seeing 10-15% annual growth
Growing delivery of goods to urban centers and corridors
Need the transportation stakeholders to cooperate with each other
Growth of e-commerce and home delivery changing shipping patterns and increasing truck volumes
We have plenty of freight coming into the region but need more freight to ship out of the region - drives up costs to get loads delivered
Educated employees

APPENDIX B: REGIONAL TRANSPORTATION PLAN FREIGHT PRIORITIES PROJECT LIST

The following Table represents the 2008 Task Force's freight priority list (Table 4.3 from a report, *Investing in Freight System Infrastructure*, April 2008). Note that the list was developed in 2007-2008, and has not been updated. The list begins with those projects that ranked highest at the time the list was finalized. The left-most column has been added to identify whether the project is in the currently adopted Federal RTP Status (indicated as yes/no).

Fed RTP Status	Metro ID	Project/Program Name	Description	Estimated Cost ($2007)
High Regional Priority				
Yes	10000	Linwood/Harmony Rd./ Lake Rd. Overcrossing/ Intersection	Add NB right turn lane, add EB right turn lane, add WB left turn lane and grade separate UPRR.	$20,000,000
Yes	10357	Channel Deepening	Deepening the Columbia River channel to 43 feet between mouth of Columbia River and Portland/Vancouver Harbor.	$150,573,000
Yes	10865	New I-205 NB on-ramp at I-205/Airport Way interchange based on I-205/Airport Way Study	New I-205 NB on-ramp at I-205/Airport Way interchange based on I-205/Airport Way Study.	$27,200,000
Yes	10866	Improve I-5/Columbia River bridge (Oregon share)	Improve I-5/Columbia River bridge (Oregon share).	$50,000,000
Yes	10867	I-5: Conduct preliminary engineering and environmental work to modernize freeway and ramps to improve access to the Lloyd District and Rose Quarter	Conduct preliminary engineering and environmental work to modernize freeway and ramps to improve access to the Lloyd District and Rose Quarter.	$30,000,000
Yes	10874	I-5: Construct new roadway between Columbia Blvd and Denver Ave near Argyle Street; replace Denver Viaduct; Relocate/reconstruct and signalize Denver/Schmeer Rd intersection	Construct new roadway between Columbia Blvd and Denver Ave near Argyle Street; replace Denver Viaduct; Relocate/reconstruct and signalize Denver/Schmeer Rd intersection.	$46,000,000
Yes	10877	Modernize freeway and ramps to improve access to the Lloyd District and Rose Quarter (Greeley ramp improvements in financially constrained system). I-84/I-5 interchange would include two phases (phase 1 is project #390, phase 2 is #427, and phase 3 is #4	Modernize freeway and ramps to improve access to the Lloyd District and Rose Quarter (Greeley ramp improvements in financially constrained system). I-84/I-5 interchange would include two phases (phase 1 is project #390, phase 2 is #427, and phase 3 is #4.	$521,000,000
No	10883	I-5: Acquire right-of-way	Acquire right-of-way.	$20,000,000
Yes	10884	I-5/I-84 Interchange: Acquire R-O-W	Acquire right-of-way.	$30,000,000
No	10893	Improve I-5/Columbia River bridge (Oregon share)	Improve I-5/Columbia River bridge (Oregon share).	$550,000,000
Yes	11091	Columbia Blvd./I-205 Interchange: SB On-Ramp Improvement	Expand the on-ramp to three lanes, including for truck/HOV	$750,000
Yes	11121	I-5 Delta Park Phase 1	Widen I-5 to 3 lanes, realign ramps	$73,079,000
No	20010	Install High Speed crossovers at North Portland Jct.	Replace existing 10mph crossovers at North Portland Jct. with high speed turnouts. If necessary, construct connection between Peninsula Terminal Co and BNSF A&B yards at Terminal 6 and eliminate interchange	$15,000,000

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Fed RTP Status	Metro ID	Project/Program Name	Description	Estimated Cost ($2007)
			connection at North Portland.	
No	20012	Expand Controlled siding at East St. Johns	Reconstruct/extend East Pass at East St. Johns to serve as third main between Willamette Draw and Columbia Slough (8300'). Install eastward crossover at Willamette Draw from main one to main two.	$10,000,000
No	20013	North Portland Junction	Upgrade railroad with revised crossovers, centralized traffic control tie-in and increased turning radius.	$9,160,000
Medium-High Regional Priority				
Yes	10001	Johnson Creek Blvd. Interchange Improvements	Add loop ramp and NB on-ramp; realign SB off-ramp.	$9,800,000
Yes	10002	Johnson Creek Blvd. Improvements	Widen from three to five lanes and widen bridge over Johnson Creek.	$40,790,000
Yes	10020	Clackamas County ITS Plan	Deploy traffic responsive signal timing, ramp metering, traffic management equipment for better routing of traffic during incidents along the three key ODOT corridors - I-205, I-5, and 99E. Install signal controller upgrades and update county ITS plan.	$6,500,000
No	10105	224 Grade Separation	Preferred approach would be burial of 224, with at least one overcrossing (Harrison).	$100,000,000
No	10111	North Industrial Access Improvements (OR 99-E)	Add turn pockets and/or turn lanes. Reconfigure access points. Improve internal circulation to optimize access points.	$10,000,000
No	10115	Sunrise project ROW Preservation	Acquire right-of-way.	$100,000,000
No	10119	Hwy. 213 - Phase 2	Add through lane in both directions.	$25,000,000
No	10139	I-205 Climbing Lanes	I-205 Abernethy Bridge Widening.	$20,000,000
Yes	10154	Wilsonville Rd./I-5 Interchange Improvements - Setback Abutments & Widen Wilsonville Rd.	Provide additional left-turn lanes, setback abutments, improves signal synchronization, fixes sight distance problems, and provides for enhanced bike/pad safety.	$11,000,000
Yes	10213	Airport Way, NE (I-205 to NE 158th Ave.): ITS	Install needed ITS infrastructure (communication network, new traffic controllers, CCTV cameras, and vehicle /pedestrian detectors). These ITS devices allow us to provide more efficient and safe operation of our traffic signal system.	$278,251
Yes	10219	Argyle on the Hill, N Columbia to N Denver Ave.	New N Argyle street connection, west of I-5.	$11,773,032
No	10237	Southern Triangle Circulation Improvements, SE	Improve local street network and regional access routes in the area between the Powell/12th, Willamette River,	$2,887,500

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Fed RTP Status	Metro ID	Project/Program Name	Description	Estimated Cost ($2007)
			railroad mainline and Hawthorne Bridge. Improve freeway access route from CEID to I-5 SB via the Ross Island Bridge.	
No	10239	11th/12th/Railroad Crossing, SE (West of Division): Intersection Improvements	Reconstruct intersection to upgrade traffic signalization and establish bike and ped. routes.	$400,000
Yes	10336	Alderwood/Columbia Blvd/Cully, NE: Intersection Improvements	Reconstruct intersection to provide left turn pockets, enhancing turning radii, and improving circulation for trucks serving expanding air cargo facilities south of Portland.	$1,460,000
No	10346	Marine Dr, N/NE (Portland Rd. to 185th): ITS	CCTV at N Portland Rd. Changeable message signs at Portland Rd, Vancouver, and 185th.	$170,000
Yes	10366	Alderwood Rd. and Cornfoot Intersection Improvements	Add signals and/or improve turn lanes at Alderwood Rd/82nd Ave, Alderwood Rd/Cornfoot Rd, AirTrans Way/Cornfoot Rd.	$2,206,000
Yes	10369	Leadbetter St. Extension/Overcrossing	Complete Leadbetter St. loop to Marine Dr. (Pacific Gateway/T-6 intersection) and construct road bridge over rail line.	$11,203,600
Yes	10375	Cathedral Park Quiet Zone	Address rail switching noise related to the Toyota operations at T-4 by improving multiple public rail crossings in the St. Johns Cathedral Park area.	$5,198,900
Yes	10378	T-6 Internal Overcrossing	Construct an elevated roadway between Marine Dr. and Terminal 6.	$3,649,084
Yes	10379	Marine Dr. Improvement Phase 2	Construct rail overcrossing on Marine Dr.	$13,644,200
Yes	10393	Replace RR Over-crossing on 223rd Ave.	Reconstruct railroad bridge on 223rd Ave, at I-84 to accommodate wider travel lanes, sidewalks and bike lanes.	$7,000,000
Yes	10394	Replace RR Over-crossing on 223rd Ave.	Reconstruct railroad bridge on 223rd Ave, 2000' north of I-84 to accommodate wider travel lanes, sidewalks and bike lanes.	$7,000,000
Yes	10410	Broadway Bridge Rehabilitation	Rehabilitate mechanical system, approach structure, corrosion control, and phase 1 seismic.	$22,700,000
Yes	10414	Sellwood Bridge Rehabilitation/Replacement	Implement results of alternatives analysis.	$25,100,000
Yes	10493	181st Ave. Sandy to I-84	Add southbound aux lane & widen RR overcrossing.	$827,659
Yes	10556	Tualatin-Sherwood/Boones Ferry Intersection	Grade separate Tualatin-Sherwood/Boones Ferry intersection	$25,000,000
No	10588	Grahams Ferry Rd Improvements	Widen Grahams Ferry Rd to 3 lanes, add bike/pedestrian connections to regional trail system, and fix undersized	$28,000,000

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Fed RTP Status	Metro ID	Project/Program Name	Description	Estimated Cost ($2007)
			railroad overcrossing.	
No	10598	I-5/99W Connector Related Arterial Improvements	Improve arterial roads to enhance the function of the I-5/99W Connector.	$50,000,000
No	10599	Hwy. 217/72nd Ave. Interchange Improvements	Complete interchange reconstruction with additional ramps and overcrossings.	$19,537,000
Yes	10600	Hwy. 26/Shute Interchange Improvements	Add westbound to southbound loop ramp, additional northbound through lane and relocate Jacobsen intersection.	$29,272,000
Yes	10674	Oregon-Tonquin Intersection & Street Improvements	Intersection improvements (consider roundabout) on Oregon at Tonquin Road; sidewalks and bike access through the intersection.	$1,945,000
No	10675	Adams Ave Signal & Interconnect on T-S Rd.	Install traffic signal at Adams Ave. and interconnect the signals along T-S road between Cipole and Borchers.	$1,875,000
No	10734	I205 SB - I5 SB	Merge lane to I-5 south.	
Yes	10751	Hwy. 217 Overcrossing	Realign Hunziker Road to meet Hampton Street at 72nd Ave. and removes existing 72nd/Hunziker Road intersection.	$9,635,000
Yes	10767	72nd Ave. Intersection Improvements	Southbound right turn lane, northbound right turn overlap at Hwy 99W and 72nd; Southbound or Eastbound right turn lane at 72nd/Hampton/Hunziker.	$2,000,000
Yes	10770	Hwy. 99W Intersection Improvements	Provide increased capacity at priority intersections, including bus queue bypass lanes in some locations, improved sidewalks, priority pedestrian crossings, and an access management plan, while retaining existing 4/5-lane facility from I-5 to Durham Road.	$19,669,000
Yes	10869	Sunrise Project: Construct new highway facility from I-205 to 122nd and interim connection to 122nd Ave as defined by supplemental EIS	Construct improvements as defined by supplemental EIS.	$116,000,000
Yes	10870	I-5/99W Connector Phase 1: Conduct study, complete environmental design work and NEPA for I-5 to OR-99W Connector and acquire ROW	Phase 1: Conduct study, complete environmental design work and NEPA for I-5 to OR-99W Connector and acquire ROW.	$100,500,000
Yes	10872	Add lane: SB I-205 to SB I-5 interchange ramp and extend acceleration lane and add auxiliary lane on SB I-5 to Stafford Road.	Add lane to SB I-205 to SB I-5 interchange ramp and extend acceleration lane and add auxiliary lane on SB I-5 to Stafford Road.	$9,700,000
Yes	10875	OR 217: Braid OR 217 ramps between Beaverton-Hillsdale Hwy. and Allen Blvd. in both directions.	Braid OR 217 ramps between Beaverton-Hillsdale Highway and Allen Boulevard in both directions.	$79,600,000
Yes	10876	I-84: Extend Halsey exit lane to I-205 NB exit	I-84 Lane Extension: Halsey to I-205 NB ramp.	$6,446,790
No	10878	I-5/99W Connector Phase 2: Minimum Operable Segment - construct minimal connection to I-5 and two lane arterial to Tonquin Road/124th extension	Phase 2: Minimum Operable Segment - construct minimal connection to I-5 and two lane arterial to Tonquin Road/124th extension.	$263,000,000

Fed RTP Status	Metro ID	Project/Program Name	Description	Estimated Cost ($2007)
No	10879	I-5/99W Connector Phase 3: Additions to Minimum Operable Segment - Extend two lanes to OR 99W and construct interchange	Phase 3: Additions to Minimum Operable Segment - Extend two lanes to OR 99W and construct interchange.	$148,000,000
No	10880	I-5/99W Connector Phase 4: Additions to minimum operable segment - Improve I-5 interchange connections and add braids on I-5	Phase 4: Additions to minimum operable segment - Improve I-5 interchange connections and add braids on I-5.	$113,000,000
No	10881	I-5/99W Connector Phase 5: Additions to minimum operable segment - Construct mid-point interchanges	Phase 5: Additions to minimum operable segment - Construct mid-point interchanges.	$56,500,000
No	10882	I-5/99W Connector Phase 6: Additions to minimum operable segment - Widen from two lanes to four lanes in corridor	Phase 6: Additions to minimum operable segment - Widen from two lanes to four lanes in corridor.	$56,500,000
No	10885	Sunrise Project Phase 2 Construction	Construct new highway facility and interchanges SE 122nd Ave with transition to 172nd.	$247,900,000
Yes	10890	Sunrise Project: Acquire right-of-way: I-205 to SE 172nd Ave	Acquire right-of-way: I-205 to SE 172nd Ave.	$129,000,000
No	10891	Sunrise Project Phase 2: Conduct preliminary engineering to construct new highway facility and interchanges.	Conduct preliminary engineering to construct new highway facility and interchanges.	$25,000,000
No	10892	Sunrise Project: Acquire right-of-way for Phase 2: SE 122nd to 172nd	Acquire right-of-way for Phase 2: SE 122nd to Rock Creek Jct.	$74,000,000
Yes	10894	Sunrise Hwy. PE: I-205 to SE 172nd Ave	Preliminary engineering and EIS from I-205 to 172nd.	$25,000,000
No	11058	Construct Hogan Corridor Improvements	Construct new freeway to highway connection.	$ 11,200,000
No	11059	I-205 Corridor Refinement Planning: OR/WA state line to I-5	I-205 refinement planning.	$ 5,000,000
No	11060	I-205/Airport Way Refinement Planning	I-205/Airport Way refinement planning.	$ 1,400,000
No	11062	I-5 South Corridor Refinement Plan - Wilsonville to North Tigard	I-5 South Corridor refinement plan - Wilsonville to North Tigard.	$ 3,000,000
No	11063	North Tigard to I-405 Refinement Plan	North Tigard to I-405 refinement plan.	$ 4,000,000
No	11064	I-205 Widening: Stafford Road to Willamette River (two phases, not including Abernethy Bridge	Widen I-205 by one lane in each direction from Willamette River to Stafford Road.	$ 74,900,000
No	11065	I-205: Abernethy Bridge Widening (Willamette River crossing)	Widen Abernethy Bridge by one lane in each direction.	$106,400,000
No	11066	I-205: Truck climbing lane	Construct southbound truck climbing lane.	$ 56,800,000
No	11068	I-5 Auxiliary Lanes: Stafford Interchange to Wilsonville Road	Add auxiliary lane to I-5 southbound between Wilsonville Rd. and Elligsen Rd. Extend Boeckman Rd. overcrossing bridge on both ends.	$ 8,000,000

Fed RTP Status	Metro ID	Project/Program Name	Description	Estimated Cost ($2007)
No	11069	I-5/Wilsonville Road Interchange: Phase 2	Reconstruct southbound off-ramp and add southbound auxiliary lane from Wilsonville Rd. to Hubbard cut-off.	$ 13,300,000
No	11070	I-205/OR 213 Interchange: Stage 5 -I-205 Improvements, OR 99E to Gladstone interchange	Auxiliary lanes/braided ramp enhancements and freeway modifications needed to support I-205/OR 213 interchange improvements.	$200,800,000
Yes	11071	I-5/Wilsonville Road Interchange: Phase 1	Reconstruct NB and SB on ramps, and NB off ramp. Add NB auxiliary lane from Hubbard cut-off to Wilsonville Rd.	$ 18,500,000
Yes	11092	Ramsey Rail Yard	Construct up to six yard tracks and one lead track	$ 13,900,000
Yes	11122	OR 217: Sunset Hwy to TV Hwy	Widen Or 217 and structures	$37,676,000
Yes	11124	US 26W Cornell to 185th	Widen US 26 to 6 lanes from Cornell to 185th.	$21,312,000
No	20001	Kenton Rail Line Upgrade	Upgrade existing track to second main track with new double track from N. Portland Jct. to Troutdale and increase track speeds between North Portland Junction and Troutdale on UP's Kenton Line. Part of triangle project with ODOT.	$25,400,000
No	20002	Valley Sub Double Track	Double track mainline to Clackamas (99E/Hwy 224 corridor)	$36,000,000
No	20003	Harbor Siding Extension, approximately 2,255 feet.	Extend Harbor siding on Astoria District to 7,200’ to accommodate staging of unit grain trains to and from Ethanol plant.	$2,000,000
No	20004	Install Power Switch on Astoria Line Wye switch	Replace current electric lock on BNSF main one with power operated turnout at Astoria line Wye near Willamette River draw.	$2,000,000
No	20005	Install Power Switches at Lake Yard	Install one power switch at east entrance to PTRR Lake Yard (MP 1.7). Install up to six power switches on crossovers and entrance switch at west end of PTRR Lake Yard (MP 3.1).	$5,000,000
No	20006	East Portland connection to Graham Line	Build connection from Brooklyn Sub to Portland Sub (Graham Line) to facilitate direct movement.	$15,000,000
No	20007	Increased Track Speeds Between UP Willsburg Junction and UP Albina Yard	Remove the 6 mph restriction along this segment to greatly increase capacity and improve both passenger and freight trail velocity and help to move trains in and out of the Albina Yard more quickly.	$8,800,000
No	20008	Barnes to Terminal 4 Rail	Provide a new track from Barnes Yard to Terminal 4.	$3,000,000
No	20022	Graham Line Siding	Install two controlled sidings, 10,000' siding near Wood Village and a 10,000' siding near Parkrose, between East	$7,000,000

Fed RTP Status	Metro ID	Project/Program Name	Description	Estimated Cost ($2007)
			Portland Jct and Troutdale along UPRR's Graham Mainline.	
No	30000	PDX North Runway Extension	Lengthen north runway to accommodate larger planes during closure of south runway for rehabilitation	$3,500,000
Medium-Low Regional Priority				
Yes	10021	102nd Ave./Industrial Way Improvements	Extend Industrial Way from Mather Road to Lawnfield Road.	$8,570,000
Yes	10022	SE 82nd Dr. Improvements	Widen to five lanes to accommodate truck movement.	$12,350,000
No	10023	SE 82nd Dr. Improvements	Widen to five lanes.	$17,627,801
Yes	10025	Beavercreek Rd. Improvements Phase 2	Widen to 5 lanes with sidewalks and bike lanes.	$5,800,000
Yes	10026	Beavercreek Rd. Improvements Phase 3	Widen to 4 lanes with sidewalks and bike lanes.	$12,920,000
Yes	10042	97th realignment	Realign the existing Lawnfield Rd. Road from 98th to 97th, reduce the grade from 18% to 8%.	$20,650,000
Yes	10052	Mather Rd.	Extend Mather Rd. across railroad to SE 82nd Dr.	$17,250,000
Yes	10066	92nd/Johnson Creek Blvd. intersection	Add turn lanes on 92nd (northbound left at JCB, and northbound right at Idleman).	$1,000,000
Yes	10073	Hwy.-212 intersections	Existing Highway 212 remains two lanes with turn pockets from 162nd Ave. to Anderson Road south of limited access parkway. Design elements to be included are sidewalks, bike lanes, and a landscaped buffer.	$5,970,000
Yes	10078	Hwy. 224	Widen Highway 224 to four lanes with turn pockets at intersections to Carver bridge. The Damascus/Boring Concept Plan identifies Highway 224 as a community bus transit classification.	$12,150,000
No	10106	224 Thruway/Local Access Preservation	Convert some intersections to R in/R out; add turn pockets.	$15,000,000
No	10107	Harrison/UPRR grade separation	Grade separate UP mainline from principal E-W arterial.	$25,000,000
Yes	10132	Boeckman Rd./I-5 Overcrossing Improvements	Widen Boeckman Road bridge over I-5 to 3 lanes. Add bike/pedestrian connections to regional trail system.	$13,600,000
Yes	10134	SW 65th, Elligsen Rd. and Stafford Rd. Intersection Improvements	Currently there are two intersections with a dangerous grade difference and within 100 ft of one another. Combining them into one or the construction of a round-about will help with safety and navigability concerns.	$1,000,000
No	10140	Hwy. 213 - Phase 1	Add one SB and NB through lane, bike lanes, and sidewalks.	$5,000,000
Yes	10141	I-205/Hwy. 213 Interchange Phase 1	Grade separate SB Hwy. 213 at Washington Street and	$22,000,000

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Fed RTP Status	Metro ID	Project/Program Name	Description	Estimated Cost ($2007)
			add a northbound lane to Hwy. 213 from just south of Washington Street to the I-205 on-ramp. Reconstruct I-205 SB off-ramp to Hwy. 213 to provide more storage and enhance freeway operations and safety.	
No	10143	Hwy. 213 Intersection Improvements	Intersection improvements.	$10,000,000
Yes	10174	Going, N (Interstate - Greeley): ITS	Install needed ITS infrastructure (communication network, new traffic controllers, CCTV cameras, and vehicle /pedestrian detectors). These ITS devices allow us to provide more efficient and safe operation of our traffic signal system.	$950,024
Yes	10175	Yeon/St. Helens, NW (US 30): ITS	Install needed ITS infrastructure (communication network, new traffic controllers, CCTV cameras, and vehicle /pedestrian detectors). These ITS devices allow us to provide more efficient and safe operation of our traffic signal system.	$885,499
Yes	10208	MLK O-Xing/Turn Lanes (Columbia-Lombard)	Intersection and signalization improvements with right turn lane.	$2,228,909
Yes	10210	47th, NE (Columbia - Cornfoot): Roadway & Intersection Improvements	Widen and reconfigure intersections to better facilitate truck turning movements to the cargo area located within the airport area. Project includes sidewalk and bikeway improvements.	$5,541,678
Yes	10212	Airport Way/122nd, NE: Intersection Improvement	Add northbound left turn lane, modify traffic signal, and reconstruct island.	$1,100,000
Yes	10214	Lombard, N (Rivergate - to T-6): Multi-modal Improvements	Widen N Lombard to include two travel lanes, a non-continuous center turn land, medians, bike lanes, sidewalks and planting strips.	$34,517,517
Yes	10217	Lombard at Columbia Slough, N: Overcrossing	Add sidewalk and bike lanes to strengthened bridge.	$9,767,000
Yes	10218	Burgard-Lombard, N: Street Improvements	From UPRR Bridge to N Columbia Blvd. Widen street to include 2 12-foot travel lanes, continuous left turn lane, bike lanes and sidewalk.	$24,884,000
Yes	10229	Columbia Blvd./Portland Rd., N: Intersection Improvements	Redesign intersection.	$1,214,000
No	10241	Clay/MLK Jr, SE: Intersection Improvements	Geometric, signalization and channelization improvements to allow transit and general traffic access to westbound Clay street from southbound MLK.	$924,000
No	10242	N. Interstate Ave. Ramp	Replacement of the existing N. Interstate to Larrabee flyover ramp with a new structure.	$14,677,225
No	10244	Kittridge, NW (Bridge at Yeon): Seismic Retrofit	Seismic retrofit.	$1,000,000

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Fed RTP Status	Metro ID	Project/Program Name	Description	Estimated Cost ($2007)
No	10269	Lombard/St. Louis/Ivanhoe: Multi-modal Improvements	Restripe, construct curb extensions, realign, and signalize as needed to improve pedestrian-bicyclist amenities while not impeding truck movements.	$1,400,000
No	10302	MLK Jr, N (Columbia Blvd. - CEID): ITS	CCTV at various locations & traffic monitoring stations at Clay and Burnside.	$705,000
No	10331	Columbia Blvd, N (Bridge at Taft): Seismic Retrofit	Seismic retrofit of bridge.	$415,800
No	10342	Columbia Blvd, N/NE(I-205 - Burgard): ITS	Communications infrastructure including closed circuit TV cameras, variable message signs for remote monitoring and control of traffic flow for six signals.	$420,000
Yes	10343	West Hayden Crossing, N	New four-lane bridge between Marine Drive to Hayden Island.	$99,258,000
Yes	10361	Widen Airport Way West of 82nd	Widen Airport Way from terminal to 82nd Ave.	$8,588,400
Yes	10362	82nd Ave./Airport Way Grade Separation	Construct grade-separated overcrossing.	$92,000,000
Yes	10363	SW Quad Access	Provide street access from 33rd Ave. into SW Quad.	$5,917,500
Yes	10367	CS/PIC Access Improvements	Intersection improvements (installation of stop signs, signalization and/or channelization) at Sandy Blvd/105th Ave, Airport Way/Holman St, Alderwood Rd/Holman St, Alderwood Rd/Cascades Pkwy.	$1,217,000
Yes	10371	Airport Way Braided Ramps	Construct braided ramps between the I-205 interchange and Mt. Hood Interchange.	$59,000,000
Yes	10373	Rivergate ITS	Intelligent Transportation System in Rivergate.	$480,000
Yes	10376	Columbia Blvd. Widening	Widen Columbia Blvd. to five lanes between 60th Ave and 82nd Ave.	$14,859,000
Yes	10392	Columbia/Cascade River District Projects	Implement findings of traffic management plan.	$9,200,000
Yes	10395	Replace RR over crossing.	Reconstruct railroad bridge to accommodate wider travel lanes, sidewalks, and bike lanes.	$7,000,000
Yes	10396	Reconstruct Cornelius Pass Rd.	Reconstruct Cornelius Pass Road including passing lane, safety, and shoulder and drainage improvements.	$37,000,000
Yes	10401	Reconstruct Marine Dr.	Reconstruct Marine Drive between Intelachen and the frontage roads in Troutdale.	$14,000,000
Yes	10402	Construct new road north of I-84, Exit 16	Construct new connector between Sandy Blvd. and Marine Dr, linking industrial sites with I-84	$14,500,000
Yes	10406	Reconstruct Stark St. to arterial standards	Reconstruct road to arterial standards with 1 travel lane in each direction, center turn lane/median, sidewalks	$1,810,000

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Fed RTP Status	Metro ID	Project/Program Name	Description	Estimated Cost ($2007)
			and bicycle lanes.	
Yes	10411	Burnside Bridge Rehabilitation	Rehabilitate mechanical system, approach structure, corrosion control, phase 1and 2 seismic.	$41,600,000
Yes	10412	Morrison Bridge Rehabilitation	Rehabilitate mechanical system, approach structure, corrosion control, phase 1 seismic.	$42,000,000
Yes	10413	Hawthorne Bridge Rehabilitation	Rehabilitate mechanical system, approach structure, corrosion control, phase 1 seismic.	$13,300,000
No	10415	Phase 2 Seismic	Phase 2 seismic on Broadway, Morrison and Hawthorne Bridges.	$82,000,000
No	10416	Hogan Corridor Improvements	Interim capacity improvements and access controls.	$19,140,461
No	10417	Hogan Corridor Improvements	Complete study and construct new principal arterial connection.	$7,507,673
Yes	10430	Orient Dr. Imps.	Upgrades to arterial 4 lane standards.	$9,000,000
No	10435	I-84 to US 26 Study	Study to id access management, freight, alignment.	$1,360,590
Yes	10443	Sandy Blvd. Widening	Widens street to 5 lanes w. sidewalks, bikelanes.	$26,040,578
Yes	10444	181st Ave. Widening	Widens street to three lanes southbound.	$1,797,270
Yes	10445	181st Ave. Intersection Improvement (181st/Glisan)	Improve Intersection.	$1,041,867
Yes	10446	181st Ave. Intersection Improvement (181st/Burnside)	Improve Intersection.	$831,210
Yes	10454	181st Ave. Improvements	Complete boulevard design improvements.	$11,440,061
Yes	10474	Rugg Rd. Ext.	Construction of new roadway that adds e/w capacity in vicinity Rugg Rd and connects Springwater Industrial area to Highway 26.	$30,672,208
Yes	10475	Rugg Rd. Ext.	Construction of new roadway that adds e/w capacity in vicinity Rugg Rd and connects Springwater Industrial area to Highway 26.	$39,329,973
Yes	10478	252nd Ave.	Construction of new street for implementation of Springwater Plan.	$26,162,462
Yes	10479	252nd Ave.	Construction of new street for implementation of Springwater Plan.	$9,808,690
Yes	10480	Springwater Road Section 7	Construction of new street for implementation of Springwater Plan.	$8,008,421
Yes	10490	201st RR Bridge at I-84	Construct new RR bridge to accommodate alternative modes.	$2,359,125
Yes	10495	181st Ave. at Halsey	add 2nd LT lane to N & S legs, add RT lane to EB WB SB.	$1,025,038

Fed RTP Status	Metro ID	Project/Program Name	Description	Estimated Cost ($2007)
Yes	10496	181st at I-84	Freight mobility improvements subject to refinement study.	$250,000
Yes	10497	181st at Sandy, at Stark	At Sandy: Northbound right turn, 2nd westbound left turn. Overlap eastbound right turn. At Stark, add 2nd left turn lane on east and west legs.	$1,884,390
Yes	10498	181st (182nd) at Division/Powell Intersections	At Division: add second westbound left turn lane (TIF P1). At Powell, add northbound and southbound double left turn lanes (TIF P2 and TSP8).At Powell add SB and NB lanes.	$1,682,670
Yes	10501	Barnes Rd.: Powell Valley to City Limits: only Orient to So. City Limits	Widen road and add improvements.	$7,135,229
Yes	10503	Burnside at Powell	At Powell: eliminate EB and WB left turn lanes.	$683,517
Yes	10511	Hogan Rd. at Stark St.	Add right turn lanes on all approaches and second northbound and southbound left turns.	$1,908,431
Yes	10512	Hogan: Powell to Burnside boulevard improvements plus three intersection improvements	Improve to boulevard standards, and intersection improvements at Burnside, Division and Powell.	$8,739,328
No	10522	Burnside, Hogan to Powell	Safety improvements and reconstruction.	$8,807,400
No	10552	Cornell/Cornelius Pass Interchange	Grade separate Cornell at Cornelius Pass	$21,200,000
Yes	10560	Farmington Rd. Improvements	Widen roadway from 2/3 lanes to 5 lanes with bike lanes and sidewalks.	$17,676,000
Yes	10568	Tualatin-Sherwood Rd. Improvements	Widen from three to five lanes with bike lanes and sidewalks.	$49,150,000
Yes	10574	Farmington to 198th Improvements	Widen from two to three lanes with bike lanes and sidewalks.	$17,326,000
Yes	10587	Cornelius Pass Rd. Improvements	Widen to five lanes with bike lanes and sidewalks	$59,872,000
Yes	10590	Tonquin Rd. Improvements	Realign and widen to three lanes with bike lanes and sidewalks.	$28,406,000
Yes	10596	Scholls Ferry Rd. Improvements	Widen to seven lanes with bike lanes and sidewalks.	$19,749,000
Yes	10597	Evergreen Rd. Improvements	Widen to 5 lanes with bike lanes and sidewalks.	$11,242,000
Yes	10603	Tualatin-Sherwood Rd. ATMS	Install integrated surveillance and management equipment.	$1,594,000
Yes	10605	Cornell Rd. ATMS	Install integrated surveillance and management equipment.	$2,043,000
Yes	10617	Farmington Rd.: Murray Blvd. to Hocken Ave. Safety, turn lanes, bicycle, and pedestrian improvements	Construct turn lanes and intersection improvements; signalize where warranted; add bike lanes and sidewalks in gaps.	$8,700,000

Fed RTP Status	Metro ID	Project/Program Name	Description	Estimated Cost ($2007)
Yes	10699	Oregon Street	Construct road to 3 lane collector standards.	$6,712,000
No	10708	T-S Road	Construct road to 5 lane collector standard.	$1,900,000
No	10710	Cipole	Signalize intersection & realign railroad crossing.	$5,600,000
Yes	10714	105th Ave/Avery Street	Realign curves, signalize intersection of Avery/105th, sidewalks on 105th from Avery to 108th.	$5,000,000
Yes	10720	Boones Ferry	Widen to 5 lanes from Tualatin-Sherwood to Ibach.	$16,500,000
No	10723	ORE 99W	Widen to 6 lanes from Cipole to the Tualatin River.	$14,400,000
Yes	10755	72nd Ave. Improvements	Widen to 5 lanes with bikeways and sidewalks. Includes bridge replacement.	$50,964,000
No	10758	Dartmouth Street Extension	3 lane extension; new Highway 217 overcrossing.	$58,690,500
Yes	10776	HWY 8/HWY 47 Intersection	Turn Lanes, modify traffic signal.	$3,300,000
No	10787	10th Ave/Cornelius-Schefflin Rd	Improve to urban standard w/in City (sidewalks & bike lanes); widen rural road with shoulder bike lane, reconstruct Council Creek Bridge.	$9,000,000
No	10790	10th Ave	Signalize intersection.	$300,000
Yes	10795	Holladay St Extension	Construct new collector.	$2,500,000
Yes	10796	Holladay St Extension	Construct new collector.	$1,300,000
Yes	10797	Holladay St Extension	Construct new collector.	$1,300,000
Yes	10803	TV Hwy	Interconnect OR 8 signal system in Cornelius.	$450,000
Yes	10814	Evergreen Rd	Widen to 5 lanes with bike lanes and sidewalks.	$4,000,000
Yes	10816	TV Hwy. Signal Coordination	Interconnect traffic signals.	$2,350,000
Yes	10824	Cornell Rd	Improve to 5 lanes with bike lanes and sidewalks.	$9,248,000
Yes	10831	Century Blvd	Extend 2/3 lanes with US 26 Overpass, connect existing segments.	$12,920,000
Yes	10836	Evergreen Rd	Widen to 5 lanes with bike lanes and sidewalks.	$5,440,000
Yes	10846	TV Hwy.	Expand to 7 lanes with bike/sidewalks.	$42,000,000
Yes	10852	95th Ave/Boones Ferry Rd/Commerce Circle Intersection Improvements	Provide dual left-turn and right-turn lanes, improve signal synchronization, access management measures,	$2,500,000

Fed RTP Status	Metro ID	Project/Program Name	Description	Estimated Cost ($2007)
			fix sight-distance problems, and add extra lanes.	
Yes	10853	Kinsman Rd Extension from Ridder Rd to Day St	Extend 3 lanes with sidewalks and bike lanes.	$6,500,000
Yes	10863	Convert Marine Dr. one-way southbound to two-way under I-84 and widen to five lanes.	Convert Marine Drive one-way southbound to two-way under I-84 and widen to five lanes.	$20,400,000
Yes	10864	New interchange on US 26 to serve industrial area.	New interchange on US 26 to serve industrial area.	$29,500,000
No	10868	Grade separate southbound OR 213 at Washington Street and add a northbound lane to OR 213 from just south of Washington Street to the I-205 on-ramp.	Convert existing OR 213 at Washington Street intersection to right-in/right-out only. Realign Clackamas River Drive under OR 213 to intersect with Washington St. New signalized intersection on Clackamas River Drive with OR 213 connector. New stop sign controlled intersection on Washington St at realigned Clackamas River Dr. Extend the bridge over the railroad by 100' to the south over realigned Clackamas River Dr.	*$16,000,000*
Yes	10871	Marine Dr. extension (Backage road), from I-84 EB off-ramp to 257th Dr.	Marine Drive extension (Backage road), from I-84 EB off-ramp to 257th Drive.	$8,200,000
Yes	10873	US 26W: Widen highway to 6 lanes	Widen highway to 6 lanes.	$36,119,034
No	11057	I-84/US 26 Connector R-O-W Preservation	Obtain right-of-way.	$ 20,700,000
No	11061	I-84 to US 26 Corridor Refinement	I-84 to US 26 Corridor refinement.	$ 1,300,000
No	11067	I-205/OR 213 Interchange: Stage 1: Southbound flyover ramp to OR 213	Construct southbound I-205 flyover ramp to OR 213.	$ 49,102,000
No	11072	I-205/OR 213 Interchange: Stage 3 - NB Washington grade separation segment	Build new northbound OR 213 ramp to I-205 starting at Redlands and merging into I-205 northbound. Grade separate new ramp over Washington. Rebuild Washington St. to five lanes with two traffic signals.	$ 26,000,000
No	11073	I-205/OR 213 Interchange: Stage 6 - Redland Road Interchange	Construct interchange on OR 213 at Redland Rd. Widen OR 213 Bridge over Redland Rd. Lengthen Redland.	$ 72,000,000
Yes	11125	US 26E Springwater at grade intersection	Construct at grade intersection connecting Springwater area to US 26	$6,700,000
No	20009	Barnes Yard to Bonneville Yard Trackage	Construct additional unit train trackage (approximately 16,000 linear feet) between Bonneville and Barnes rail yards.	$11.000.000
No	20015	South Rivergate Rail Yard Expansion Phase I	Construct a second lead and two storage tracks in South Rivergate Yard.	$8,800,000
No	20016	St. Johns Lead Expansion	Add two additional tracks within existing ROW	$3,000,000

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Fed RTP Status	Metro ID	Project/Program Name	Description	Estimated Cost ($2007)
No	20017	Terminal 6 A+B Yard	Connect A and B Yard at Terminal 6	$2,900,000
No	20018	West Hayden Island Rail Access	Rail access to support West Hayden Island development.	$3,000,000
No	20019	West Hayden Island Rail Yard	Seven-track rail yard connected to facility trackage.	$9,500,000
No	20021	Cornelius Pass Tunnel	Rehabilitate & improve capacity through this 4103 foot long tunnel by improving clearance	TBD
No	20023	Second Slough Lead	Provides a new rail/highway bridge over the Columbia Slough	TBD
No	20024	T6 Internal Overcrossing	Construct second gate to provide secondary access to T6. Construct an elevated roadway between Marine Drive and T6	$6,000,000
No	30001	PDX South Runway Rehabilitation	Repair pavement and joints on existing runway	$15,000,000
No	30002	PDX North Runway Rehabilitation	Periodic rehabilitation of north runway	$11,200,000
Low Regional Priority				
Yes	10074	New Connection	Rock Creek junction interchange to 172nd Ave through Rock Creek industrial area.	$19,800,000
Yes	10130	Kinsman Rd. Extension from Barber St. to Boeckman Rd.	Extend 3 lanes with sidewalks and bike lanes.	$5,750,000
No	10156	Boeckman Rd. at Boeckman Creek	Widen Boeckman Road to 3 lanes with bike lanes, sidewalks and connections to regional trail system, remove culvert and install bridge.	$5,800,000
Yes	10209	92nd Dr. (Columbia Slough to Alderwood)	Improve NE 92nd Drive from Columbia Slough to Alderwood Rd.	$2,406,547
No	10236	Water Ave., SE (Caruthers - Division Pl): Street Extension Phase II	Provide new roadway connection with sidewalks, bike lanes, landscaping, access to Willamette Greenway, & reconstruction of existing roadway.	$288,750
No	10246	7th/8th Ave., SE: New Street Connection	Construct new street connection from SE 7th to 8th Ave. at Division Street.	$577,500
Yes	10477	Springwater Road Section 4	Construction of new street for implementation of Springwater Plan.	$13,148,679
Yes	10481	Springwater Road Section 8	Construction of new street for implementation of Springwater Plan.	$5,519,551
Yes	10482	Springwater Road Section 9	Construction of new street for implementation of Springwater Plan.	$8,008,421
Yes	10483	Springwater Road Section 10	Construction of new street for implementation of Springwater Plan.	$12,202,421

Fed RTP Status	Metro ID	Project/Program Name	Description	Estimated Cost ($2007)
Yes	10484	Springwater Road Section 11	Construction of new street for implementation of Springwater Plan.	$21,031,280
No	10492	162nd RR bridge@I-84	Reconstruct RR bridge to accommodate alternative modes.	$2,621,250
Yes	10499	192nd Ave. Wilkes to Halsey	Improve to collector street standards.	$3,833,031
No	10515	Riverside Dr. ext. to Sandy Blvd	Extend collector from 190th to Sandy to improve industrial access.	$10,975,110
Yes	10516	San Rafael, 181st to 201st	Complete collector and remove frontage road.	$9,990,952
Yes	10518	Wilkes St., 181st to 192nd	Improve Wilkes to collector standards and provide slip ramp connection from Eastbound I-84 on ramp.	$6,781,698
No	10520	184th Ave., Wilkes to San Rafael	Construct new collector street.	$7,353,375
No	10524	Cleveland Ave., Glisan to Stark	Construct new collector street.	$15,277,585
No	10525	Clyde, Glisan to Stark	Construct new collector street.	$16,277,585
No	10557	Murray/TV Hwy. Intersection	Grade-separate the intersections of TV Hwy. and Farmington with Murray Blvd.	$25,000,000
No	10711	Teton	Signalize intersection.	$307,000
No	10713	Leveton	Extension.	$9,070,000
Yes	10715	Herman	Reconstruct and widen to 3 lanes from Teton to Tualatin.	$2,500,000
Yes	10716	Myslony	Reconstruct/widen from 112th to 124th to fill system.	$9,400,000
No	10717	Cipole	Reconstruct/widen to 3 lanes from 99W to Tualatin-Sherwood Road.	$13,000,000
Yes	10718	Herman	Reconstruction from Cipole to 124th.	$4,100,000
No	10719	Leveton Ind. Area	Widen Leveton Drive to 5 lanes, signalize the 108th/Leveton intersection, and signalize 108th/Tualatin intersection.	$10,400,000
Yes	10730	E-W connection	Construct new street.	$18,200,000
Yes	10735	Herman	Widen to 5 lanes from 108th to Teton.	$1,250,000
Yes	10736	124th Ave	Construct new street from Tualatin-Sherwood to Tonquin Rd - 5 lanes.	$82,500,000
Yes	10774	23rd/24th	Construct collector level roadway between Hawthorne Ave. and Quince Street.	$15,000,000
No	10780	Hwy 47 Intersection Improvements	Add traffic signal.	$1,000,000

Fed RTP Status	Metro ID	Project/Program Name	Description	Estimated Cost ($2007)
No	10793	19th Ave	Signalize intersection.	$300,000
Yes	10815	Cornell Rd Signal Coordination	Interconnect Traffic Signals (Extends County ATMS).	$1,000,000
Yes	10821	Huffman	Build 3 lanes with bike lanes and sidewalks.	$9,282,000
Yes	10822	253rd	Build 3 lanes with bike lanes and sidewalks.	$6,162,000
No	20020	Banks Connection	Provides a head-on connection at Wilkesboro (east of Banks) between the Tillamook Branch and the United Railways Line over Cornelius Pass	$4,000,000
Other				
Yes	10377	PSU ITS Expansion, incl. freight data repository	Expand PSU's existing web based ITS "count sensor" program beyond the freeway to some key arterials throughout the region. Create a repository of freight data (primarily truck data) from the region's Freight Data Collection project.	$0

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Metro | *People places. Open spaces.*

Clean air and clean water do not stop at city limits or county lines. Neither does the need for jobs, a thriving economy and good transportation choices for people and businesses in our region. Voters have asked Metro to help with the challenges that cross those lines and affect the 25 cities and three counties in the Portland metropolitan area.

A regional approach simply makes sense when it comes to protecting open space, caring for parks, planning for the best use of land, managing garbage disposal and increasing recycling. Metro oversees world-class facilities such as the Oregon Zoo, which contributes to conservation and education, and the Oregon Convention Center, which benefits the region's economy.

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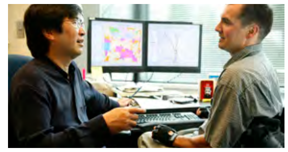





Technical Appendix

2035
REGIONAL TRANSPORTATION PLAN

June 2010

Metro | *People places. Open spaces.*

Metro is the federally mandated metropolitan planning organization designated by the governor to develop an overall transportation plan and to allocate federal funds for the region.

The Joint Policy Advisory Committee on Transportation (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 assures a well-balanced regional transportation system and involves local elected officials directly in decisions that help the Metro Council develop regional transportation policies, including allocating transportation funds.

Project web site: www.oregonmetro.gov/rtp

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

METRO

2035 Regional Transportation Plan

Technical Appendix

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10000	Clackamas Co.	Clackamas Co.	Linwood/Harmony Rd./ Lake Rd. Overcrossing/ Intersection	Linwood/Harmony/ Lake Rd.		Major Arterial	Add NB right turn lane, add EB right turn lane, add WB left turn lane and grade separate UPRR.	$ 20,000,000	$ 29,604,886	2008-2017	x	Roads/bridges		
10001	Clackamas Co.	ODOT	Johnson Creek Blvd. Interchange Improvements	JCB/I-205 interchange		Minor Arterial	Add loop ramp and NB on-ramp; realign SB off-ramp.	$ 9,800,000	$ 14,506,394	2008-2017	x	Roads/bridges		
10002	Clackamas Co.	Clackamas Co.	Johnson Creek Blvd. Improvements	45th Ave.	82nd Ave.	Minor Arterial	Widen from three to five lanes and widen bridge over Johnson Creek.	$ 30,000,000	$ 60,774,495	2018-2025	x	Roads/bridges	Yes	Yes
10003	Clackamas Co.	Clackamas Co.	Harmony Rd. Improvements	Hwy 224	SE 84th Ave.	Major Arterial	Widen to three lanes, add bike lanes and sidewalks where needed.	$ 20,000,000	$ 29,604,886	2008-2017	x	Roads/bridges		Yes
10004	Clackamas Co.	Clackamas Co.	Otty Rd. Improvements	82nd Ave.	92nd Ave.	Local	Widen, add turn lanes, sidewalks, on-street parking, central median and landscaping.	$ 7,340,000	$ 10,864,993	2008-2017	x	Roads/bridges		
10005	Clackamas Co.	Clackamas Co.	West Monterey Extension	82nd Ave.	Fuller Rd.	Minor Arterial	New two-lane extension.	$ 6,200,000	$ 12,560,062	2018-2025	x	Roads/bridges		Yes
10007	Clackamas Co.	Clackamas Co.	Causey Ave. Overcrossing	over I-205	Bob Schumacher Rd.	Minor Arterial	Extend new three-lane crossing over I-205.	$ 14,800,000	$ 29,982,084	2018-2025	x	Roads/bridges		
10008	Clackamas Co.	Clackamas Co.	79th Ave. Extension	Johnson Creek Blvd.	King Rd.	Collector	Build N-S collector west of 82nd Ave..	$ 12,780,000	$ 18,917,522	2008-2017	x	Roads/bridges		
10009	Clackamas Co.	Clackamas Co.	Fuller Rd. Improvements	Otty Rd.	Johnson Creek Blvd.	Collector	Widen street and add turn lanes, sidewalks, on-street parking, central median and landscaping.	$ 4,000,000	$ 5,920,977	2008-2017	x	Roads/bridges		
10013	Clackamas Co.	Clackamas Co.	Boyer Dr. Extension	82nd Ave.	Fuller Rd.	Local	New two-lane extension.	$ 2,520,000	$ 3,730,216	2008-2017	x	Roads/bridges		
10014	Clackamas Co.	Clackamas Co.	82nd Ave. Multi-Modal Improvements	Clatsop Ave.	Monterey Ave.	Major Arterial	Widen to add sidewalks, lighting, central median, planting strips and landscaping.	$ 13,600,000	$ 40,782,365	2026-2035	x	Pedestrian		
10017	Clackamas Co.	Clackamas Co.	Clackamas Regional Center Bike/Pedestrian Corridors	Clackamas Regional Center area		N/A	Provide bike and pedestrian connections in the Regional Center.	$ 5,775,000	$ 11,699,090	2018-2025	x	Bike		
10018	Clackamas Co.	ODOT	82nd Ave. Blvd. Design Improvements	Monterey Ave.	Sunnybrook Blvd.	Major Arterial	Complete boulevard design improvements.	$ 5,400,000	$ 7,993,319	2008-2017	x	Roads/bridges		
10019	Clackamas Co.	Clackamas Co.	West Sunnybrook Rd. Extension	82nd Ave.	Harmony Rd.	minor Arterial	Construct three-lane extension.	$ 6,970,000	$ 10,317,303	2008-2017	x	Roads/bridges		Yes
10020	Clackamas Co.	Clackamas Co.	Clackamas County ITS Plan	Countywide		N/A	Deploy traffic responsive signal timing, ramp metering, traffic management equipment for better routing of traffic during incidents along the three key ODOT corridors - I-205, I-5, 99E. Install signal controller upgrades and update county ITS plan.	$ 6,500,000	$ 9,621,588	2008-2017	x	ITS		
10021	Clackamas Co.	Clackamas Co.	102nd Ave./Industrial Way Improvements	Hwy 212	Lawnfield Rd.	Collector	Extend Industrial Way from Mather Road to Lawnfield Road.	$ 8,570,000	$ 12,685,694	2008-2017	x	Roads/bridges		
10022	Clackamas Co.	Clackamas Co.	SE 82nd Dr. Improvements	Clackamas Rd.	1st Fred Meyer Signal	Minor Arterial	Widen to 4 through lanes and signalized turn lanes to accommodate truck movement, upgrade and improve intersection flow and operation	$ 34,000,000	$ 50,328,306	2008-2017	x	Roads/bridges		
10024	Clackamas Co.	ODOT	McLoughlin Blvd. Improvement	Milwaukie	Gladstone	Major Arterial	Complete multi-modal improvements. Add better connections from adjacent neighborhoods to transit	$ 5,000,000	$ 7,401,221	2008-2017	x	Pedestrian		Yes
10025	Clackamas Co.	Clackamas Co.	Beavercreek Rd. Improvements Phase 2	Hwy 213	Clackamas Community College	Minor Arterial	Widen to 5 lanes with sidewalks and bike lanes.	$ 5,800,000	$ 8,585,417	2008-2017	x	Roads/bridges		
10026	Clackamas Co.	Clackamas Co.	Beavercreek Rd. Improvements Phase 3	Clackamas Community College	Urban Growth Boundary	Minor Arterial	Widen to 4 lanes with sidewalks and bike lanes.	$ 12,920,000	$ 19,124,756	2008-2017	x	Roads/bridges		
10029	Clackamas Co.	Clackamas Co.	Stafford Rd Improvements	I-205	Rosemont Rd.	Minor Arterial	Widen to three lanes including bike lanes and sidewalks.	$ 45,300,000	$ 91,769,488	2018-2025	x	Roads/bridges		
10033	Clackamas Co.	Clackamas Co.	172nd Ave. Improvements	Foster Rd./190th	Sunnyside Road	Major Arterial	Widen to five lanes including new bridge. Construct connection to 190th.	$ 37,480,000	$ 55,479,556	2008-2017	x	Roads/bridges		
10038	Clackamas Co.	Clackamas Co.	242nd	Multnomah County line	Hwy. 212	Rural Arterial	Reconstruct 242nd and widen to three lanes. The Damascus/Boring Concept Plan identifies 242nd as a community bus transit classification.	$ 30,000,000	$ 60,774,495	2018-2025	x	Roads/bridges	Yes	
10040	Happy Valley	Clackamas Co.	162nd Ave. Extension North	Hagen Rd.	Clatsop St.	Collector	Construct a new 3 lane roadway with traffic signals.	$ 27,970,000	$ 56,662,088	2018-2025	x	Roads/bridges		
10041	Happy Valley	Clackamas Co.	162nd Ave. Extension South Phase 1	Rock Creek Blvd.	Goose Hollow Dr.	Collector	Construct a new 2 - 3 lane roadway with intersection improvements at Hwy-212/162nd on all 4 approaches. The second phase is Project #11346.	$ 5,000,000	$ 7,401,221	2008-2017	x	Roads/bridges		
10042	Clackamas Co.	Clackamas Co.	Lawnfield realignment	Lawnfield Rd.	Sunnybrook Blvd.	Local	Realign the existing Lawnfield Rd. Road from 98th to 97th.	$ 25,650,000	$ 37,968,266	2008-2017	x	Freight		Yes
10047	Clackamas Co.	Clackamas Co.	Holcomb Blvd.	Abernethy Rd.	Bradley Rd.	Local	Reconstruct & widen (urban).	$ 20,790,000	$ 30,774,279	2008-2017	x	Roads/bridges		
10048	Clackamas Co.	Clackamas Co.	Holly Lane	Redland Rd.	Maple Lane	Local	Turn lanes, bike lanes, sidewalks, intersection improvements, bridge replacement.	$ 20,740,000	$ 42,015,435	2018-2025	x	Roads/bridges		
10052	Clackamas Co.	Clackamas Co.	Tolbert Road	SE 82nd Dr.	Industrial Way	Collector	Extend Tolbert Rd. across Union Pacific railroad tracks, Industrial Way to SE 82nd Dr.	$ 17,500,000	$ 25,904,275	2008-2017	x	Roads/bridges		Yes

Metro Project ID	Nominating Agency	Facility Owner / Operator	Project/Program Name	Project Start Location (Identify starting point of project)	Project End Location (Identify terminus of project)	Local Functional Classification	Description	Estimated Cost ($2007)	Estimated Cost (YOE$)	Time Period	Federal FC Project	Primary Mode	Project located in EJ Community?	Project located in Goal 5 Resources?
10057	Clackamas Co.	Clackamas Co.	Redland Rd.	Abernethy Rd.	UGB	Major Arterial/Rural Arterial	Turn lanes, bike lanes, sidewalks, intersection improvements, bridge replacements (2).	$ 15,060,000	$ 22,292,479	2008-2017	x	Roads/bridges		Yes
10066	Clackamas Co.	Clackamas Co.	92nd/Johnson Creek Blvd. intersection	92nd/JCB intersection		Minor Arterial	Add turn lanes on 92nd (northbound left at JCB, and northbound right at Idleman).	$ 1,000,000	$ 2,998,703	2026-2035	x	Roads/bridges		
10067	North Clackamas PRD	Clackamas Co.	Phillips Creek Trail	I-205 Trail	N Clackamas Greenway	Other	Build trail through Clackamas Town Center for access to light rail.	$ 2,270,000	$ 3,360,155	2008-2017	x	Regional Trail		Yes
10069	Gresham	Gresham	East Buttes Powerline Trail	Springwater/Gresham-Fairview trail	Clackamas Greenway	Other	Build trail linking Gresham and the Clackamas River.	$ 1,900,000	$ 2,812,464	2008-2017	x	Regional Trail		Yes
10070	North Clackamas PRD		Mt. Scott Creek Trail	Mt. Talbert	Springwater corridor	Other	Build trail to Mt. Talbert regional park.	$ 5,100,000	$ 7,549,246	2008-2017	x	Regional Trail		Yes
10071	North Clackamas PRD		Scouter's Mt. Trail	Springwater/Powell Butte	Springwater corridor	Other	Build trail to/on Scouter's Mt.	$ 9,070,000	$ 13,425,816	2008-2017	x	Regional Trail		
10072	Damascus		Sunnyside Rd. Frequent Bus	Clackamas TC	Damascus TC	Other	Construct improvements that enhance Frequent bus service.	$ 1,000,000	$ 1,480,244	2008-2017	x	Transit capital		Yes
10073	Damascus	ODOT	Hwy.-212 intersections	SE 162nd	Anderson Rd.	Major Arterial	Existing Highway 212 remains two lanes with turn pockets from 162nd Ave. to Anderson Road south of limited access parkway. Design elements to be included are sidewalks, bike lanes, and a landscaped buffer.	$ 5,970,000	$ 8,837,058	2008-2017	x	Roads/bridges		Yes
10074	Damascus		New Connection	177th to 190th	Arterial #3	Local	new arterial from the Rock Creek Blvd interchange. This portion within Damascus.	$ 19,800,000	$ 40,111,167	2018-2025	x	Roads/bridges		Yes
10076	Damascus	Damascus	SE Sunnyside Rd East Extension	SE 172nd Ave.	SE 242nd Ave.	Local	Extend Sunnyside Road east from 172nd Ave to 242nd Ave. Evaluate alignment options between Bohna Park Road and Tillstrom Road for the connection from Foster Road to 242nd Ave.	$ 101,500,000	$ 205,620,376	2018-2025	x	Roads/bridges		Yes
10078	Damascus	ODOT	Hwy. 224	Sunrise End	Carver Bridge	Principal arterial	Widen Highway 224 to four lanes with turn pockets at intersections to Carver bridge. The Damascus/Boring Concept Plan identifies Highway 224 as a community bus transit classification.	$ 12,150,000	$ 24,613,671	2018-2025	x	Roads/bridges		Yes
10081	Happy Valley	Happy Valley	122nd/129th Improvements	Sunnyside Rd.	King Rd.	Minor Arterial	Widen to three lanes, smooth curves.	$ 13,360,000	$ 19,776,064	2008-2017	x	Roads/bridges		
10082	Happy Valley	Happy Valley	Mt. Scott Blvd./King Rd. Improvements	Happy Valley City Limits	145th Ave.	Minor Arterial	Widen to three lanes.	$ 20,820,000	$ 62,433,003	2026-2035	x	Roads/bridges		
10085	Lake Oswego		Lake Oswego to Milwaukie Trail	Willamette Shoreline	Trolley Trail	N/A	Build trail linking Lake Oswego to Milwaukie.	$ 4,500,000	$ 6,661,099	2008-2017	X	Regional Trail		
10087	Lake Oswego		Lake Oswego to Portland Trail	Downtown Lake Oswego Hwy 43	Portland	Major Arterial	Build trail connecting Lake Oswego and Portland.	$ 70,000,000	$ 103,617,100	2008-2017	X	Regional Trail		
10088	Lake Oswego		Lower Boones Ferry Rd.	Madrona Street	Kruse Way	Major Arterial	Widen to include bike lanes, sidewalks, and turn lanes.	$ 20,720,000	$ 30,670,662	2008-2017	X	Bike		
10089	Lake Oswego		Lake Oswego Transit center	Lake Oswego downtown	Near street car	N/A	Move existing transit center closer to the street car for better connectivity.	$ 7,790,000	$ 11,531,103	2008-2017	X	Transit capital		Yes
10092	Wilsonville		Tonquin Trail	Washington/Clackamas County line	Boones Ferry Landing	Other	Shared use path with some on-street portions.	$ 3,000,000	$ 4,440,733	2008-2017	x	Regional Trail		
10094	Milwaukie	Milwaukie	Lake Rd. Improvements (Phase 2)	21st Ave.	Hwy. 224	Arterial	Construct sidewalks, planter strips, medians, and bus stops. Add signal at Oatfield Road.	$ 8,000,000	$ 16,206,532	2018-2025	x	Pedestrian		
10095	Milwaukie	Milwaukie	Railroad Ave. Bike/Ped Improvement	37th Ave.	Linwood Ave.	Collector	Construct sidewalks and bike lanes. Key E-W connection parallel route for Highway 224 mobility corridor.	$ 11,897,000	$ 17,610,466	2008-2017	x	Pedestrian		
10096	Milwaukie	Milwaukie	37th Ave. Bike/Ped Improvement	Hwy. 224	Harrison St.	Local	Construct sidewalks and bike lanes. Key connection between Highway 224 and Harrison Street (Arterial).	$ 2,800,000	$ 5,672,286	2018-2025	x	Pedestrian		Yes
10098	Milwaukie	ODOT	OR 99-E Blvd.	Kellogg Creek Bridge	River Rd.	Principal arterial	Construct sidewalks and bike lanes, median strips, planter strips, and pedestrian scale lighting. Reconfigure or construct new signal for entrance to Riverfront Park.	$ 3,900,000	$ 5,772,953	2008-2017	x	Pedestrian		
10099	Milwaukie	Milwaukie	Monroe Bike Boulevard	21st Ave.	Linwood Ave.	Collector	Minor widening to allow shared lanes, improve signage, striping. Bicycle Boulevard treatment.	$ 2,400,000	$ 3,552,586	2008-2017	x	Bike		
10100	Milwaukie	Milwaukie	Downtown Station Area Streetscaping (21st & Main)	TBD	TBD	Arterial & Collector	Reconstruct streetscape, including street trees, rain gardens, ADA ramps, street furniture, parking meters, and pedestrian-scale lighting.	$ 6,700,000	$ 9,917,637	2008-2017	x	Pedestrian		
10101	Milwaukie	Milwaukie	Kellogg Creek Dam Removal/Bridge Replacement/Milwaukie TC River Access Improvements	Washington	Adams	Principal Arterial (Highway)	Remove dam and bridge; replace bridge with full bike and pedestrian facilities and a multi-use path undercrossing.	$ 12,400,000	$ 18,355,029	2008-2017	x	Pedestrian		
10104	Milwaukie	Milwaukie	17th Ave. Trolley Trail Connector	17th Ave. & McLoughlin	17th Ave. & Ochoco	Arterial	Construct sidewalks; improve bus stops; and correct gaps in bike lanes on 17th Ave. to provide connection between Trolley Trail and Springwater Corridor. Alternative alignment: multi-use path along Johnson Creek from Lava Drive to Ochoco.	$ 3,750,000	$ 5,550,916	2008-2017	x	Regional Trail		Yes

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10106	Milwaukie	Milwaukie	224 Thruway/Local Access Preservation	224 & Harrison	224 & 37th	Principal Arterial (Highway)	Convert some intersections to R in/R out; add turn pockets; improve ped crossing comfort through median islands and other measures as possible. Design option alternatives phase to consider interactions of 99-E/224 connections, and function of 99-E/17th/Harrison intersection.	$ 10,000,000	$ 29,987,033	2026-2035	x	Roads/bridges		Yes
10109	Milwaukie	Milwaukie	Kellogg Creek Pedestrian Bridge/ Trail	99-E	Miramonte Lodge	Other	Construct low-impact trail-type sidewalk & ped bridge.	$ 3,057,000	$ 4,525,107	2008-2017	x	Pedestrian		Yes
10112	Milwaukie	Milwaukie	Ochoco Sidewalks	19th Ave.	17th Ave.	Collector	Construct sidewalks, reconstruct bridge over Johnson Creek.	$ 1,500,000	$ 4,498,055	2026-2035	x	Pedestrian		Yes
10113	Milwaukie	Milwaukie	River Rd. Sidewalks	99-E	City Limit	Arterial	Construct sidewalks.	$ 2,400,000	$ 7,196,888	2026-2035	x	Pedestrian		Yes
10118	Oregon City	ODOT	McLoughlin Blvd. Improvements - Phase 3	Railroad Tunnel	10th St.	Principal arterial	Complete boulevard design improvements and viaduct improvements.	$ 14,300,000	$ 28,969,176	2018-2025	x	Pedestrian		
10120	Oregon City	Oregon City	Washington St. Improvements	Abernethy Rd.	Hwy. 213	Minor Arterial	Complete LID boulevard design improvements.	$ 5,000,000	$ 7,401,221	2008-2017	x	Pedestrian		
10124	Oregon City	Oregon City	Molalla Ave. Streetscape Improvements Phase 3	Holmes	Warner Milne	Major Arterial	Streetscape improvements including widening sidewalks, sidewalk infill, ADA accessibility, bike lanes, reconfigure travel lanes, add bus stop amenities.	$ 2,200,000	$ 4,456,796	2018-2025	x	Pedestrian		Yes
10127	West Linn	ODOT	Hwy. 43 Improvements	Holly St.	Arbor Dr.	Major Arterial	Improve roadway with widening, installation of medians, turn lanes, street trees, signal interconnections, and bike lanes.	$ 21,400,000	$ 31,677,228	2008-2017	x	Roads/bridges		Yes
10128	West Linn	West Linn	Willamette Falls Dr./bicycle lanes and streetlights	Hwy. 43	10th St.	Local	Provide bike lanes, streetlights and sidewalks on a narrow roadway. This will provide a direct connection between three town center areas (including old-town Oregon City). Bicycle lanes will be 6' wide adjacent to 12' wide travel lanes.	$ 7,800,000	$ 11,545,905	2008-2017	x	Bike		
10129	West Linn		Willamette River Greenway Trail	Willamette Park	Lake Oswego - Willamette River trail	Other	Paved trail running parallel to the Willamette River from Willamette Park at the mount of the Tualatin River eventually to the Lake Oswego City Limits facilitating connection to the Willamette River Trail with neighboring cities as part of the Metro Region.	$ 2,000,000	$ 4,051,633	2018-2025	x	Regional Trail		Yes
10130	Wilsonville	Wilsonville	Kinsman Rd. Extension from Barber St. to Boeckman Rd.	Barber St.	Boeckman Rd.	Minor Arterial	Extend 3 lanes with sidewalks and bike lanes.	$ 10,365,000	$ 15,342,732	2008-2017	x	Freight		
10131	Wilsonville	Wilsonville	Tooze Rd. Improvements	110th Ave.	Grahams Ferry Rd.	Minor Arterial	Widen Tooze Rd to 3 lanes, add bike/pedestrian connections to regional trail system.	$ 3,800,000	$ 5,624,928	2008-2017	x	Roads/bridges	Yes	Yes
10132	Wilsonville	Wilsonville	Boeckman Rd./I-5 Overcrossing Improvements	Boberg Rd.	Parkway Ave.	Minor Arterial	Widen Boeckman Road bridge over I-5 to 3 lanes. Add bike/pedestrian connections to regional trail system.	$ 13,600,000	$ 20,131,322	2008-2017	x	Roads/bridges	Yes	Yes
10133	Wilsonville	Wilsonville	French Prairie Bicycle/Pedestrian Bridge	Boones Ferry Rd.	Butteville Rd..	Other	New bicycle/pedestrian/emergency vehicle only bridge crossing the Willamette River.	$ 15,000,000	$ 22,203,664	2008-2017	x	Regional Trail		Yes
10134	Wilsonville	Clackamas Co.	65th/Elligsen/Stafford Intersection Improvements	65th, Elligsen, Stafford Rd. intersections	65th, Elligsen, Stafford Rd. intersections	Rural Arterial	Improve turn radii, sight distance and grade differential by combining intersections	$ 3,000,000	$ 4,440,733	2008-2017	x	Freight		
10135	West Linn	West Linn	19th St. Improvements	Blankenship Rd.	Willamette Falls Dr.	Local	Improvements to include curb, gutter, pavement widening and sidewalks.	$ 1,200,000	$ 1,776,293	2008-2017	x	Roads/bridges		
10137	Damascus	Damascus	Multi-Use Local/Regional Trail and PRT Study	Damascus	N/A	N/A	Study for a multi-use path for bikes, pedestrians, horses that provides local access and connects with Happy Valley and Gresham. Study will also evaluate potential for personal rapid transit.	$ 2,000,000	$ 2,960,489	2008-2017	x	Regional Trail		Yes
10138	Damascus	ODOT	Hwy 212 widening to 5 lane boulevard	Sunrise Unit 1 Terminus	East City Limits	Major Arterial/Rural Arterial	Widen Highway 212 to a 5 lane boulevard section through Damascus.	$ 58,500,000	$ 118,510,266	2018-2025	x	Roads/bridges		
10141	Oregon City	ODOT	I-205/Hwy. 213 Interchange Phase 1	Redland Road O'Xing	I-205	Principal arterial	Construct jug handle at Hwy 213/Washington Street with roundabout at Clackamas Drive; Hwy 213/Redland Road lane improvements. Improve access to regional center and enhance freeway operations and safety.	$ 33,000,000	$ 48,848,061	2008-2017	x	Throughways		
10146	Oregon City	ODOT	McLoughlin Blvd. Improvements - Phase 2	Dunes Dr.	Clackamas River Bridge	Major Arterial	Complete boulevard and gateway improvements.	$ 4,000,000	$ 5,920,977	2008-2017	x	Pedestrian		
10147	Oregon City	Oregon City	Newell Creek Canyon Trail (East)	Hwy 213 and Redland Rd.	Beavercreek Rd.	Other	Project development and right-of-way acquisition for regional trail to follow the Oregon City-Molalla interurban railroad bench on the east side of Newell Creek Canyon.	$ 3,000,000	$ 6,077,450	2018-2025	x	Regional Trail		Yes
10148	Oregon City	Oregon City	Oregon City Loop Trail	Beavercreek Rd.	Hwy 213	Other	Regional trail would generally follow the Oregon City UGB on a collection of local roads, through new development, along Power line right-of-way, and down the bluff to link up with the Promenade in downtown Oregon City	$ 3,000,000	$ 4,440,733	2008-2017	x	Regional Trail	Yes	Yes
10149	Oregon City	Oregon City	Beaver Lake Trail	Clackamas Community College	Oregon City UGB	Other	Regional trail would travel from Clackamas Community College through the Oregon City High School campus to the airstrip area. The trail would skirt the golf course area and continue to Beaver Lake.	$ 500,000	$ 740,122	2008-2017	x	Regional Trail		Yes
10150	Oregon City	Oregon City	Barlow Rd. Trail	Abernethy Rd.	Oregon City limits	Other	Regional trail would follow the perceptive alignment of the historic Barlow Road from Abernethy Green to the Oregon City UGB. The trail would primarily utilize existing and proposed roadways.	$ 1,000,000	$ 1,480,244	2008-2017	x	Regional Trail		

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10153	Wilsonville	Wilsonville	Barber St. Extension from Kinsman Rd. to Villebois Village	Kinsman Rd.	Villebois Village	Other	Extend 3 lanes with sidewalks and bike lanes.	$ 8,900,000	$ 13,174,174	2008-2017	x	Roads/bridges		
10154	Wilsonville	ODOT	Wilsonville Rd./I-5 Interchange Improvements - Setback Abutments & Widen Wilsonville Rd.	Town Center Loop W	Boones Ferry Rd.	Minor Arterial	Provide additional left-turn lanes, setback abutments, improves signal synchronization, fixes sight distance problems, and provides for enhanced bike/pad safety.	$ 11,000,000	$ 16,282,687	2008-2017	x	Throughways		Yes
10155	Wilsonville	ODOT	Wilsonville Rd./I-5 Interchange Improvements - On/Off Ramps	N. of Interchange	S. of Interchange	Interstate	Widen and lengthen on/off ramps.	$ 12,000,000	$ 17,762,931	2008-2017	x	Throughways		Yes
10159	Portland		Springwater [Trail Connection] - Sellwood Gap	SE Umatilla	SE 19th Ave.	Other	Construct trail-with-rail shared use path between Springwater on the Willamette and Springwater Three Bridges.	$ 3,032,411	$ 4,488,709	2008-2017	x	Regional Trail		
10160	Portland		Lloyd District Access Improvements	I-5		Principal Arterial	Add traffic signals and improve intersections at NE 2nd and Broadway and NE 2nd and Weidler Streets.	$ 998,243	$ 1,477,643	2008-2017	x	Throughways		
10162	Portland	Portland	Willamette Greenway Trail - South Waterfront	Marquam Bridge (overhead)	SW Lowell	Other	Provide two paths in order to separate bicyclists from pedestrians in remaining gaps (Marquam Bridge to SW Gibbs, SW Lowell to SW Lane, Benz Springs) of South Waterfront's Willamette Greenway trail.	$ 2,650,000	$ 3,922,647	2008-2017	x	Regional Trail	Yes	Yes
10163	Portland		I-5 at Gibbs, SW: Pedestrian/Bike Overcrossing		I-5/SW Gibbs Bridge	Other	Construct a bike and pedestrian bridge of I-5 at SW Gibbs to connect the Corbett-Terwilliger-Lair Hill neighborhood to North Macadam.	$ 12,259,000	$ 18,146,315	2008-2017	x	Roads/Bridges		Yes
10164	Portland		South Portal, Phase I & II	Intersection Bancroft/Hood/Macadam	Bancroft/Hood/Macadam	Local	Improve SW Bancroft, SW Moody and SW Bond Streets. Extend Moody/Bond couplet to SW Hamilton St. Realign SW Hood to connect to SW Macadam/SW Hamilton intersection.	$ 41,478,000	$ 61,397,572	2008-2017	x	Roads/bridges	Yes	
10165	Portland		Moody/Bond Ave, Couplet - SW Bond Extension (River Parkway to Gibbs)	River Parkway	SW Bancroft	Local	Five lane street improvement from SW Sheridan to SW Gibbs Street. Convert SW Moody to two lanes southbound only. Extend SW Bond Ave. from SW Gibbs St. to River Parkway as two lanes northbound only.	$ 18,834,515	$ 27,879,683	2008-2017	x	Roads/bridges		Yes
10166	Portland		NW Burnside at Skyline Rd.	Intersection NW Burnside/ Skyline Rd.		Major Arterial	Intersection improvements.	$ 1,850,716	$ 5,549,748	2026-2035	x	Bike	Yes	Yes
10167	Portland		Central Eastside Bridgehead	SE Grand bridgehead		Major Arterial	Improve pedestrian and bicycle access to bridge approaches.	$ 4,100,000	$ 6,069,002	2008-2017	x	Pedestrian		
10169	Portland		Burnside/Couch, East [Blvd/Streetscape]	E 12th	Burnside Bridge	Major Arterial	Implements a one-way couplet design including new traffic signals, widened sidewalks, curb extensions, bike lanes on-street parking and street trees.	$ 17,852,000	$ 26,425,321	2008-2017	x	Roads/bridges		
10171	Portland		Burnside/Couch, West [Blvd/Streetscape]	Burnside Bridge	W 15th	Major Arterial	Implements a one-way couplet design including new traffic signals, widened sidewalks, curb extensions, bike lanes on-street parking and street trees.	$ 75,895,353	$ 112,343,663	2008-2017	x	Roads/bridges	Yes	Yes
10173	Portland	ODOT	Macadam, SW (Bancroft - Sellwood Br): ITS	SW Bancroft	Sellwood Bridge	Major Arterial	Install needed ITS infrastructure (communication network, new traffic controllers, CCTV cameras, and vehicle /pedestrian detectors). These ITS devices allow us to provide more efficient and safe operation of our traffic signal system.	$ 401,794	$ 813,961	2018-2025	x	ITS		
10174	Portland		Going, N (Interstate - Greeley): ITS	Interstate	Greeley	Major Arterial	Install needed ITS infrastructure (communication network, new traffic controllers, CCTV cameras, and vehicle /pedestrian detectors). These ITS devices allow us to provide more efficient and safe operation of our traffic signal system.	$ 950,024	$ 1,406,268	2008-2017	x	ITS	Yes	
10175	Portland	ODOT	Yeon/St. Helens, NW (US 30): ITS	NW Yeon/St. Helens		Minor Arterial	Install needed ITS infrastructure (communication network, new traffic controllers, CCTV cameras, and vehicle /pedestrian detectors). These ITS devices allow us to provide more efficient and safe operation of our traffic signal system.	$ 885,499	$ 1,310,755	2008-2017	x	ITS		
10176	Portland		PSL - Eastside Extension	NW Lovejoy/10th	SE Water	Major Arterial	Construct streetcar from NW Lovejoy/10th to SE Water	$ 121,335,000	$ 179,605,440	2008-2017	x	Transit capital		
10177	Portland		PSL - OMSI to Riverplace or South Waterfront (close loop)	SE Water	SW Moody	Major Arterial	Construct streetcar from SE Water to SW Moody after alternatives analysis has been completed.	$ 19,000,000	$ 38,490,514	2018-2025	x	Transit capital		Yes
10178	Portland		Going St Bridge, N: Seismic Retrofit	Going St Overpass	n/a	Major Arterial	Seismic retrofit project will include work to both the substructure and superstructure to help minimize the risk of a structural collapse in a major earthquake.	$ 4,000,000	$ 5,920,977	2008-2017	X	Roads/Bridges		Yes
10181	Portland		Fifties Bikeway, NE/SE (Tillamook to Woodstock)	SE Woodstock	NE Tillamook	Collector	Curb extensions, median refuges, signal modifications, and striping changes to create a north-south bicycle boulevard, along various interconnected portions of 52nd-57th streets between NE Thompson and SE Woodstock Blvd.	$ 1,595,049	$ 4,783,079	2026-2035	x	Bike		
10182	Portland	ODOT	St. Johns Pedestrian District, N			N/A	Enhance pedestrian access to transit, improve safety, and enhance the streetscape such as better lighting and crossings. Improvements including realigning the "ivy" island, curb extensions, a new traffic signal at Richmond/Lombard, and pedestrian connections between St. Johns and the riverfront based on the St. Johns/Lombard Plan.	$ 5,000,000	$ 7,401,221	2008-2017	x	Pedestrian		Yes
10185	Portland		Foster & Woodstock, SE (87th - 94th): Street Improvements, Phase I	SE 87th	SE 94th	Major Arterial	Implement Lents Town Center Business District Plan with new traffic signals, pedestrian amenities, wider sidewalks, pedestrian crossings, street lighting, increased on-street parking.	$ 13,812,000	$ 20,445,134	2008-2017	x	Pedestrian		Yes

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10186	Portland		Foster & Woodstock, SE (94th - 101st): Street Improvements, Phase II	SE 94th	SE 101st	Major Arterial	Implement Lents Town Center Business District Plan with new traffic signals, pedestrian amenities, wider sidewalks, pedestrian crossings, and street lighting.	$ 11,510,000	$ 17,037,612	2008-2017	x	Pedestrian		
10187	Portland		Foster Rd., SE (82nd - 87th): Lents Town Center Street Improvements	SE 82nd	SE 87th	Major Arterial	Implement Lents Town Center Business District Plan with new traffic signals, pedestrian amenities, wider sidewalks, pedestrian crossings, street lighting, and on-street parking as appropriate.	$ 4,625,000	$ 6,846,130	2008-2017	x	Pedestrian		
10189	Portland		Capitol Hwy, SW	SW Multnomah Blvd	SW Taylors Ferry	Minor Arterial	Improve SW Capitol Highway from SW Multnomah Boulevard to SW Taylors Ferry Road per the 1996 Capitol Highway Plan.	$ 9,613,958	$ 14,231,006	2008-2017	x	Bike		Yes
10190	Portland		23rd Ave., NW (Lovejoy - Burnside): Rd. Reconstruction	NW Lovejoy	W Burnside	Local	Rebuild street.	$ 3,350,000	$ 4,958,818	2008-2017	x	Roads/bridges		
10191	Portland		Garden Home Rd., SW (Capitol Hwy - Multnomah): Multi-modal Improvements	SW Capitol Hwy	SW Multnomah Blvd	Local	Improve and signalize the intersection at SW Garden Home and SW Multnomah Blvd.	$ 1,931,033	$ 2,858,401	2008-2017	x	Roads/bridges		
10192	Portland		Division Streetscape and Reconstruction	SE 6th Ave. SE 39th Ave.	SE 39th Ave.	Local	The project will design and build streetscape and transportation improvements between SE 12th Ave and SE 39th Ave, complete base repair and pavement reconstruction between SE 6th Ave and SE 10th Ave, and grind and overlay asphalt in the area between SE 10th Ave and SE 39th Ave.	$ 5,848,135	$ 8,656,668	2008-2017	x	Roads/bridges		Yes
10194	Portland		Killingsworth, N (Interstate - MLK Jr Blvd): Street Improvements	N Interstate	MLK Jr Blvd	Minor Arterial	Construct street improvements to improve pedestrian connections to Interstate MAX LRT and to establish a main street character promoting pedestrian-oriented activities. Commentary: Update project to reflect recommendations in the Killingsworth Street Improvements Planning Project.	$ 4,900,000	$ 7,253,197	2008-2017	x	Pedestrian		
10196	Portland		Cully Blvd. Green St.	NE Prescott St.	NE Killingsworth	Local	The project will plan, design and rebuild NE Cully Boulevard between NE Prescott Street and NE Killingsworth Street. Project planning and preliminary engineering will analyze alternatives for the roadway with public input and involvement.	$ 5,255,633	$ 10,646,948	2018-2025	x	Roads/bridges		
10197	Portland		Russell St. Improvements, N	N Williams	N Interstate	Local	Construct improvements to Russell (Williams - Interstate), Albina & Mississippi (Russell - Interstate) to enhance ped connections from Eliot neighborhood and Lower Albina dist to the LRT station. Improve the N Williams at N Stanton intersection.	$ 3,300,000	$ 6,685,195	2018-2025	x	Pedestrian		
10198	Portland		122nd, NE/SE (NE Airport Way to SE Powell Blvd): ITS	Airport Way	SE Powell Blvd	Major Arterial	Install needed ITS infrastructure (communication network, new traffic controllers, CCTV cameras, and vehicle /pedestrian detectors). These ITS devices allow us to provide more efficient and safe operation of our traffic signal system.	$ 515,703	$ 1,044,720	2018-2025	x	ITS		
10199	Portland		SE 136th Ave. (Division to Powell) Bikeway	SE Division	SE Foster	Local	From SE Division Street to SE Powell Boulevard: Improve to 36' curb-to-curb with 2-13' traffic lanes and 2-5' bike lanes; 6" curbs, 9' swales and 6' sidewalks on both sides.	$ 6,090,590	$ 18,263,872	2026-2035	x	Bike		
10201	Portland		102nd Ave., NE (Weidler - Glisan): Gateway Plan District Multi-modal Improvements, Phase I	NE Weidler	NE Glisan	Minor Arterial	Implement Gateway Regional Center plan with boulevard design retrofit, new traffic signals, improved pedestrian facilities and crossings, street lighting, bicycle lanes, and multi-modal safety improvements.	$ 3,234,000	$ 4,787,110	2008-2017	x	Roads/bridges		
10202	Portland		102nd Ave, NE/SE (Glisan - Stark): Gateway Plan District Multi-modal Improvements, Phase II	NE Glisan	SE Stark	Minor Arterial	Implement Gateway regional center plan with boulevard design retrofit, new traffic signals, improved pedestrian facilities and crossings, street lighting and new bicycle facilities.	$ 4,500,000	$ 6,661,099	2008-2017	x	Roads/bridges	Yes	Yes
10203	Portland		Glisan St, NE (122nd - City Limits): Multi-modal Improvements	NE 122nd	City Limits	Minor Arterial	Infill missing sidewalk, add curb ramps at corner, add 3 median island crossings, and add a signal.	$ 3,100,241	$ 6,280,519	2018-2025	x	Bike		Yes
10204	Portland		Gateway Regional Center, Local and Collector Streets	NE Weidler/97th	NE Glisan/102nd	N/A	High priority local and collector street and pedestrian improvements in the Gateway Regional Center.	$ 32,648,540	$ 48,327,815	2008-2017	x	Roads/bridges	Yes	Yes
10206	Portland		Marine Drive bike lanes 6th to 28th & off-street trail gaps between I-5 and 185th	I-5	NE 185th Ave.	Other	Close gaps in Marine Dr bike lanes (NE 6th to 28th);and trail (Bridgeton levee & one connector, 28th to 33rd, 112th to 122nd, gaps near 185th)	$ 2,130,835	$ 3,154,156	2008-2017	x	Regional Trail		Yes
10208	Portland		MLK O-Xing/Turn Lanes (Columbia-Lombard)	Intersections of MLK and NE Columbia Blvd/Lombard		Principal arterial	Intersection and signalization improvements with right turn lane.	$ 2,228,909	$ 3,299,330	2008-2017	x	Roads/bridges		
10209	Portland		92nd Dr. (Columbia Slough to Alderwood)	Columbia Slough	NE Alderwood	Local	Improve NE 92nd Drive from Columbia Slough to Alderwood Rd.	$ 2,406,547	$ 3,562,277	2008-2017	x	Roads/bridges	Yes	Yes
10210	Portland		47th, NE (Columbia - Cornfoot): Roadway & Intersection Improvements	NE 47th	NE Columbia Blvd	Collector	Widen and reconfigure intersections to better facilitate truck turning movements to the cargo area located within the airport area. Project includes sidewalk and bikeway improvements.	$ 5,541,678	$ 8,203,037	2008-2017	x	Roads/bridges		
10212	Portland		Airport Way/122nd, NE: Intersection Improvement	NE Airport Way/122nd		Minor Arterial	Add northbound left turn lane, modify traffic signal, and reconstruct island.	$ 1,100,000	$ 1,628,269	2008-2017	x	Roads/bridges		Yes

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10213	Portland		Airport Way, NE (I-205 to NE 158th Ave.): ITS	I-205	NE 158th	Minor Arterial	Install needed ITS infrastructure (communication network, new traffic controllers, CCTV cameras, and vehicle /pedestrian detectors). These ITS devices allow us to provide more efficient and safe operation of our traffic signal system.	$ 278,251	$ 411,879	2008-2017	x	ITS		
10214	Port of Portland		Lombard, N (Rivergate - to T-6): Multi-modal Improvements	Rivergate	T-6	Major Arterial	Widen N Lombard to include two travel lanes, a non-continuous center turn lane, medians, bike lanes, sidewalks and planting strips.	$ 34,517,517	$ 51,094,357	2008-2017	X	Roads/bridges		
10215	Portland		Foster Rd., SE (136th - Jenne): Multi-modal Improvements	SE 136th	SE Jenne Rd.	Minor Arterial	Widen street to three lanes to provide two travel lanes, continuous turn lane, bike lanes, sidewalk, and drainage.	$ 16,963,856	$ 25,110,651	2008-2017	x	Bike		Yes
10216	Portland		Smart Trips Portland, a city-wide individualized marketing strategy			N/A	Smart Trips Portland is a comprehensive approach to reduce drive-alone trips and increase biking, walking and public transit in targeted geographic areas or key transportation corridors of the city. It incorporates the innovative and highly effective "individualized marketing" methodology, which hand delivers packets of information to residents who wish to learn more about transportation options. Success is tracked by evaluating qualitative and quantitative results from surveys and other performance measures.	$ 4,450,000	$ 6,587,087	2008-2017	x	TDM		Yes
10217	Portland		Lombard at Columbia Slough, N: Overcrossing	N Lombard/Columbia Slough Overcrossing		Local	Add sidewalk and bike lanes to strengthened bridge.	$ 9,767,000	$ 14,457,546	2008-2017	x	Roads/bridges	Yes	Yes
10218	Portland		Burgard-Lombard, N: Street Improvements	Intersection of N Burgard/Columbia	UPRR Bridge on N. Lombard	Local	From UPRR Bridge to N Columbia Blvd. Widen street to include 2 12-foot travel lanes, continuous left turn lane, bike lanes and sidewalk.	$ 17,000,000	$ 25,164,153	2008-2017	x	Roads/bridges		
10219	Portland/ODOT		Argyle on the Hill, N Columbia to N Denver Ave.	Columbia Blvd	N Denver	Local	New N Argyle street connection, west of I-5.	$ 11,773,032	$ 23,850,003	2018-2025	x	Roads/bridges		Yes
10220	Portland		Seventies Greenstreet and Bikeway, NE	NE Killingsworth Ave.	Clatsop St.	Other	Develop a combined pedestrian greenway and bike boulevard including crossing improvements at arterials, street lighting, and public art from Killingsworth to Clatsop. Develop a combined pedestrian greenway and bike boulevard including crossing improvements at arterials.	$ 4,120,727	$ 8,347,837	2018-2025	x	Bike		
10221	Portland		Skyline, NW (Hwy 26 - City Limits): Shoulder Improvements	Hwy 26	City Limits	Other	Widen existing 22' of pavement to 32', and add 2' shoulders adjacent to lanes.	$ 8,088,812	$ 24,255,947	2026-2035	x	Bike		
10222	Portland		Flavel Dr, SE	SE 45th	Clatsop	Collector	Fully improve street from SE 45th to Clatsop Street with travel lanes, curbs, swales, sidewalks, and some bike lanes.	$ 7,294,088	$ 21,872,806	2026-2035	x	Pedestrian		
10223	Portland		122nd, SE (at Morrison): Pedestrian Overcrossing			Local	Provide an at-grade improved pedestrian crossing on SE 122nd Ave..	$ 1,993,000	$ 5,976,416	2026-2035	x	Pedestrian		Yes
10224	Portland		Barbara Welch Rd., SE: Multimodal Improvements	SE Foster	City Limits	Local	Widen existing 20' of pavement to new 34' roadway with travel lanes, bike lanes, curb and sidewalk.	$ 20,191,557	$ 60,548,489	2026-2035	x	Roads/bridges		
10225	Portland		SE 122nd Ave Sidewalk Infill (Powellhurst/Gilbert Neighborhood)	SE Harold	SE Ramona	Major Arterial	Add sidewalks to SE 122nd Ave. between SE Harold Street and SE Ramona Street/ Springwater Corridor Trail	$ 2,358,000	$ 7,070,942	2026-2035	x	Pedestrian	Yes	
10226	Portland		Hamilton St., SW	SW Dosch Rd.	SW Scholls Ferry Rd.	Local	Improve SW Hamilton Street between SW Dosch and Scholls Ferry Road.	$ 12,420,360	$ 37,244,975	2026-2035	x	Bike	Yes	
10227	Portland		SW Stephenson/SW Boones Ferry Intersection	SW Boones Ferry	SW Stephenson	Local	Improve and signalize the intersection at SW Stephenson and SW Boones Ferry Road.	$ 1,438,592	$ 4,313,911	2026-2035	x	Bike		
10228	Portland/Port	ODOT	82nd Ave./Columbia, NE: Intersection Improvements	Intersection of NE 82nd/Columbia Blvd		Major Arterial	Widen and reconfigure intersection.	$ 3,408,000	$ 5,044,673	2008-2017	x	Roads/bridges	Yes	
10229	Portland		Columbia Blvd./Portland Rd., N: Intersection Improvements	Intersection of Columbia Blvd/Portland Rd.		Principal arterial	Redesign intersection.	$ 1,214,000	$ 1,797,017	2008-2017	x	Roads/bridges		Yes
10230	Portland		Twenties Bikeway, NE/SE (Lombard - Clinton)	NE Lombard	SE Clinton	Local	Design & implement bikeway along SE 29th,30th/NE 26th/28th / NE Oregon, Wasco, from SE Clinton to NE Lombard using bike blvds. & bike lanes.	$ 1,837,573	$ 5,510,336	2026-2035	x	Bike	Yes	Yes
10231	Region		Union Station, NW: Facility Renovation	N/A	N/A	N/A	Renovate Union Station to meet seismic and functional requirements.	$ 24,000,000	$ 71,968,880	2026-2035	x	Transit capital		Yes
10232	Portland		Flanders, NW (Steel Bridge to Westover): Bicycle Facility	Steel Bridge	NW Westover	Local	Add bike boulevard from NW 24th Ave to the Steel Bridge, new bike/pedestrian bridge over I-405 on Flanders, connections to bikeways on Vista, 18th, 14th, 13th, Broadway, 3rd, 2nd, Glisan and Everett.	$ 2,392,337	$ 3,541,243	2008-2017	x	Bike		
10234	Portland		Columbia Slough Trail system	Confluence of Columbia Slough and North Slough	NE 158th Ave.	Other	Close gaps in Columbia Slough Trail: North Slough to North Portland Rd; Landfill to Pier Park; I-5 to NE Elrod; NE Elrod to NE 82nd Ave; NE 82nd Ave to 92nd Ave; I-205 to approx. NE 128th; NE 145th to 158th, Peninsula Canal, Cross-Levee, Delta Park Trail.	$ 8,460,000	$ 12,522,867	2008-2017	x	Regional Trail		
10272	Portland		Capitol Hwy, SW (Vermont - Florida): Intersection Improvements	SW Vermont	SW Florida	Minor Arterial	Realign the Capitol/Vermont/30th intersection and provide sidewalks, bike lanes, and drainage improvements.	$ 1,898,314	$ 3,845,636	2018-2025	x	Bike	Yes	

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10273	Portland		Capitol Hwy, SW (Terwilliger - Sunset): Multi-modal Improvements	SW Terwilliger	SW Sunset	Major Arterial	Construct sidewalks, crossing improvements for access to transit and bike improvements, and install left turn lane at the Capitol/Burlingame intersection.	$ 1,403,000	$ 2,842,221	2018-2025	x	Bike	Yes	
10283	Portland	ODOT	Barbur Blvd, SW (3rd - Terwilliger): Multi-modal Improvements	SW 3rd	SW Terwilliger	Major Arterial	Construct Improvements for transit, bikes and pedestrians. Transit improvements include preferential signals, pullouts, shelters, left turn lanes and sidewalks.	$ 6,594,100	$ 13,358,437	2018-2025	x	Roads/bridges		
10284	Portland		Taylors Ferry, SW (Capitol Hwy - City Limits): Bicycle & Pedestrian Improvements	SW Capitol Hwy	City Limits	Local	SW Taylors Ferry Rd: Provide bicycle lanes, icluding shoulder widening and drainage, and construct sidewalks for access to transit.	$ 4,209,000	$ 8,526,662	2018-2025	x	Bike		
10334	Portland		11th/13th, NE (at Columbia Blvd.): Crossing Elimination	NE Columbia Blvd	NE Lombard	Major Arterial	If feasible, eliminate the at-grade crossing and improve alternate roadway access.	$ 1,000,000	$ 1,480,244	2008-2017	x	Roads/bridges	Yes	
10336	Portland		Alderwood/Columbia Blvd/Cully, NE: Intersection Improvements	Intersection of NE Alderwood/Columbia Blvd/Cully		Major Arterial	Reconstruct intersection to provide signalization, left turn pockets, enhancing turning radii and improving circulation for trucks serving expanding air cargo facilities south of Portland.	$ 1,460,000	$ 2,161,157	2008-2017	x	Roads/bridges	Yes	
10343	Portland/Port		West Hayden Crossing, N	N Marine Dr.	Hayden Island	Minor Arterial	Provide primary access to Port's Marine Development and secondary access to existing development of Hayden Island, if it is determined through the West Hayden planning process that development of this portion of the island is an appropriate location for a bridge.	$ 99,258,000	$ 146,926,087	2008-2017	x	Roads/bridges	Yes	
10354	Portland		Fanno Creek Greenway (Red Electric) Trail	SW Dover near Multnomah County line	Willamette Park	Other	Provide east-west route for pedestrians in cyclists in SW Portland that connects and extends the existing Fanno Creek Greenway Trail to Willamette Park.	$ 17,653,000	$ 26,130,752	2008-2017	x	Regional Trail	Yes	
10355	Portland		North Portland Willamette Greenway Study	N Burlington Ave.	Steel Bridge	Other	Study mostly off-street trail near the river for both bicycle and pedestrian commuting and recreational use.	$ 200,000	$ 296,049	2008-2017	x	Regional Trail		Yes
10358	Port of Portland		Airport Way Terminal Entrance Roadway Relocation	PDX Terminal Area		Collector	Relocate and widen Airport Way northerly at Terminal entrance (to be scoped by PDX Master Plan).	$ 12,818,000	$ 18,973,771	2008-2017	x	Freight	Yes	
10360	Port of Portland		Airport Way Return and Exit Roadways	PDX Terminal Area		Collector	Relocate Airport Way exit roadway and construct new return roadway (Terminal Access Study, projects R4 and R5; to be scoped by PDX Master Plan).	$ 6,400,900	$ 9,474,896	2008-2017	x	Freight		
10362	Port of Portland		82nd Ave./Airport Way Grade Separation			Major Arterial	Construct grade-separated overcrossing.	$ 92,000,000	$ 136,182,474	2008-2017	x	Freight	Yes	
10363	Port of Portland		SW Quad Access	NE 33rd Ave.	SW Quad	Local	Provide street access from 33rd Ave. into SW Quad.	$ 5,917,500	$ 8,759,346	2008-2017	x	Freight	Yes	
10364	Port of Portland		PDX Light Rail Station/Track Realignment			N/A	Realign light rail track into terminal building.	$ 16,330,700	$ 24,173,425	2008-2017	x	Transit capital	Yes	
10366	Port of Portland		Airtrans Way and Cornfoot Road Intersection Improvements			collector	Add signals and improve turn lanes at AirTrans Way/Cornfoot Rd.	$ 650,000	$ 1,316,781	2018-2025	x	Freight	Yes	
10367	Port of Portland		CS/PIC Access Improvements			N/A	Intersection improvements (installation of stop signs, signalization and/or channelization) at Sandy Blvd/105th Ave, Airport Way/Holman St, Alderwood Rd/Holman St, Alderwood Rd/Cascades Pkwy.	$ 1,217,000	$ 1,801,457	2008-2017	x	Roads/bridges	Yes	
10368	Port of Portland		PIC Ped/Bike Network			N/A	Construct bike and pedestrian facilities as shown in the CS/PIC Plan District.	$ 1,163,835	$ 1,722,760	2008-2017	x	Bike	Yes	
10370	Port of Portland		PDX ITS			N/A	Intelligent Transportation Systems in the PDX area.	$ 3,000,000	$ 4,440,733	2008-2017	x	ITS	Yes	Yes
10371	Port of Portland		Airport Way Braided Ramps			major arterial	Construct braided ramps between the I-205 interchange and Mt. Hood Interchange.	$ 59,000,000	$ 119,523,174	2018-2025	x	Freight	Yes	
10373	Port of Portland		Rivergate ITS			N/A	Intelligent Transportation System in Rivergate.	$ 480,000	$ 710,517	2008-2017	x	ITS		
10374	Port of Portland		Terminal 4 Second Access			Local	Regrade hillslope to provide two-lane truck access.	$ 7,000,000	$ 10,361,710	2008-2017	X	Freight	Yes	
10375	Port of Portland		Cathedral Park Quiet Zone			N/A	Address rail switching noise related to the Toyota operations at T-4 by improving multiple public rail crossings in the St. Johns Cathedral Park area.	$ 8,200,000	$ 12,138,003	2008-2017	x	Freight	Yes	
10376	Portland/Port		Columbia Blvd. Widening	60th Ave.	82nd Ave.	Major Arterial	Widen Columbia Blvd. to five lanes between 60th Ave and 82nd Ave.	$ 14,859,000	$ 21,994,950	2008-2017	x	Freight		
10377	Port of Portland		PSU ITS Expansion, incl. freight data repository			N/A	Expand PSU's existing web based ITS "count sensor" program beyond the freeway to some key arterials throughout the region. Create a repository of freight data (primarily truck data) from the region's Freight Data Collection project.		$ -	2008-2017	x	ITS		
10378	Port of Portland		T-6 Internal Overcrossing	Marine Dr.	Terminal 6	Major Arterial	Construct an elevated roadway between Marine Dr. and Terminal 6.	$ 3,649,084	$ 5,401,536	2008-2017	x	Freight		
10379	Port of Portland		Marine Dr. Improvement Phase 2			Major Arterial	Construct rail overcrossing on Marine Dr.	$ 13,644,200	$ 27,640,646	2018-2025	x	Freight	Yes	Yes
10380	Port of Portland		PDX Transportation Demand Management (TDM)			N/A	Implement strategies at PDX and PIC properties that reduce auto trips in the airport area. Programs to be undertaken with other area businesses/developers to maximize effectiveness; possible administration through a transportation management association.		$ -	2008-2017	x	TDM		

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10382	Multnomah Co.	Multnomah Co.	Reconstruct Stark St. to arterial standards	257th Ave.	Troutdale Rd.	Minor Arterial	Reconstruct Stark St. to minor arterial standards by widening the existing 2 lanes to provide for 4 traffic lanes, a continuous left-turn lane, bike lanes, sidewalks, and intersection improvements.	$ 3,150,000	$ 4,662,769	2008-2017	x	Roads/bridges	Yes	Yes
10384	Multnomah Co.	Multnomah Co.	Reconstruct Scholls Ferry Rd.	US 26	Washington County	Minor Arterial	Reconstruct Scholls Ferry Rd. to provide for bicycle and pedestrian travel; includes SW Patton intersection improvements.	$ 5,800,000	$ 8,585,417	2008-2017	x	Roads/bridges	Yes	Yes
10385	Multnomah Co.	Multnomah Co.	Reconstruct Halsey St. with Improvements	238th Ave.	Historic Columbia River Hwy	Minor Arterial	Widen Halsey St to 3 lane minor arterial with center turn lane/median, sidewalk and bicycle lanes, consistent with Halsey Street Conceptual Design Plan	$ 1,080,900	$ 1,599,996	2008-2017	x	Roads/bridges		
10386	Multnomah Co./Gresham	Multnomah Co./Gresham	Glisan St. Multi-modal Improvements	202nd Ave./Gresham-Fairview Trail	207th Ave./Salish Ponds Natural Area	Minor Arterial	Reconstruct Glisan Street to provide multimodal connection between Gresham-Fairview Trail and Salish Ponds Natural Area. Include bike lanes, sidewalks, two travel lanes in each direction, and on-street parking. Design green-street treatment for drainage improvements, including Fairview Creek culvert replacement. South side of Glisan St is in Gresham, north is City of Fairview.	$ 11,500,000	$ 17,022,809	2008-2017	x	Roads/bridges	Yes	
10387	Multnomah Co.	Multnomah Co.	Reconstruct Arata Rd.	223rd Ave.	238th Ave.	Local	Construct to 3 lane collector standards with center turn lane/median, sidewalks, bicycle lanes.	$ 2,300,000	$ 3,404,562	2008-2017	x	Roads/bridges		Yes
10388	Multnomah Co.	Multnomah Co.	Reconstruct 223rd Ave.	Halsey St.	Sandy Blvd	Collector	Reconstruct 223rd Ave to major collector standards with 2 travel lanes, center turn lane/median, sidewalks and bicycle lanes. Requires reconstruction of RR bridge under another project.	$ 1,400,000	$ 2,072,342	2008-2017	x	Roads/bridges		Yes
10389	Multnomah Co.	Multnomah Co.	Reconstruct 223rd Ave.	Sandy Blvd	Marine Dr.	Collector	Improve 223rd Ave to major collector standards including 2 travel lanes, center turn lane/median, sidewalks, bicycle lanes. Possible culvert replacement for fish passage could add $120,000 to cost. Requires replacement of RR bridge not included in this proposal.	$ 2,267,000	$ 4,592,526	2018-2025	x	Roads/bridges		
10390	Multnomah Co.	Multnomah Co.	Reconstruct Troutdale Rd.	Stark St.	Division Dr.	Minor Arterial	Reconstruct with 2 travel lanes; construct center turn lane/median, sidewalks, bicycle lanes between Stark and Strebin. Reconstruct Troutdale Rd/Division Dr. intersection including new fish culverts.	$ 8,297,000	$ 24,880,241	2026-2035	x	Roads/bridges		Yes
10391	Multnomah Co.	Multnomah Co.	Reconstruct Historic Columbia River Hwy.	244th Ave.	Halsey St.	Collector	Reconstruct Historic Columbia River Hwy and NE 244th Ave to minor arterial standards with 2 travel lanes, center turn lane/median, bicycle lanes and sidewalk. Reconstruction of railroad bridge on HCRH is not included in this project.	$ 6,151,000	$ 18,445,024	2026-2035	x	Roads/bridges	Yes	
10394	Multnomah Co.	Multnomah Co.	Replace RR Over-crossing on 223rd Ave.	2000' north of I-84		Collector	Reconstruct railroad bridge on 223rd Ave, 2000' north of I-84 to accommodate wider travel lanes, sidewalks and bike lanes.	$ 7,000,000	$ 14,180,716	2018-2025	x	Freight	Yes	
10395	Multnomah Co.	Multnomah Co.	Replace RR over crossing at Historic Columbia River Hwy	Half mile east of 244th Ave.		Principal arterial	Reconstruct railroad bridge to accommodate wider travel lanes, sidewalks and bike lanes.	$ 7,000,000	$ 20,990,923	2026-2035	x	Roads/bridges	Yes	
10396	Multnomah Co.	Multnomah Co.	Reconstruct Cornelius Pass Rd.	Mile Post 2.8	Mile Post 3.5	Rural Arterial	Reconstruct Cornelius Pass Road including passing lane, safety, shoulder and drainage improvements.	$ 45,000,000	$ 91,161,743	2018-2025	x	Freight		Yes
10398	Multnomah Co.	Multnomah Co.	Wood Village Blvd Extension	Arata Rd.	Halsey St.	Local	Construct new extension of Wood Village Blvd as a major collector with 2 travel lanes, center turn lane/median, sidewalks and bicycle lanes.	$ 1,573,000	$ 2,328,424	2008-2017	x	Roads/bridges	Yes	
10399	Multnomah Co.	Multnomah Co.	Reconstruct Sandy Blvd.	207th Ave.	238th Ave.	collector	Reconstruct Sandy Blvd to minor arterial standards with bike lanes, sidewalks and drainage improvements, utilizing recommendations from TGM grant.	$ 7,438,000	$ 11,010,057	2008-2017	x	Roads/bridges		
10401	Multnomah Co.	Multnomah Co.	Reconstruct Marine Dr.	Interlachen	I-84	Collector	Reconstruct Marine Drive between Intelachen and the frontage roads in Troutdale.	$ 14,000,000	$ 28,361,431	2018-2025	x	Roads/bridges		Yes
10402	Multnomah Co.	Multnomah Co.	Construct new road north of I-84, Exit 16	Sandy Blvd	Marine Dr.	Local	Conduct design options alternatives (DOA) study for new connection between Sandy Blvd and Marine Dr. Construct new connector linking industrial sites with I-84	$ 13,000,000	$ 19,243,176	2008-2017	x	Freight		
10403	Multnomah Co.	Multnomah Co.	257th Ave. Pedestrian improvements at intersections and mid-block crossings	Stark St.	Cherry Park Rd. north	Major Arterial	Improve sidewalks, crossings, lighting and bus stops.	$ 1,600,000	$ 2,368,391	2008-2017	x	Pedestrian		Yes
10404	Multnomah Co.	Multnomah Co.	Beaver Creek Culvert Replacement	Troutdale Rd.	Cochran Rd.	N/A	Replace culverts with fish friendly structures allowing for passage to federally endangered species	$ 6,000,000	$ 8,881,466	2008-2017	x	Other		
10405	Multnomah Co.	Multnomah Co.	Pedestrian Improvements	Various streets		Local	Install pedestrian improvements--crossings, lighting, sidewalks.	$ 1,940,000	$ 3,930,084	2018-2025	x	Pedestrian		
10406	Multnomah Co.	Multnomah Co.	Reconstruct Stark St. to arterial standards	Troutdale Rd.	Hampton Rd.	Minor Arterial	Reconstruct road to arterial standards with 1 travel lanes in each direction, center turn lane/median, sidewalks and bicycle lanes.	$ 1,810,000	$ 3,666,728	2018-2025	x	Roads/bridges		
10407	Multnomah Co.	Multnomah Co.	Fish passage culvert replacement	Fairview and Arata Creeks		N/A	Replace 5 culverts with fish friendly structures allowing for passage to federally endangered species.	$ 1,511,000	$ 4,531,041	2026-2035	x	Other	Yes	
10408	Multnomah Co.	Multnomah Co.	40 Mile Loop Trail	Gresham/Fairview Trail	Graham Rd	Other	Complete gaps in 40-Mile Loop Trail within CCRD, and construct trailhead.	$ 3,500,000	$ 5,180,855	2008-2017	x	Regional Trail		
10409	Multnomah Co.	Multnomah Co.	Beaver Creek Trail	Mt. Hood Comm. Coll.	Historic Columbia River Hwy	Other	Constructs new trail adjacent to Beaver Creek.	$ 1,400,000	$ 2,836,143	2018-2025	x	Regional Trail	Yes	
10410	Multnomah Co.	Multnomah Co.	Broadway Bridge Rehabilitation			Major Arterial	Rehabilitate mechanical system, approach structure, corrosion control, phase 1 seismic.	$ 22,700,000	$ 33,601,545	2008-2017	x	Roads/bridges	Yes	Yes
10411	Multnomah Co.	Multnomah Co.	Burnside Bridge Rehabilitation - Phase 1			Major Arterial	Rehabilitate mechanical system, approach structure, corrosion control, phase 1seismic. Phase 1.	$ 25,000,000	$ 37,006,107	2008-2017	x	Roads/bridges		
10412	Multnomah Co.	Multnomah Co.	Morrison Bridge Rehabilitation - Phase 1			Major Arterial	Rehabilitate mechanical system, approach structure, corrosion control, phase 1 seismic. (Phase 1)	$ 25,700,000	$ 38,042,278	2008-2017	x	Roads/bridges		

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10413	Multnomah Co.	Multnomah Co.	Hawthorne Bridge Rehabilitation			Major Arterial	Rehabilitate mechanical system, approach structure, corrosion control, phase 1 seismic.	$ 13,300,000	$ 19,687,249	2008-2017	x	Roads/bridges	Yes	
10414	Multnomah Co.	Multnomah Co.	Sellwood Bridge Replacement	S.E. Tacoma St.	Hwy. 43	Minor Arterial	Final Engineering and ROW acquisition phase of bridge replacement.	$ 58,000,000	$ 85,854,169	2008-2017	x	Roads/bridges		
10419	Gresham	Gresham	Civic Neighborhood. LRT station plaza	Max line west of City Hall	728' to the northwest	N/A	Constructs new light rail station to max blue line.	$ 5,600,000	$ 8,289,368	2008-2017	x	Transit capital		
10420	Gresham	Gresham	Palmquist Rd. Improvements	242nd Ave.	US 26	Collector	Improves to five lane collector standards, intersection improvements.	$ 7,784,844	$ 15,770,666	2018-2025	x	Roads/bridges		
10421	Gresham	Gresham	Burnside Rd. Blvd Improvements	181st	197th	Major Arterial	Complete boulevard improvements.	$ 7,873,990	$ 11,655,429	2008-2017	x	Roads/bridges	Yes	
10423	Gresham	Gresham	Cleveland St. Reconstruction.	Powell	Burnside	Local	Reconstructs street from Burnside to Powell.	$ 1,100,000	$ 1,628,269	2008-2017	x	Roads/bridges	Yes	
10424	Gresham	Gresham	Wallula St. Reconstruction, + intersections	Division	Stark	Local	Widen road, add curb/gutter, sidewalks. At Burnside, add northbound, southbound, left turn lanes. Signalize Stark.	$ 8,347,988	$ 16,911,492	2018-2025	x	Roads/bridges		
10425	Gresham	Gresham	Bull Run Rd.. Reconstruction	242nd Ave.	257th Ave.	Local	Brings to standards, adds pedestrian, bicycle facilities.	$ 4,466,312	$ 9,047,929	2018-2025	x	Roads/bridges	Yes	Yes
10427	Gresham	Gresham	Regner Rd. Reconstruction	Roberts	Southern City Limits	Minor Arterial	Brings to standards, adds pedestrian, bicycle facilities, improves Regner/Butler intersection by adding NB left-turn pocket and signalizing intersection.	$ 29,265,570	$ 59,286,675	2018-2025	x	Roads/bridges		
10429	Gresham	Gresham	Powell Valley Imps.	Burnside	282nd. Ave.	Minor Arterial	Improve Powell Valley w. ped and bike facilities.	$ 14,645,408	$ 29,668,909	2018-2025	X	Roads/bridges		
10430	Gresham	Gresham	Orient Dr. Imps.	South City Limits	257th Ave.	Minor Arterial	Upgrades to arterial 4 lane standards.	$ 9,000,000	$ 18,232,349	2018-2025	x	Roads/bridges		
10431	Gresham	Gresham	Highland/190th Rd. Widening	200' south of SW 11th	Ending at the intersection of Pleasant View Dr./SE 190th and Butler	Major Arterial	Reconstruct and widen street to five lanes with sidewalks and bike lanes. Widen and determine the appropriate cross-section for Highland Drive and Pleasant View Drive from Powell Boulevard to 190th Ave..	$ 19,646,521	$ 29,081,650	2008-2017	x	Roads/bridges		
10434	Gresham	Gresham	Burnside St. Improvements	NE Wallula St.	Hogan	Major Aterial	Complete boulevard design improvements Wallula to Hogan (2004 RTP 2048), also improve intersection of Burnside at Division (2002 TSP #15) by adding eastbound RT and signal, and also improve the intersection of Burnside and Hogan (2004 RTP #2032).	$ 32,545,601	$ 48,175,440	2008-2017	x	Roads/bridges	Yes	
10436	Gresham	Gresham	Max Trail	Cleveland	Ruby Junction	Other	Construct new shared use path.	$ 1,897,279	$ 2,808,436	2008-2017	x	Regional Trail		
10437	Gresham	Gresham	Gresham/Fairview Trail	Halsey	Marine Dr.	Other	Springwater trail connect. incl. Trailhead @ Marine Dr.	$ 4,608,799	$ 9,336,581	2018-2025	x	Regional Trail		
10438	Gresham	Gresham	Springwater Trail Connections	Pl. View/190th	N/A	Other	Provide ped, bike and equestrian access to regional trail.	$ 271,562	$ 550,135	2018-2025	x	Regional Trail		
10439	Gresham	Gresham	Main City Park Trailhead	Main City Park		Other	Improves parking lot, facilities (MTIP project).	$ 570,299	$ 844,182	2008-2017	x	Pedestrian		
10440	Gresham	Gresham	Division St. Multimodal Improvements	Wallula	west city limits	Minor Arterial	Retrofit street to add bicylce facilities, sidewalks, and explore other multimodal facilities and connections.	$ 4,939,693	$ 7,311,952	2008-2017	x	Bike	Yes	
10441	Gresham	Gresham	Gresham RC Ped and Ped to Max	all stations		N/A	Improve sidewalks, lighting, crossings, bus shelters, benches.	$ 584,820	$ 865,676	2008-2017	x	Pedestrian	Yes	
10442	Gresham	Gresham	Phase 3 Signal Optimization	System Wide		N/A	Optimize signals, provide message boards.	$ 6,227,280	$ 9,217,896	2008-2017	x	Roads/bridges	Yes	
10443	Gresham	Gresham	Sandy Blvd. Widening	181st Ave.	202nd	Major Arterial	Widens Sandy Blvd. to 5 lanes with sidewalks, bikelanes from 181st to 202nd Ave.	$ 10,000,000	$ 20,258,165	2018-2025	x	Roads/bridges	Yes	Yes
10444	Gresham	Gresham	181st Ave. Widening	Halsey St.	EB on-ramp to I-84	Major Arterial	Widens street to three lanes southbound.	$ 1,797,270	$ 2,660,399	2008-2017	x	Freight		
10445	Gresham	Gresham	181st Ave. Intersection Improvement (181st/Glisan)	181st/Glisan		Major Arterial	Improve Intersection.	$ 1,041,867	$ 2,110,631	2018-2025	x	Freight		
10446	Gresham	Gresham	181st Ave. Intersection Improvement (181st/Burnside)	181st/Burnside		Major Arterial	Improve Intersection.	$ 831,210	$ 1,683,879	2018-2025	x	Freight		
10447	Gresham	Gresham	162nd Ave. Imps. Plus TIF project	Glisan	Halsey	Minor Arterial	Reconstruct, widen to 5 lanes, plus EB RT at Glisan.	$ 7,915,303	$ 16,034,952	2018-2025	x	Roads/bridges		
10449	Gresham	Gresham	201st: Halsey to Sandy	Halsey	Sandy	Collector	Improve to collector standards, signalize 201st/Sandy Blvd.	$ 8,335,400	$ 12,338,428	2008-2017	x	Freight		
10450	Gresham	Gresham	2 Birdsdale Projects, at Division,	at Division	at Stark	Collector	Division: SB, EB turn lanes. At Stark: add 2nd NB LT lane and exclusive RT lane.	$ 1,375,500	$ 2,036,076	2008-2017	x	Roads/bridges	Yes	
10454	Gresham	Gresham	181st Ave. Improvements	Glisan	Yamhill	Major Arterial	Complete boulevard design improvements.	$ 11,440,061	$ 16,934,085	2008-2017	x	Freight	Yes	
10455	Gresham	Gresham	Rockwood TC Ped and Ped to Max:188th LRT Stations and Ped to Max			N/A	Improve sidewalks, lighting, crossings, bus shelters, benches.	$ 8,919,615	$ 18,069,503	2018-2025	x	Transit capital		

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10458	Gresham		Halsey St. Improvements	190th	201st	Minor Arterial	Widen to 4 lanes w. sidewalks and bikelanes.	$ 4,430,961	$ 6,558,905	2008-2017	x	Roads/bridges	Yes	
10459	Gresham	Gresham	Burnside SC Pedestrian Imps.	172nd, 197th, Glisan, Stark & intersecting streets		Major Arterial	Improve sidewalks, lighting, crossings, bus shelters, benches.	$ 1,192,669	$ 2,416,129	2018-2025	x	Pedestrian	Yes	Yes
10460	Gresham	Gresham	SE 174th N/S Improvements	Giese	174th/Jenne	Major Arterial	Construction of new roadway that adds n/s capacity in vicinity of 174/Jenne. This facility will have two travel lanes in each direction (total 4 travel lanes), and a median/turn lane which will be primarily a median, with left turn pockets at the intersection of the New Road/Giese, and also New Road/McKinley.	$ 27,498,638	$ 40,704,702	2008-2017	X	Roads/bridges	Yes	
10462	Gresham	Gresham	Butler Rd. Improvements	190th	Towle Rd.	Minor Arterial	Improve Butler Rd. in new alignment to collector standards, at intersection, add northbound and westbound turn pockets and signalize.	$ 13,166,455	$ 19,489,570	2008-2017	x	Bike		
10463	Gresham	Portland/Gresham	Foster Rd. Extension (north)	Jenne	172nd	Local	New north extension of Foster.	$ 15,417,627	$ 22,821,854	2008-2017	x	Roads/bridges		
10464	Gresham	N/A	Giese Rd. Extension	182nd	172nd	Local	New ext. of Giese Rd. to Foster Road.	$ 17,987,232	$ 36,438,832	2018-2025	x	Roads/bridges		
10465	Gresham	N/A	172nd Ave. Improvements	Giese Rd.	Foster Rd.	Local	Upgrade street to urban standards w. sidewalks, bikelanes.	$ 11,520,364	$ 23,338,144	2018-2025	x	Roads/bridges		
10466	Gresham	N/A	172nd Ave. Improvements	Butler Rd.	Cheldelin Rd.	Local	Upgrade street to urban standards w. sidewalks, bikelanes, and add roundabout or traffic signal at 172nd/Foster.	$ 7,112,978	$ 14,409,588	2018-2025	x	Roads/bridges	Yes	
10468	Gresham	Gresham	Giese Rd. Improvements	182nd Ave.	190th Ave.	Local	Upgrade street to urban standards w. sidewalks, bikelanes.	$ 5,430,469	$ 11,001,134	2018-2025	x	Roads/bridges		
10469	Gresham	N/A	Foster Rd. Bridge	Foster Rd.		Minor Arterial	Construct bridge crossing.	$ 2,642,220	$ 5,352,653	2018-2025	x	Roads/bridges		
10470	Gresham	N/A	Giese Rd. Extension Bridge	Giese Rd.		Minor Arterial	Construct bridge crossing.	$ 2,642,220	$ 5,352,653	2018-2025	x	Roads/bridges		Yes
10471	Gresham	N/A	Butler Rd. Extension and Bridge	Binford	Rodlun	collector	Construct new Butler road extension and bridge crossing.	$ 12,268,899	$ 18,160,968	2008-2017	x	Roads/bridges		Yes
10472	Gresham	Gresham	Eastman at Division			Major Arterial	Add 2nd NB and SB LT lanes.	$ 912,928	$ 1,351,356	2008-2017	x	Roads/bridges	Yes	
10473	Gresham	Gresham	Eastman at Stark			Major Arterial	Add EB and NB RT lanes and 2nd NB and SB LT lanes.	$ 1,196,756	$ 1,771,491	2008-2017	x	Roads/bridges		Yes
10474	Gresham	N/A	Rugg Rd. Ext.	Orient Dr.	US 26	Local	Construction of new roadway that adds e/w capacity in vicinity Rugg Rd and connects Springwater Industrial area to Highway 26.	$ 30,672,208	$ 45,402,361	2008-2017	x	Roads/bridges	Yes	Yes
10475	Gresham	N/A	Rugg Rd. Ext.	US 26	252nd Ave.	Local	Construction of new roadway that adds e/w capacity in vicinity Rugg Rd and connects Springwater Industrial area to Highway 26.	$ 39,329,973	$ 58,217,968	2008-2017	x	Roads/bridges	Yes	
10476	Gresham	N/A	Rugg Rd.	252nd Ave.	242nd. Ave.	Local	Construction of new roadway that adds e/w capacity in vicinity Rugg Rd and connects Springwater Industrial area to Highway 26.	$ 12,770,187	$ 18,902,996	2008-2017	x	Roads/bridges	Yes	
10477	Gresham	Gresham	Springwater Road Section 4	242nd Ave.	252nd Ave.	Local	Construction of new street for implementation of Springwater Plan.	$ 13,148,679	$ 19,463,257	2008-2017	x	Roads/bridges		
10478	Gresham	Gresham	252nd Ave.	Palmquist Rd.	10	Local	Construction of new street for implementation of Springwater Plan.	$ 26,162,462	$ 38,726,835	2008-2017	x	Roads/bridges		
10479	Gresham	Gresham	252nd Ave.	10	Rugg Rd.	Local	Construction of new street for implementation of Springwater Plan.	$ 9,808,690	$ 14,519,257	2008-2017	x	Roads/bridges	Yes	
10480	Gresham	Gresham	Springwater Road Section 7	242nd Ave.	9	Local	Construction of new street for implementation of Springwater Plan.	$ 8,008,421	$ 11,854,419	2008-2017	x	Roads/bridges	Yes	
10481	Gresham	Gresham	Springwater Road Section 8	242nd Ave.	9	Local	Construction of new street for implementation of Springwater Plan.	$ 5,519,551	$ 8,170,284	2008-2017	x	Roads/bridges	Yes	Yes
10482	Gresham	Gresham	Springwater Road Section 9	7	252nd Ave.	Local	Construction of new street for implementation of Springwater Plan.	$ 8,008,421	$ 11,854,419	2008-2017	x	Roads/bridges	Yes	
10483	Gresham	Gresham	Springwater Road Section 10	252nd Ave.	Telford Rd.	Local	Construction of new street for implementation of Springwater Plan.	$ 12,202,421	$ 18,062,564	2008-2017	x	Roads/bridges		
10484	Gresham	Gresham	Springwater Road Section 11	Telford Rd.	Orient Dr.	Local	Construction of new street for implementation of Springwater Plan.	$ 21,031,280	$ 31,131,432	2008-2017	x	Roads/bridges	Yes	
10485	Gresham	Gresham	Hogan	Palmquist Rd.	Rugg Rd.	Minor Arterial	Improvement of existing roadway to arterial 4 lane standards.	$ 47,291,190	$ 70,002,514	2008-2017	x	Roads/bridges		
10486	Gresham	Gresham	Telford Rd.	Springwater Boundary	252nd Ave.	Local	Improvement of existing roadway to collector standards, add bike and ped facilities, intersection improvements.	$ 29,419,888	$ 43,548,621	2008-2017	x	Roads/bridges	Yes	
10488	Gresham	Gresham	282nd Ave.	Springwater Boundary	20	Local	Improvement of existing roadway to collector standards, add bike and ped facilities, intersection improvements.	$ 7,146,436	$ 10,578,471	2008-2017	x	Roads/bridges	Yes	Yes
10490	Gresham	Gresham	201st RR Bridge at I-84	201st/I-84	"	Collector	Construct new RR bridge to accommodate alternative modes.	$ 2,359,125	$ 3,492,081	2008-2017	x	Roads/bridges	Yes	Yes
10493	Gresham	Gresham	181st Ave. Sandy to I-84	Sandy	I-84	Minor Arterial	Add southbound aux lane & widen RR overcrossing.	$ 827,659	$ 1,676,685	2018-2025	x	Freight	Yes	
10494	Gresham	Gresham	162nd at Stark St.			Major Arterial	Exclusive southbound and eastbound right turns at Stark.	$ 888,209	$ 1,314,766	2008-2017	x	Roads/bridges		
10495	Gresham	Gresham	181st Ave. at Halsey	181st/Halsey		Major Arterial	add 2nd LT lane to N & S legs, add RT lane to EB WB SB.	$ 1,025,038	$ 1,517,307	2008-2017	x	Freight	Yes	

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10496	Gresham	Gresham	181st at I-84	181st/I-84		Major Arterial	Freight mobility improvements subject to refinement study.	$ 250,000	$ 506,454	2018-2025	x	Freight	Yes	
10497	Gresham	Gresham	181st at Sandy, at Stark			Major Arterial	At Sandy: Northbound right turn, 2nd westbound left turn. Overlap eastbound right turn. At Stark, add 2nd left turn lane on east and west legs.	$ 1,884,390	$ 2,789,358	2008-2017	x	Roads/bridges	Yes	
10498	Gresham	Gresham	181st (182nd) at Division/Powell Intersections	181st at Division, Powell		Minor Arterial	At Division: add second westbound left turn lane (TIF P1). At Powell, add northbound and southbound double left turn lanes (TIF P2 and TSP8).At Powell add SB and NB lanes.	$ 1,682,670	$ 2,490,763	2008-2017	x	Roads/bridges	Yes	
10499	Gresham	Gresham	192nd Ave. Wilkes to Halsey	192/Wilkes	192/Halsey	Local	Improve to collector street standards.	$ 3,833,031	$ 5,673,822	2008-2017	x	Roads/bridges	Yes	
10501	Gresham	Gresham	Barnes Rd.: Powell Valley to southern City Limits	Powell Valley	Orient Dr.	Collector	Widen road and add improvements.	$ 7,135,229	$ 14,454,665	2018-2025	x	Roads/bridges		
10502	Gresham	Gresham	Bike signs	various locations		N/A	Add directional signs to bike network.	$ 1,400,000	$ 2,072,342	2008-2017	x	Bike	Yes	
10503	Gresham	Gresham	Burnside at Powell			Minor Arterial	At Powell: eliminate EB and WB left turn lanes.	$ 683,517	$ 1,011,772	2008-2017	x	Roads/bridges		Yes
10504	Gresham	Gresham	Ped to Max: Hood St.	Powell	Division	Local	Improve ped access/multi-modal on Hood St.	$ 986,467	$ 1,460,212	2008-2017	x	Pedestrian		Yes
10505	Gresham	Gresham	Civic Neighborhood TOD	16th and NW Norman		Local	Support construction of street infrastructure improvements.	$ 4,765,219	$ 7,053,688	2008-2017	x	Roads/bridges	Yes	
10506	Gresham	Gresham	Transit: Columbia Corridor TMA			N/A	Transit/bus service improvements, 2 locations.	$ 185,258	$ 274,227	2008-2017	x	Transit capital	Yes	
10507	Gresham	Gresham	Glisan, 181st to 202	181st	202nd	Minor Arterial	Retrofit bikelanes.	$ 52,425	$ 77,602	2008-2017	x	Bike		
10509	Gresham	Gresham	Safe walking routes, missing links	various locations		N/A	Construct missing links and safe routes to school.	$ 4,089,150	$ 6,052,941	2008-2017	x	Pedestrian		
10511	Gresham	Gresham	Hogan Rd. at Stark St.	Stark		Major Arterial	Add right turn lanes on all approaches and second northbound and southbound left turns.	$ 1,908,431	$ 3,866,131	2018-2025	x	Roads/bridges	Yes	
10512	Gresham	Gresham	Hogan: Powell to Burnside boulevard improvements plus three intersection improvements	Powell	Burnside	Principal arterial	Improve to boulevard standards, and intersection improvements at Burnside, Division and Powell.	$ 8,739,328	$ 17,704,275	2018-2025	x	Roads/bridges	Yes	
10516	Gresham	Gresham	San Rafael, 181st to 201st	181st	201st	Local	Complete collector and remove frontage road.	$ 9,990,952	$ 14,789,050	2008-2017	x	Freight	Yes	
10518	Gresham	Gresham	Wilkes St., 181st to 192nd	181st	192nd	Local	Improve Wilkes to collector standards and provide slip ramp connection from Eastbound I-84 on ramp.	$ 6,781,698	$ 13,738,476	2018-2025	x	Freight	Yes	
10519	Gresham	Gresham	Pedestrian enhancements	162nd/Bside, and	181st Burnside	Local	Pedestrian enhancements.	$ 75,492	$ 111,747	2008-2017	x	Pedestrian	Yes	
10521	Gresham	Gresham	Signalize intersections			N/A	Signalize intersections.	$ 768,590	$ 1,557,022	2018-2025	x	Roads/bridges	Yes	
10527	Gresham	Gresham	Hogan, Powell Blvd to Palmquist	Powell	Palmquist	Principal arterial	Improve to arterial standards.	$ 8,444,619	$ 17,107,249	2018-2025	x	Roads/bridges	Yes	
10530	Gresham	Gresham	Towle Ave. Butler Rd. to Binford Lake	Butler Rd.	Binford Lake Parkway	Minor Arterial	Improve to collector standards. Add roundabout at Towle/Binford.	$ 11,897,840	$ 24,102,841	2018-2025	x	Roads/bridges	Yes	
10533	Gresham	Gresham	190th:30th to So. Boundary of Pleasant Valley	30th	Southern boundary of Pleasant Valley	Major Arterial	Improve existing road to major arterial standards, signalize 190th @ Giese, Butler, Richey, Cheldelin.	$ 28,644,245	$ 42,400,480	2008-2017	x	Roads/bridges	Yes	
10534	Gresham	Gresham	Cheldelin: 172nd to 190th	172nd	190th	Local	Improve existing road to minor arterial standards, signalize Cheldelin at 172nd, 182nd, and Foster.	$ 19,795,513	$ 29,302,195	2008-2017	x	Roads/bridges	Yes	Yes
10535	Gresham	Gresham	Clatsop: New extension	162nd	172nd	Local	Extend Clatsop into Pleasant Valley, and construct bridge.	$ 20,163,595	$ 29,847,046	2008-2017	x	Roads/bridges		
10537	Gresham	Gresham	Richey	182nd	190th	Local	Improve to collector standards, and signalize 190th/Richey.	$ 7,925,735	$ 11,732,024	2008-2017	x	Roads/bridges	Yes	
10538	Gresham	Gresham	Sager	162nd	Foster	Local	Improve to collector standards, and signalize Sager @172nd.	$ 15,794,720	$ 23,380,044	2008-2017	x	Roads/bridges		
10539	Gresham	Gresham	Foster South: new road	County Line	Sager	Minor Arterial	Build new road section to collector standards.	$ 7,120,992	$ 10,540,808	2008-2017	x	Roads/bridges		
10540	Gresham	Gresham	162nd	Foster	southern boundary of Pleasant Valley	Local	Improve 162nd to collector standards, add signal at Foster @ 162nd.	$ 21,236,546	$ 31,435,276	2008-2017	x	Roads/bridges		
10541	Gresham	Gresham	182nd	Giese	Cheldelin	Collector	Improve 182nd to collector standards.	$ 11,797,690	$ 17,463,463	2008-2017	x	Roads/bridges		
10543	Gresham	Gresham	172nd: Cheldelin south to Pleasant Valley boundary	Cheldelin	So. Boundary of Pleasant Valley	Major Arterial	Improve 172nd Ave. to major arterial standards.	$ 8,651,396	$ 12,806,179	2008-2017	x	Roads/bridges	Yes	Yes

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10544	Gresham	Gresham	Butler Rd. Bike and Ped Improvements	Towle	Regner	Minor Arterial	Construct bikelanes and sidewalks.	$ 5,705,413	$ 11,558,120	2018-2025	x	Bike	Yes	
10545	Washington Co.	ODOT	OR 10: Oleson Rd. Improvement	Oleson Rd. south of OR10	Oleson Rd. at Scholls Ferry	Arterial	Realign Oleson Rd. 500 feet to east and reconfigure Oleson intersections with OR10 and Scholls Ferry Rd.	$ 40,000,000	$ 81,032,661	2018-2025	x	Roads/bridges	Yes	
10546	Washington Co.	Washington Co.	170th Ave. Improvements	Alexander St.	Merlo Rd.	Arterial	Widen roadway to 4 lanes with left turn lanes at major intersections and bike lanes and sidewalks.	$ 28,093,000	$ 56,911,263	2018-2025	x	Roads/bridges		
10547	Washington Co.	Washington Co.	173rd/174th Under Crossing Improvement	Cornell Rd.	Bronson Rd.	Arterial	Construct three-lane under crossing of Hwy. 26 with bike lanes and sidewalks.	$ 58,641,000	$ 118,795,906	2018-2025	x	Roads/bridges	Yes	
10548	Washington Co.	Washington Co.	174th Ave. Improvements	Bronson Rd.	Meadowgrass Ln.	Arterial	Add turn lanes, bike lanes and sidewalks	$ 16,232,000	$ 32,883,054	2018-2025	X	Roads/bridges		
10549	Washington Co.	Washington Co.	Cornell @ 143rd Improvements	Science Park Dr.	143rd Ave.	Arterial	Realign 143rd with Science Park Dr. @ Cornell as a 4-way signalized intersection.	$ 12,400,000	$ 18,355,029	2008-2017	x	Roads/bridges		
10550	Washington Co.	Washington Co.	185th to Springville Improvement	West Union Rd.	Springville Rd.	Arterial	Widen 185th Ave from two to five lanes with bike lanes and sidewalks.	$ 11,893,000	$ 24,093,036	2018-2025	X	Roads/bridges	Yes	Yes
10551	Washington Co.	Washington Co.	185th to West Union Improvement	North of Westview H.S.	West Union Rd.	Arterial	Add 1 thru-lane in each direction with continuous center turn lane, bikelanes and sidewalks.	$ 6,794,000	$ 10,056,780	2008-2017	x	Roads/bridges	Yes	
10553	Washington Co.	Washington Co.	209th Improvements	T.V. Hwy.	Farmington Rd.	Arterial	Widen and realign to three lanes with bike lanes and sidewalks.	$ 29,700,000	$ 43,963,255	2008-2017	X	Roads/bridges	Yes	
10554	Washington Co.	Washington Co.	Bethany Blvd. Improvements	Kaiser Rd.	West Union Rd.	Arterial	Widen to 5 lanes with bikelanes and sidewalks.	$ 22,046,000	$ 44,661,151	2018-2025	x	Roads/bridges	Yes	
10558	Washington Co.	Washington Co.	Cornell Rd. Improvements	113th Ave.	107th Ave.	Arterial	Widen from two to three lanes with bike lanes and sidewalks.	$ 9,941,000	$ 20,138,642	2018-2025	x	Roads/bridges	Yes	
10559	Washington Co.	Washington Co.	Cornell to Murray Improvements	Murray Blvd.	Hwy. 26	Arterial	Widen Cornell from three to five lanes with bike lanes and sidewalks.	$ 40,620,000	$ 82,288,667	2018-2025	x	Roads/bridges		Yes
10560	Washington Co.	Washington Co.	Farmington Rd. Improvements	170th Ave.	185th Ave.	Arterial	Widen roadway from 2/3 lanes to 5 lanes with bike lanes and sidewalks.	$ 17,676,000	$ 26,164,798	2008-2017	x	Roads/bridges		Yes
10561	Washington Co.	Washington Co.	Jenkins Rd. Improvements	Murray Blvd.	158th Ave.	Arterial	Widen roadway from three to five lanes with bike lanes and sidewalks.	$ 15,530,000	$ 31,460,930	2018-2025	x	Roads/bridges	Yes	
10562	Washington Co.	Washington Co.	Johnson St. Extension	West of 170th Ave.	170th Ave.	Collector	Construct two-lane extension to 170th Ave. with bike lanes and sidewalks.	$ 6,158,000	$ 18,466,015	2026-2035	X	Roads/bridges		Yes
10563	Washington Co.	Washington Co.	Kaiser/143rd Ave. Improvements	Bethany Blvd.	Cornell Rd.	Collector	Widen from two to three lanes with bike lanes and sidewalks.	$ 38,357,000	$ 77,704,244	2018-2025	x	Roads/bridges		
10564	Washington Co.	Washington Co.	Kaiser to Springville Improvements	Springville Rd.	Bethany Blvd.	Arterial	Widen from two to five lanes with bike lanes and sidewalks.	$ 9,674,000	$ 19,597,749	2018-2025	X	Roads/bridges		Yes
10565	Washington Co.	Washington Co.	Springville Rd. Improvements	185th Ave.	Joss St.	Arterial	Widen from 3 to five lanes with bike lanes and sidewalks.	$ 10,876,000	$ 16,099,137	2008-2017	X	Roads/bridges		Yes
10566	Washington Co.	Washington Co.	Springville to Kaiser Rd. Improvements	Joss St.	Kaiser Rd.	Arterial	Widen from two to three lanes with bike lanes and sidewalks.	$ 6,659,000	$ 13,489,912	2018-2025	X	Roads/bridges		Yes
10567	Washington Co.	Washington Co.	Taylors Ferry Extension	Oleson Rd.	Washington Dr.	Collector	Construct new two lane extension with bike lanes and sidewalks	$ 4,390,000	$ 13,164,308	2026-2035	x	Roads/bridges		Yes
10568	Washington Co.	Washington Co.	Tualatin-Sherwood Rd. Improvements	Hwy. 99W	Teton Ave.	Arterial	Widen from three to five lanes with bike lanes and sidewalks.	$ 49,150,000	$ 99,568,882	2018-2025	x	Roads/bridges	Yes	Yes
10569	Washington Co.	Washington Co.	Walker Rd. Improvements	Amberglen	185th	Arterial	Widen from two to five lanes with bike lanes and sidewalks.	$ 17,611,000	$ 35,676,655	2018-2025	x	Roads/bridges	Yes	Yes
10571	Washington Co.	Washington Co.	West Union Rd. Improvements	185th Ave.	143rd Ave.	Arterial	Widen from two to three lanes with bike lanes and sidewalks.	$ 34,870,000	$ 104,564,785	2026-2035	x	Roads/bridges		
10572	Washington Co.	Washington Co.	Barnes Rd. Improvements	St. Vincent's Hosp. entrance	Leahy Rd.	Arterial	Widen from two to five lanes with bike lanes and sidewalks.	$ 8,933,000	$ 18,096,619	2018-2025	x	Roads/bridges		
10574	Washington Co.	Washington Co.	Farmington to 198th Improvements	185th Ave.	198th Ave.		Widen from two to three lanes with bike lanes and sidewalks.	$ 17,326,000	$ 25,646,712	2008-2017	X	Roads/bridges	Yes	Yes
10576	Washington Co.	Washington Co.	Saltzman Rd. Improvements	Cornell Rd.	Burton Rd.	Arterial	Widen from two to three lanes with bike lanes and sidewalks.	$ 12,550,000	$ 18,577,066	2008-2017	x	Roads/bridges		
10578	Washington Co.	Washington Co.	Merlo/158th Improvements	170th Ave.	Walker Rd.	Arterial	Widen roadway to five lanes with bike lanes and sidewalks	$ 24,735,000	$ 50,108,572	2018-2025	x	Roads/bridges		
10579	Washington Co.	Washington Co.	Barnes to 117th Improvements	Hwy. 217	117th	Arterial	Widen to five lanes with bike lanes and sidewalks. Add double turn lanes.	$ 4,000,000	$ 5,920,977	2008-2017	x	Roads/bridges	Yes	
10587	Washington Co.	Washington Co.	Cornelius Pass Rd. Improvements	Aloclek	T.V. Hwy.	Arterial	Widen to five lanes with bike lanes and sidewalks	$ 31,800,000	$ 47,071,768	2008-2017	x	Roads/bridges		
10588	Washington Co.	Washington Co.	Grahams Ferry Rd Improvements	Helenius St.	Washington/Clackamas County line	Arterial/Collector	Widen Grahams Ferry Rd to 3 lanes, add bike/pedestrian connections to regional trail system and fix undersized railroad overcrossing.	$ 28,000,000	$ 41,446,840	2008-2017	X	Freight		
10589	Washington Co.	Washington Co.	95th Ave. Extension	Barnes Rd.	Leahy Rd.	Collector	Extend two lane road with bike lanes and sidewalks.	$ 11,546,000	$ 23,390,077	2018-2025	X	Roads/bridges		
10590	Washington Co.	Washington Co.	Tonquin Rd. Improvements	Grahams Ferry Rd.	Oregon St.	Arterial	Realign and widen to three lanes with bike lanes and sidewalks.	$ 28,406,000	$ 57,545,344	2018-2025	x	Roads/bridges		
10592	Washington Co.	Washington Co.	205th Ave. Improvements	Quatama Rd.	Baseline Rd.	Collector	Widen road to 5 lanes with bike lanes and sidewalks. Widen bridge over Beaverton Creek to four lanes with bike lanes and sidewalks.	$ 18,061,000	$ 26,734,692	2008-2017	x	Roads/bridges	Yes	

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10593	Washington Co.	Washington Co.	Kinnaman Rd. Improvements	Farmington Rd.	209th Ave.	Collector	Widen to three lanes with bike lanes and sidewalks.	$ 24,793,000	$ 74,346,851	2026-2035	X	Roads/bridges		
10596	Washington Co.		Scholls Ferry Rd. Improvements	Hwy. 217	121st Ave.	Arterial	Widen to seven lanes with bike lanes and sidewalks. Local TSPs and the TV Hwy. Corridor Refinement Plan will need to re-evaluate the need for this project which exceeds the RTP policy of 5 lane arterials. Sufficient documentation will need to be provided that all other solutions have been exhausted, including system management and operations strategies, increased transit service, changes to land use, etc. consistent with the congestion management process. The projects were identified to meet current mobility standards that may be revised as part of the alternative mobility standards work that will be conducted in 2010.	$ 19,749,000	$ 40,007,850	2018-2025	x	Roads/bridges		
10597	Washington Co.		Evergreen Rd. Improvements	253rd Ave.	Sewell Ave.	Arterial	Widen to 5 lanes with bike lanes and sidewalks.	$ 11,242,000	$ 16,640,906	2008-2017	x	Roads/bridges		
10600	Washington Co.	ODOT	Hwy. 26/Shute Interchange Improvements	Hwy. 26/Shute Rd./Helvetia Rd.	N/A	Freeway/Arterial	Add westbound to southbound loop ramp, additional northbound through lane and relocate Jacobsen intersection.	$ 17,000,000	$ 25,164,153	2008-2017	x	Roads/bridges		
10601	Washington Co.	ODOT	Hwy. 26/Bethany Interchange Improvements	Cornell Rd.	Bronson Rd.	Freeway/Arterial	Rebuild overpass to accommodate additional northbound through-lane and bike lanes. Construct additional lane on collector-distributor road allowing for dual right-turn lanes onto northbound Bethany Blvd. Construct additional westbound exit ramp lane and shoulder at Cornell exit. Cost should be increased to $12 million to be consistent with current Authorization request.	$ 12,000,000	$ 24,309,798	2018-2025	x	Roads/bridges		
10602	Washington Co.	Washington Co.	Scholls Ferry ATMS	Hall Blvd.	Murray Blvd.	Arterial	Install integrated surveillance and management equipment.	$ 1,109,000	$ 1,641,591	2008-2017	x	Roads/bridges		
10603	Washington Co.	Washington Co.	Tualatin-Sherwood Rd. ATMS	I-5	Teton Ave.	Arterial	Install integrated surveillance and management equipment.	$ 1,594,000	$ 2,359,509	2008-2017	x	Roads/bridges		
10604	Washington Co.	Washington Co.	185th Ave. ATMS	Baseline Rd.	Hwy. 26	Arterial	Install integrated surveillance and management equipment.	$ 1,095,000	$ 1,620,867	2008-2017	x	Roads/bridges	Yes	Yes
10605	Washington Co.	Washington Co.	Cornell Rd. ATMS	Cornelius Pass Rd.	Wash. Co. TOC	Arterial	Install integrated surveillance and management equipment.	$ 2,043,000	$ 3,024,139	2008-2017	x	Roads/bridges	Yes	
10606	Washington Co.	Washington Co.	Washington Square Regional Center Pedestrian Improvements	Wash. Sq. Regional Center		N/A	Complete 7400 feet of sidewalk improvements.	$ 8,954,000	$ 13,254,107	2008-2017	x	Pedestrian		Yes
10607	Washington Co.	Washington Co.	Sunset TC Station Community Pedestrian Improvements	Sunset TC Station Community		N/A	Complete 9100 feet of sidewalk improvements.	$ 6,006,000	$ 8,890,347	2008-2017	x	Pedestrian	Yes	
10608	Washington Co.	Washington Co.	Aloha TC Pedestrian Improvements	Aloha Town Center		N/A	Complete23,500 feet of sidewalk improvements.	$ 10,105,000	$ 14,957,868	2008-2017	x	Pedestrian		
10610	Washington Co.	Washington Co.	Saltzman Rd. Bike	Cornell Rd.	Barnes Rd.	Arterial	Complete 950 feet of bike lanes in town center.	$ 823,000	$ 1,218,241	2008-2017	x	Bike	Yes	
10611	Washington Co.	Washington Co.	Locust Ave. Bike	Hall Blvd.	80th Ave.	Collector	Completes 1650 feet of bike lanes in regional center.	$ 3,417,000	$ 5,057,995	2008-2017	x	Bike	Yes	
10612	Washington Co.	Washington Co.	Greenburg Rd. Bike	Hall Blvd.	Hwy. 217	Arterial	Completes 3400 feet of bike lanes in regional center.	$ 3,610,000	$ 5,343,682	2008-2017	x	Bike		Yes
10613	Washington Co.	Washington Co.	Cornell Rd. Bike	Saltzman Rd.	119th Ave.	Arterial	Completes 1750 feet of bike lanes in town center.	$ 1,036,000	$ 1,533,533	2008-2017	x	Bike	Yes	Yes
10614	Washington Co.	Washington Co.	Butner Rd. Bike	Cedar Hills Blvd..	Park Way	Collector	Completes 7800 feet of bike lanes to transit corridor.	$ 3,524,000	$ 5,216,381	2008-2017	x	Bike	Yes	
10615	Washington Co.	Washington Co.	Bronson Rd. Bike	185th Ave.	Bethany Blvd.	Collector	Completes 7500 feet of bike lanes to transit corridor.	$ 5,490,000	$ 8,126,541	2008-2017	x	Bike		
10616	Beaverton	Beaverton	Rose Biggi Ave.: Crescent Street to Hall Blvd. Complete right-of-way and construction of multimodal street extension with Boulevard Design	Crescent St.	Hall Blvd.	Collector	Extend 2-lane Rose Biggi Ave. to Hall Blvd. (via Westgate Drive) to fill a gap; boulevard design; add sidewalks, bikeway (PE funded STIP Key #14400).	$ 3,500,000	$ 5,180,855	2008-2017	x	Roads/bridges		
10617	Beaverton	Beaverton/ Washington Co.	Farmington Rd.: Murray Blvd. to Hocken Ave. Safety, turn lanes, bicycle, and pedestrian improvements	Murray Blvd.	Hocken Ave.	Arterial	Construct turn lanes and intersection improvements; signalize where warranted; add bike lanes and sidewalks in gaps.	$ 8,700,000	$ 12,878,125	2008-2017	x	Roads/bridges		
10618	Beaverton	Beaverton	Dawson/Westgate multimodal extension from Rose Biggi Ave. to Hocken Ave.	Rose Biggi Avenue	Hocken Ave. via Dawson to Westgate at Rose Biggi	Collector	Extend 2 lane street from Hocken via Dawson and Westgate at Rose Biggi to fill a gap; realign Dawson/Westgate at Cedar Hills; add turn lanes at intersections, sidewalks, bikeway.	$ 8,900,000	$ 13,174,174	2008-2017	x	Roads/bridges	Yes	
10619	Beaverton	Beaverton	Crescent St. multimodal extension to Cedar Hills Blvd.	Rose Biggi Ave.	Cedar Hills Blvd.	Collector	Extend 2 lane Crescent from Cedar Hills to Rose Biggi Ave. to fill a gap; add sidewalks, bikeway.	$ 3,500,000	$ 5,180,855	2008-2017	x	Roads/bridges	Yes	Yes
10620	Beaverton	Beaverton	Millikan Way multimodal extension from Watson Ave. to 114th Ave.	Watson Ave.	114th Ave.	Collector	Extend 2 lane Millikan Way to 114th to fill a gap; add turn lanes at intersections, sidewalks, bikeway.	$ 13,800,000	$ 27,956,268	2018-2025	x	Roads/bridges		Yes

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10621	Beaverton	Beaverton	New street connection from Broadway to 115th Ave.	Broadway	115th Ave.	Collector	Construct new 2 lane street with bikeway and sidewalks.	$ 4,500,000	$ 9,116,174	2018-2025	x	Roads/bridges		Yes
10622	Beaverton	Beaverton	Electric to Whitney to Carousel to 144th multimodal street connections	Electric	144th Ave.	Local	Connect existing streets and improve to standard with bikeways and sidewalks.	$ 7,200,000	$ 14,585,879	2018-2025	x	Roads/bridges	Yes	
10624	Beaverton	Beaverton	120th Ave.: new 2 lane multimodal street	Center St.	Canyon Rd.	Collector	Construct new multimodal street with bikeways and sidewalks; turn lanes and signals as needed.	$ 8,900,000	$ 18,029,767	2018-2025	x	Roads/bridges	Yes	Yes
10625	Beaverton	Beaverton	Rose Biggi Ave.: 2 lane multimodal street extension	Tualatin Valley Hwy	Broadway	Collector	Construct 2 lane boulevard extension with bikeways and sidewalks.	$ 3,000,000	$ 4,440,733	2008-2017	x	Roads/bridges		
10626	Beaverton	Beaverton	114th Ave./115th Ave. 2 lane multimodal street	LRT	Beaverton Hillsdale Hwy/Griffith Drive	Collector	Construct 2 lane street with bike and pedestrian improvements.	$ 10,000,000	$ 14,802,443	2008-2017	x	Roads/bridges		
10627	Beaverton	Beaverton	Tualaway 2 lane multimodal street extension	Electric	Millikan	Local	Extend existing street to Millikan with bikeways and sidewalks.	$ 3,900,000	$ 7,900,684	2018-2025	x	Roads/bridges		
10628	Beaverton	Beaverton	Center Street and 113th Ave. safety, bike, and pedestrian improvements	Hall Blvd.	Cabot Street	Collector	Add sidewalks and bikelanes; add turn lanes where needed.	$ 5,800,000	$ 8,585,417	2008-2017	x	Roads/bridges		Yes
10629	Beaverton	Beaverton	Hocken Ave. multimodal improvements	Tualatin Valley Hwy	Farmington Rd.	Collector	Widen existing street from 3 to 5 lanes, add bike lanes and sidewalks.	$ 1,600,000	$ 3,241,306	2018-2025	x	Roads/bridges	Yes	Yes
10630	Beaverton	Beaverton	Hall Blvd. multimodal extension from Cedar Hills Blvd. to Hocken Ave.	Hocken Ave.	Cedar Hills Blvd.	Collector	Extend Hall Blvd. from Cedar Hills to Hocken to fill a gap; add turn lanes at intersections, sidewalks and bikeway.	$ 5,500,000	$ 8,141,344	2008-2017	x	Roads/bridges	Yes	Yes
10631	Beaverton	Beaverton	141st/142nd/144th multimodal street extension connections	141st Ave.	144th Ave.	Local	Connect streets, add bikeways, sidewalks, turns lanes and signalize as warranted.	$ 6,700,000	$ 9,917,637	2008-2017	x	Roads/bridges	Yes	Yes
10632	Beaverton	Beaverton	Allen Blvd. safety, bicycle and pedestrian improvements	Highway 217	Murray Blvd.	Arterial	Widen street adding turn lanes and signals where needed, construct bike lanes and sidewalks.	$ 41,600,000	$ 124,746,058	2026-2035	x	Roads/bridges	Yes	Yes
10633	Beaverton	Beaverton	Allen Blvd. safety, bicycle and pedestrian improvements	Highway 217	Western Ave.	Arterial	Widen street to 4/5 lanes adding turn lanes and signals where needed, construct bike lanes and sidewalks.	$ 6,300,000	$ 12,762,644	2018-2025	x	Roads/bridges	Yes	Yes
10634	Beaverton	Beaverton	Cedar Hills Blvd. safety, bicycle and pedestrian improvements	Farmington Rd.	Walker Rd.	Arterial	Add turn lanes, bike lanes and sidewalks.	$ 19,000,000	$ 38,490,514	2018-2025	x	Roads/bridges		Yes
10635	Beaverton	Beaverton	125th Ave. multimodal extension Brockman to Hall Blvd.	Brockman St.	Hall Blvd.	Arterial	Construct new multimodal street with bike lanes and sidewalks.	$ 13,900,000	$ 20,575,396	2008-2017	x	Roads/bridges	Yes	
10636	Beaverton	Beaverton	Millikan Way safety, bike and pedestrian improvements	141st Ave.	Hocken Ave.	Collector	Add turn lanes as needed, bike lanes and sidewalks, signalize as warranted.	$ 2,600,000	$ 5,267,123	2018-2025	x	Roads/bridges		Yes
10638	Beaverton	Beaverton	Davies Rd. multimodal street extension	Scholls Ferry Rd.	Barrows Rd.	Collector	Extend 2 lane street with turn lanes, bike lanes and sidewalks.	$ 4,900,000	$ 7,253,197	2008-2017	x	Roads/bridges		
10639	Beaverton	Beaverton	Weir Rd. safety, bicycle and pedestrian improvements	155th Ave.	175th Ave.	Collector	Add turn lanes, bikelanes and sidewalks in gaps, turn lanes.	$ 4,100,000	$ 8,305,848	2018-2025	x	Roads/bridges		
10640	Beaverton	Beaverton	Nimbus Ave. 2 lane multimodal street extension from Hall Blvd. to Denney Road	Hall Blvd.	Denney Rd.	Collector	Extend 2 lane street with turn lanes, bikelanes and sidewalks.	$ 21,500,000	$ 43,555,055	2018-2025	x	Roads/bridges	Yes	
10642	Beaverton	Beaverton	Adaptive Traffic Signal Systems			Arterial	New signals and signal upgrades. Locations include, Allen Blvd., Cedar Hills Blvd., Hall Blvd., and Farmington Road/Beaverton-Hillsdale Hwy.	$ 10,000,000	$ 20,258,165	2018-2025	x	Roads/bridges	Yes	
10644	Beaverton	Washington Co.	110th Ave. sidewalk gaps	Beaverton Hillsdale Hwy	Farmington Rd.	Collector	Construct sidewalks.	$ 1,400,000	$ 2,836,143	2018-2025	x	Pedestrian		
10646	Beaverton	Beaverton	Hall Blvd. / Watson Ave. pedestrian improvements	Cedar Hills Blvd..	Allen Blvd.	Arterial	Add pedestrian improvements at intersections and amenities (lighting, plazas).	$ 2,400,000	$ 3,552,586	2008-2017	x	Pedestrian	Yes	
10648	Beaverton	Beaverton	Denney Rd. sidewalks	Nimbus Rd.	Scholls Ferry Rd.	Collector	Construct sidewalks.	$ 2,200,000	$ 6,597,147	2026-2035	x	Pedestrian		Yes
10649	Beaverton	Beaverton	Allen Blvd sidewalks	Western Ave.	Arctic Dr.	Arterial	Construct sidewalks.	$ 200,000	$ 405,163	2018-2025	x	Pedestrian		Yes
10653	Beaverton	Beaverton	Sexton Mountain Drive multimodal street extension from 155th Ave. to Sexton Mtn. across the Powerline	155th Ave.	Sexton Mountain Drive	Collector	Extend 2 lane street with bikelanes and sidewalks	$ 2,500,000	$ 5,064,541	2018-2025	x	Pedestrian		
10654	Beaverton	Beaverton	Nora Road sidewalks and bike lanes	175th Ave.	155th Ave.	Arterial	Construct sidewalks and bike lanes.	$ 2,000,000	$ 4,051,633	2018-2025	x	Pedestrian		Yes
10656	Beaverton	Beaverton	Jamieson Rd. sidewalks	Pinehurst/Cypress	Woodlands Dr.	Collector	Construct sidewalks.	$ 1,100,000	$ 2,228,398	2018-2025	x	Pedestrian		
10661	Beaverton	Beaverton	155th Ave. sidewalks	Beard Rd.	Weir Rd.	Collector	Construct sidewalks.	$ 2,700,000	$ 3,996,660	2008-2017	x	Pedestrian	Yes	
10662	Beaverton	Beaverton	155th Ave. sidewalks	Davis Rd.	Beverly Beach Ct	Collector	Construct sidewalks.	$ 1,800,000	$ 2,664,440	2008-2017	x	Pedestrian	Yes	

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10663	Beaverton	Beaverton	Hall Blvd. bike lanes & turn lanes to Cedar Hills	Farmington Road	Cedar Hills Blvd.	Arterial	Construct bike lanes and turn lanes.	$ 5,200,000	$ 10,534,246	2018-2025	x	Bike	Yes	
10664	Beaverton	Beaverton	Watson Ave. bike lanes	Hall Blvd.	Farmington Rd.	Arterial	Construct bike lanes.	$ 4,500,000	$ 9,116,174	2018-2025	x	Bike	Yes	Yes
10665	Beaverton	Beaverton	6th Ave. bikelanes	Murray Blvd.	Erickson Ave.	Collector	Construct bike lanes.	$ 3,600,000	$ 7,292,939	2018-2025	x	Bike		Yes
10666	Beaverton	Beaverton	Greenway Dr. bike lanes	Hall Blvd.	125th Ave.	Arterial	Construct bike lanes.	$ 3,700,000	$ 7,495,521	2018-2025	x	Bike		
10667	Beaverton	Beaverton	155th Ave. bike lanes	Davis Rd.	Weir Rd.	Collector	Construct bike lanes in gaps.	$ 5,400,000	$ 10,939,409	2018-2025	x	Bike	Yes	
10668	Beaverton	Beaverton	Farmington Rd Bike lane retrofit	Hwy 217	Hocken Ave.	Arterial	Construct bike lanes.	$ 12,600,000	$ 25,525,288	2018-2025	x	Bike		
10669	Beaverton	Beaverton	Hall Blvd. bike lanes & turn lanes	12th St.	s/o Allen Blvd.	Arterial	Construct bike lanes and turn lanes.	$ 5,200,000	$ 10,534,246	2018-2025	x	Bike		
10670	Beaverton	Beaverton	Denney Rd. bike lanes	Hall Blvd.	Scholls Ferry Rd.	Collector	Construct bike lanes.	$ 6,100,000	$ 12,357,481	2018-2025	x	Bike	Yes	
10671	Beaverton	Beaverton	Allen Blvd. bike lanes	200' e/o Western	Scholls Ferry Rd.	Arterial	Construct bike lanes.	$ 4,300,000	$ 8,711,011	2018-2025	x	Bike	Yes	
10672	Beaverton	Beaverton	Western Ave. bike lanes	Beaverton Hillsdale Hwy	Allen Blvd.	Arterial	Construct bike lanes.	$ 5,600,000	$ 11,344,572	2018-2025	x	Bike		
10674	Sherwood	Sherwood	Oregon-Tonquin Intersection & Street Improvements	Oregon St.	at Tonquin	Minor Arterial	Intersection improvements (consider roundabout) on Oregon at Tonquin Road; sidewalks and bike access through the intersection.	$ 1,945,000	$ 3,940,213	2018-2025	x	Roads/bridges		
10676	Sherwood	Sherwood	Adams Ave Phase 1	Oregon/Ash	T-S Rd.	Collector	Construct 3 lane road, landscaping and multi-use path.	$ 8,012,000	$ 11,859,717	2008-2017	x	Roads/bridges		
10677	Sherwood	Sherwood	Adams Ave Phase 2	T-S Rd.	99W	Collector	Construct 3 lane road, landscaping and multi-use path to connect Town Center to 99W & National Wildlife Refuge.	$ 8,580,000	$ 12,700,496	2008-2017	x	Roads/bridges		
10680	Sherwood	Sherwood, WaCo, ODOT	Elwert Rd & 99W Intersection Improvements	99W	Kruger Rd	Arterial	Intersection safety improvements.	$ 2,700,000	$ 5,469,705	2018-2025	x	Roads/bridges	Yes	
10681	Sherwood		Elwert Rd	99W	Edy Rd	Arterial	Upgrade road to arterial standards.	$ 11,430,000	$ 23,155,083	2018-2025	x	Roads/bridges		
10682	Sherwood	Sherwood	Brookman Rd	99W	Ladd Hill Rd	Collector	Reconstruct road to collector standards.	$ 20,510,000	$ 41,549,497	2018-2025	x	Roads/bridges	Yes	
10691	Sherwood		Edy Rd/Sherwood Blvd	Borcher Dr	3rd St.	Arterial	Reconstruct road to arterial standards; add sidewalks.	$ 7,740,000	$ 15,679,820	2018-2025	x	Roads/bridges		
10692	Sherwood		Edy Rd	Borcher Dr	City limits	Collector	Reconstruct road to collector standards w/ sidewalks and bike lanes.	$ 8,760,000	$ 17,746,153	2018-2025	x	Roads/bridges	Yes	
10693	Sherwood	Sherwood	Ladd Hill Rd.	Sunset Blvd	UGB	Arterial	Upgrade street to arterial standards.	$ 6,340,000	$ 19,011,779	2026-2035	x	Roads/bridges		
10694	Sherwood	Sherwood	Murdock	UGB	Oregon St	Arterial	Add bike lanes.	$ 1,340,000	$ 2,714,594	2018-2025	x	Bike	Yes	
10695	Sherwood	Sherwood	Meinecke	99W	1st	Collector	Add bike lanes.	$ 1,150,000	$ 2,329,689	2018-2025	x	Bike		
10699	Sherwood	Sherwood	Oregon Street	Murdock	Railroad Crossing	Collector	Construct road to 3 lane collector standards.	$ 6,712,000	$ 13,597,280	2018-2025	x	Roads/bridges	Yes	
10700	Sherwood	Sherwood	Arrow Street (Herman Road)	Adams Ave	Gerda Ln/Herman Road Extension	TBD	Construct road to collector standards.	$ 8,190,000	$ 16,591,437	2018-2025	x	Roads/bridges		Yes
10701	Sherwood	Sherwood	Regional Trail System / West fork of Tonquin Trail	West fork of Tonquin Trail	Wildlife Refuge	Regional Trail	Construct regional trail along the Cedar Creek corridor to connect existing trail at Stella Olson Park & Old Town to Wildlife Refuge Trail on Roy Rogers Rd. Possible over or undercrossing at 99W.	$ 2,465,000	$ 3,648,802	2008-2017	x	Regional Trail		Yes
10702	Sherwood	Sherwood	Town Center Signal & Intersection Improvements	Borcher Dr	Century	Arterial	Improve 3-leg intersection at Edy & Borchers; remove traffic signal at Baler; remove traffic signal at Langer; add traffic signal at Century.	$ 2,812,000	$ 5,696,596	2018-2025	x	Roads/bridges		Yes
10703	Sherwood	Sherwood	Pedestrian Links to Schools & Town Center			Varies	Pedestrian upgrades, new sidewalks, sidewalk infill at: Sunset, Division, Edy, Elwert, Meinecke, Pine, Roy, Ladd Hill, Timbrel, Washington, Willamette, Old Pacific Hwy.	$ 6,983,000	$ 14,146,277	2018-2025	x	Pedestrian		
10708	Washington Co.	Washington Co.	Roy Rogers Rd.	99W	Borchers Dr	Arterial	Construct road to 5 lane collector standard.	$ 1,900,000	$ 3,849,051	2018-2025	X	Freight		
10709	Tualatin	Tualatin	Sagert	Martinazzi	N/A	Local	Signalize intersection and change grades to provide better sight distance.	$ 1,700,000	$ 2,516,415	2008-2017	x	Roads/bridges		Yes
10714	Tualatin	Tualatin	105th Ave/Avery Street	Blake	105th	Local	Realign curves, signalize intersection of Avery/105th, sidewalks on 105th from Avery to 108th.	$ 5,000,000	$ 7,401,221	2008-2017	x	Roads/bridges		Yes
10715	Tualatin	Tualatin	Herman	Teton	Tualatin	Local	Reconstruct and widen to 3 lanes from Teton to Tualatin.	$ 2,500,000	$ 3,700,611	2008-2017	x	Roads/bridges		
10716	Tualatin	Tualatin	Myslony	112th	124th Ave	Local	Reconstruct/widen from 112th to 124th to fill system.	$ 9,400,000	$ 13,914,296	2008-2017	x	Roads/bridges		

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10718	Tualatin	Tualatin	Herman	Cipole	124th Ave	Local	Reconstruction from Cipole to 124th.	$ 4,100,000	$ 6,069,002	2008-2017	x	Roads/bridges		
10720	Tualatin	Tualatin	Boones Ferry	Tualatin-Sherwood	Ibach	Minor Arterial	Widen to 5 lanes from Tualatin-Sherwood to Ibach.	$ 16,500,000	$ 49,478,605	2026-2035	x	Roads/bridges		Yes
10721	Tualatin	Tualatin	McEwan	65th	Lake Oswego	Local	Widen to 3 lanes from 65th to Lake Oswego.	$ 3,520,000	$ 10,555,436	2026-2035	x	Roads/bridges		
10722	Tualatin	Tualatin	65th	Nyberg	Childs Rd	Local	Extension across the Tualatin River from Nyberg to Childs Road.	$ 15,000,000	$ 44,980,550	2026-2035	x	Roads/bridges		
10725	Tualatin	Tualatin	65th	Sagert	Nyberg	Collector	Widen to 5 lanes from Sagert to Nyberg.	$ 19,000,000	$ 56,975,363	2026-2035	x	Roads/bridges		Yes
10728	Tualatin	Tualatin	Boones Ferry	N/A	N/A	Minor Arterial	Interconnect signals on Boones Ferry Road from Tualatin-Sherwood Road to Ibach (6 signals).	$ 78,000	$ 115,459	2008-2017	x	ITS		Yes
10729	Tualatin	Tualatin	Loop Rd	Martinazzi	Boones Ferry	Collector	Construct street from Tualatin-Sherwood to Boones Ferry Rd to Martinazzi.	$ 6,900,000	$ 20,691,053	2026-2035	x	Roads/bridges		
10730	Tualatin	Tualatin	E-W connection	108th	112th	Local	Construct new street.	$ 18,200,000	$ 26,940,446	2008-2017	x	Roads/bridges		
10735	Tualatin	Tualatin	Herman	108th	Teton	Local	Widen to 5 lanes from 108th to Teton.	$ 1,250,000	$ 2,532,271	2018-2025	x	Roads/bridges		Yes
10736	Tualatin	Tualatin	124th Ave	Tualatin-Sherwood	Tonquin	Minor Arterial	Construct new street from Tualatin-Sherwood to Tonquin Rd - 5 lanes.	$ 82,500,000	$ 122,120,154	2008-2017	x	Roads/bridges		Yes
10737	Tualatin	Tualatin	Central Design District Pedestrian Improvements			Major Arterial	Pedestrian improvements & bike lanes.	$ 10,600,000	$ 15,690,589	2008-2017	x	Pedestrian		Yes
10738	Tualatin	Tualatin	Teton	Herman	Tualatin-Sherwood	Local	Add bikelanes to Teton from Avery to Tualatin Rd.	$ 3,800,000	$ 11,395,073	2026-2035	x	Roads/bridges		
10739	Tualatin	Tualatin	Nyberg	Tualatin-Sherwood	65th	Minor Arterial	Add bikelanes on Nyberg from I-5 to 65th.	$ 7,000,000	$ 20,990,923	2026-2035	x	Roads/bridges		
10740	Tualatin	Tualatin	65th Ave.	Borland	Childs Rd	Other	Add bikelanes on 65th Ave from Sagert to Nyberg. Construct a pedestrian bridge over the River from Tualatin to Childs Rd.	$ 8,000,000	$ 23,989,627	2026-2035	x	Roads/bridges		Yes
10741	Tualatin	Tualatin	95th Ave.	Avery	Tualatin-Sherwood	Local	Add bikelanes from Avery to Tualatin-Sherwood Rd.	$ 2,400,000	$ 7,196,888	2026-2035	x	Roads/bridges		
10742	Tualatin	Tualatin	108th Ave.			Other	Pedestrian bridge over Tualatin River and connecting paths.	$ 2,000,000	$ 5,997,407	2026-2035	x	Pedestrian		Yes
10744	Tualatin	Tualatin	Tualatin River Pathway			Other		$ 8,600,000	$ 17,422,022	2018-2025	x	Regional Trail		
10745	Tualatin	Tualatin	Pedestrian Trail	65th	Martinazzi	Other	Pedestrian trail from 65th to Martinazzi.	$ 1,600,000	$ 3,241,306	2018-2025	x	Pedestrian		Yes
10746	Tigard		Washington Square Connectivity Improvements	Washington Square local street connections	Washington Square local street connections	Collector	Increase local street connections at Washington Square Center based on recommendations in regional center plan.	$ 3,000,000	$ 6,077,450	2018-2025	x	Roads/bridges	Yes	
10747	Tigard	Tigard	Hwy. 217 Overcrossing - Cascade Plaza	Nimbus	Locust	Collector	Provide congestion relief.	$ 5,166,000	$ 10,465,368	2018-2025	x	Roads/bridges	Yes	
10748	Tigard		Greenburg Road Improvements, South	Shady Lane	North Dakota	Arterial	Widen to 5 lanes with bikeways and sidewalks. Includes bridge replacement.	$ 4,000,000	$ 5,920,977	2008-2017	x	Roads/bridges	Yes	
10749	Tigard		Washington Square Regional Center Pedestrian Improvements	Various	Various	N/A	Improve sidewalks, lighting, crossings, bus shelters, and benches at Washington Square.	$ 3,900,000	$ 7,900,684	2018-2025	x	Pedestrian		
10751	Tigard	ODOT	Hwy. 217 Overcrossing	Hunziker Road	72nd Ave.	Arterial/Collector	Realign Hunziker Road to meet Hampton Street at 72nd Ave. and removes existing 72nd/Hunziker Road intersection.	$ 9,635,000	$ 19,518,742	2018-2025	x	Roads/bridges		
10753	Tigard	Tigard	Durham Road Improvements	Upper Boones Ferry Road	Hall Blvd.	Arterial	Widen to 5 lanes.	$ 21,093,000	$ 31,222,793	2008-2017	x	Roads/bridges		

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10754	Tigard	Tigard	Walnut Street Extension	99W	Ash Ave.	Collector	Extend street east of 99W to connect to Downtown Tigard (PE Phase only)	$ 3,770,000	$ 5,580,521	2008-2017	x	Roads/bridges		
10755	Tigard	Tigard	72nd Ave. Improvements	99W	Hunziker Road	Arterial	Widen to 5 lanes with bikeways and sidewalks.	$ 25,000,000	$ 37,006,107	2008-2017	x	Freight		
10759	Tigard	Tigard	Dartmouth Street Improvements	72nd Ave.	68th Ave.	Collector	Widen to 4 lanes with turn lanes and sidewalks.	$ 4,412,000	$ 6,530,838	2008-2017	x	Roads/bridges		
10760	Tigard	Tigard	Tigard Town Center Pedestrian Improvements	Tigard Town Center	Throughout TC area	Various	Improve Sidewalks, lighting, crossings, bus shelters and benches throughout the Town Center including: Highway 99W, Hall Blvd, Main Street, Hunziker, Walnut and neighborhood streets.	$ 4,882,000	$ 9,890,036	2018-2025	x	Pedestrian		
10762	Tigard		Nimbus Ave. Extension	Nimbus Ave.	Greenburg Road	Collector	2 lane extension with sidewalks and bike lanes.	$ 30,000,000	$ 60,774,495	2018-2025	x	Roads/bridges		
10763	Tigard		Washington Square Regional Center Greenbelt Shared Use Path	Hall Blvd.	Hwy. 217	N/A	Complete shared-use path construction.	$ 1,821,000	$ 2,695,525	2008-2017	x	Pedestrian		
10764	Tigard	Tigard	Durham Road Improvements	Hall Blvd.	99W	Arterial	Widen to 5 lanes with bikeways and sidewalks.	$ 20,000,000	$ 40,516,330	2018-2025	x	Roads/bridges	Yes	
10766	Tigard		Regional Trail Gap Closure	multiple sections on Fanno, Wash Sq Loop, and Westside Trails	Multiple sections on Fanno, Wash Sq Loop, and Westside Trails	Regional Pedestrian and Bike systems	Infill gaps in regional trail network. Affected trails include Fanno Creek, Washington Square Loop and Westside Trails.	$ 6,890,000	$ 10,198,883	2008-2017	x	Regional Trail		
10768	Tigard	Tigard	Upper Boones Ferry Intersection Improvements	Durham Road	I-5	Arterial	Reconfigure intersection of Durham & Upper Boones Ferry to create a through route between Durham & I-5/Carmen Interchange; 2nd Northbound Turn Lane at 72nd/Carmen; 72nd/Boones Ferry assuming Boones Ferry/72nd widened to 5 lanes; eastbound right turn lane at Carman/I-5 southbound.	$ 9,630,000	$ 14,254,752	2008-2017	x	Roads/bridges		
10769	Tigard	Tigard	Greenburg Intersection Improvements	Hall	Tiedeman Ave	Arterial	2nd Northbound turn lane, modify signal timing at Greenburg/Oleson/Hall; install boulevard treatment at Greenburg/Washington Square Road; improve geometry/alignment and extend cycle length at intersection of Greenburg/Tiedeman.	$ 7,000,000	$ 10,361,710	2008-2017	x	Roads/bridges	Yes	
10770	Tigard	ODOT	Hwy. 99W Intersection Improvements	64th Ave.	Durham Rd.	Principal arterial	Provide increased capacity at priority intersections, including bus queue bypass lanes in some locations, improved sidewalks, priority pedestrian crossings, and an access management plan, while retaining existing 4/5-lane facility from I-5 to Durham Road.	$ 50,000,000	$ 74,012,214	2008-2017	x	Roads/bridges		
10771	Forest Grove	TriMet	High Capacity Transit: Blue Line west : Hwy. 8 extension	Hillsboro	Forest Grove	Other	The Cities of Forest Grove, Cornelius, Hillsboro, and Washington County have identified a need to extend the MAX system to Forest Grove. The proposed line would run from the end of the existing HCT system in Hillsboro to downtown Forest Grove. Continue work as part of the HCT System Expansion Policy. Developing corridor as identified in the HCT System plan and adopted by JPACT and Metro Council.	$ 1,500,000	$ 2,220,366	2008-2017	x	Transit capital		
10773	Forest Grove		Thatcher/Gales Creek	Thatcher	Gales Creek	Minor Arterial	Re-align Thatcher Road at its intersection with Gales Creek Road.	$ 3,600,000	$ 5,328,879	2008-2017	x	Roads/bridges		
10774	Forest Grove	Forest Grove	23rd/24th	Hawthorne	Quince	Local	Construct collector level roadway between Hawthorne Ave. and Quince Street.	$ 10,000,000	$ 14,802,443	2008-2017	x	Roads/bridges	Yes	
10775	Forest Grove	Forest Grove	E/Pacific/19th Intersection	E	Pacific	Minor Arterial	Extend 19th west and connect up to E and Pacific with a round-about.	$ 4,800,000	$ 7,105,173	2008-2017	x	Roads/bridges		
10778	Forest Grove	Forest Grove	Heather Industrial Connector	Mountain View	HWY 47	Local	Extend westerly from existing terminus to connect to Hwy 47 and the City of Cornelius.	$ 5,800,000	$ 8,585,417	2008-2017	x	Roads/bridges	Yes	Yes
10779	Forest Grove	Forest Grove	Hwy 8/Pacific/19th	Cornelius City Limits	B	Minor Arterial	Retrofit the street with a boulevard design from Quince Street to B Street including wider sidewalks, curb extensions, safer street crossings, bus shelters and benches. Includes intersection improvements at Yew/Adair/19th.	$ 16,500,000	$ 24,424,031	2008-2017	x	Roads/bridges		
10781	Forest Grove	Forest Grove	West UGB Trail	Ritchey	David Hill	Other	Multi-use trail.	$ 3,100,000	$ 4,588,757	2008-2017	x	Regional Trail		
10782	Forest Grove	Forest Grove	Thatcher / Willamina / B St Pedestrian and Bicycle Improvements	Gales Creek-David Hill /Gales Creek - Sunset / 26th-Willamina	Gales Creek-David Hill /Gales Creek - Sunset / 26th-Willamina	Local	Bike lanes and sidewalks.	$ 5,600,000	$ 8,289,368	2008-2017	x	Bike		
10783	Forest Grove	Forest Grove	A Bicycle / Pedestrian	Pacific	HWY 47	Other	Multi-use trail.	$ 1,000,000	$ 1,480,244	2008-2017	x	Regional Trail	Yes	
10784	Forest Grove	Forest Grove	David Hill Bicycle Pedestrian	Thatcher	Forest Gale Dr.	Other	Multi-use trail.	$ 4,900,000	$ 7,253,197	2008-2017	x	Regional Trail		

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10785	Cornelius	Cornelius	14th Ave	Dogwood	Holladay	Local	Regulate OR8 traffic flow; widen local collector to improve Main Street/Industrial Area north/south connectivity.	$ 2,800,000	$ 4,144,684	2008-2017	x	Roads/bridges		
10786	Cornelius		Susbauer Rd	TV Hwy	Zion Church Rd	Rural Arterial	Improve County Freight Connector route to urban standard w/in City (sidewalks & bike lanes); widen rural road with shoulder bike lane, reconstruct Dairy Creek Bridge to eliminate frequent road flooding.	$ 1,000,000	$ 1,480,244	2008-2017	x	Roads/bridges	Yes	
10787	Cornelius		10th Ave/Cornelius-Schefflin Rd	TV Hwy	Verboort Circle	Rural Arterial	Improve to urban standard w/in City (sidewalks & bike lanes); widen rural road with shoulder bike lane, reconstruct Council Creek Bridge.	$ 9,000,000	$ 13,322,199	2008-2017	X	Freight		
10788	Cornelius	Cornelius	10th Ave	Holladay St.	Golf Course Rd	Minor Arterial	Improve to urban standard w/in City (sidewalks & bike lanes); widen rural road with shoulder bike lane, increase turning radii at Adair	$ 2,600,000	$ 3,848,635	2008-2017	x	Freight	Yes	
10795	Cornelius	Cornelius	Holladay St Extension	4th	Yew	Local	Construct new collector.	$ 2,500,000	$ 5,064,541	2018-2025	x	Freight	Yes	
10796	Cornelius	Cornelius	Holladay St Extension	10th	Gray	Local	Construct new collector.	$ 1,300,000	$ 1,924,318	2008-2017	x	Freight		
10797	Cornelius	Cornelius	Holladay St Extension	Gray	19th	Local	Construct new collector.	$ 1,300,000	$ 2,633,561	2018-2025	x	Freight	Yes	
10798	Cornelius	Cornelius	Davis St. Extension	4th Ave	10th Ave	Local	Construct new collector.	$ 2,500,000	$ 5,064,541	2018-2025	x	Roads/bridges		Yes
10799	Cornelius	Cornelius	Davis St. Extension	19th Ave	29th Ave	Local	Construct new collector.	$ 4,500,000	$ 9,116,174	2018-2025	x	Roads/bridges		Yes
10800	Cornelius	Cornelius	Dogwood St. Extension	E. City Limits	345th Ave.	Local	Construct new collector.	$ 1,500,000	$ 2,220,366	2008-2017	x	Roads/bridges		Yes
10801	Cornelius	Cornelius	29th Ave.	TV Hwy	345th Ave.	Local	Construct new collector.	$ 4,200,000	$ 6,217,026	2008-2017	x	Roads/bridges		Yes
10802	Cornelius	Cornelius	29th Ave	TV Hwy		Major Arterial	Signalize intersection.	$ 600,000	$ 888,147	2008-2017	x	Roads/bridges		Yes
10803	Cornelius	ODOT	TV Hwy	4th Ave	29th Ave	Major Arterial	Interconnect OR 8 signal system in Cornelius.	$ 450,000	$ 666,110	2008-2017	x	Freight		Yes
10804	Cornelius	Cornelius	Collector Bike Lanes			Collector	Sign & stripe about 50 blocks of collectors.	$ 350,000	$ 518,085	2008-2017	x	Bike		Yes
10805	Cornelius	ODOT	TV Hwy Ped Infill			Major Arterial	Build out sidewalk gaps on TV Hwy. in Cornelius.	$ 1,020,000	$ 1,509,849	2008-2017	x	Pedestrian		
10806	Forest Grove	Forest Grove	Council Creek Regional Trail	Banks	Hillsboro	Other	PE: multi-use trail from the end of the Westside MAX light-rail line in Hillsboro, through Washington County, the City of Cornelius, the City of Forest Grove, the City of Banks, connecting to the Banks-Vernonia State Trail, with an additional short trail extension south connecting to the Tualatin River.	$ 5,000,000	$ 7,401,221	2008-2017	x	Regional Trail		Yes
10807	Cornelius	Cornelius	HCT Park & Ride	26th Ave	N/A	N/A	Build station area and park & ride facilities.	$ 850,000	$ 1,721,944	2018-2025	x	Transit capital		
10808	Cornelius	Cornelius	HCT Park & Ride	10th Ave	N/A	N/A	Build station area and park & ride facilities.	$ 850,000	$ 1,721,944	2018-2025	x	Transit capital		Yes
10809	THPRD	THPRD	Bronson Creek Trail (Regional)	Bronson Creek Park Cornell Rd. (THPRD)	Laidlaw Rd.	Other	To design and construct a community trail segment in a greenway corridor, 8'-10' wide paved.	$ 3,500,000	$ 7,090,358	2018-2025	x	Bike		Yes
10810	THPRD	THPRD	Westside Trail (Regional)	Hwy 26	THPRD Nature Park	Other	To design and construct a regional trail multi-use segment in a utility corridor, 10'-12' wide paved.	$ 4,000,000	$ 5,920,977	2008-2017	x	Regional Trail		Yes
10811	THPRD	THPRD	Beaverton Creek Trail (Regional)	SW 194th Ave.	Fanno Creek Trail	Other	To design and construct a regional trail multi-use segment in a utility corridor, 10'-12' wide paved.	$ 7,000,000	$ 14,180,716	2018-2025	x	Regional Trail		
10812	THPRD	THPRD	Fanno Creek Trail (Regional)	Greenwood Inn	Scholls Ferry Rd.	Other	To design and construct a regional trail multi-use segment in a utility corridor, 10'-12' wide paved.	$ 1,700,000	$ 2,516,415	2008-2017	x	Regional Trail		Yes
10813	THPRD	THPRD	Westside Trail (Regional)	Farmington Rd.	Scholls Ferry Rd.	Other	To design and construct a regional trail multi-use segment in a utility corridor, 10'-12' wide paved.	$ 4,150,000	$ 6,143,014	2008-2017	x	Regional Trail		Yes
10814	Hillsboro	Hillsboro	Evergreen Pkwy.	25th Ave	Sewell Rd	Arterial	Widen Evergreen Parkway to 5 lanes.	$ 4,000,000	$ 5,920,977	2008-2017	x	Roads/bridges	Yes	
10815	Hillsboro	Hillsboro	Cornell Rd Signal Coordination	185th	Cornelius Pass	Major Arterial	Interconnect Traffic Signals (Extends County ATMS).	$ 1,000,000	$ 1,480,244	2008-2017	x	Roads/bridges		
10817	Hillsboro	Hillsboro	Aloclek	Amberwood	Cornelius Pass	Collector	Extend 3 lane road with bike lanes/sidewalks.	$ 2,000,000	$ 4,051,633	2018-2025	x	Roads/bridges	Yes	Yes
10818	Hillsboro	Hillsboro	231st Ave./Century Blvd	Baseline	Lois	Minor Arterial	Bridge and 3 lanes with bike lanes and sidewalks.	$ 16,500,000	$ 33,425,973	2018-2025	x	Roads/bridges		
10819	Hillsboro	Hillsboro	231st Ave./Century Blvd	Baseline	Cornell Rd.	Minor Arterial	Widen to 3 lanes with bike lanes and sidewalks.	$ 6,800,000	$ 10,065,661	2008-2017	x	Roads/bridges		

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10820	Hillsboro	Hillsboro	Brookwood (247th)	Alexander	South UGB	Arterial	Widen to two lanes with onstreet parking and sidewalks Alexander to Davis; widen to 3 lanes with bike lanes and sidewalks Davis to South UGB	$ 1,700,000	$ 2,516,415	2008-2017	x	Roads/bridges		
10821	Hillsboro	Hillsboro	Huffman	Shute	West UGB (Sewell)	Collector	Build 3 lane with bike lanes and sidewalks.	$ 7,890,000	$ 11,679,127	2008-2017	x	Roads/bridges		
10822	Hillsboro	Hillsboro	253rd	Evergreen	Huffman Extn	Collector	Build 3 lane with bike lanes and sidewalks.	$ 6,162,000	$ 9,121,265	2008-2017	x	Roads/bridges	Yes	Yes
10823	Hillsboro	Hillsboro	Amberwood	206th	Cornelius Pass	Collector	Complete gap and Improve to 3 lane with bike lanes and sidewalks. Modify signal phasing at Corn Pass	$ 1,500,000	$ 3,038,725	2018-2025	x	Roads/bridges	Yes	Yes
10824	Hillsboro	Hillsboro	Cornell Rd	Arrington	Main Street	Major Arterial	Improve to 5 lane with bike lanes and sidewalks.	$ 9,248,000	$ 18,734,751	2018-2025	x	Roads/bridges		
10826	Hillsboro	Hillsboro	Jackson School Road	Evergreen	Grant	Collector	Widen to 3 lane with bike lanes/sidewalks.	$ 7,000,000	$ 14,180,716	2018-2025	x	Roads/bridges		
10827	Hillsboro	Hillsboro	Quatama Road	LRT	Cornelius Pass	Collector	Widen to 3 lane with bike lanes/sidewalks.	$ 1,800,000	$ 2,664,440	2008-2017	x	Roads/bridges		
10830	Hillsboro	Hillsboro	Johnson	Cornelius Pass	Century Blvd	Collector	Widen to 3 lanes with bike/sidewalks.	$ 8,000,000	$ 23,989,627	2026-2035	x	Roads/bridges	Yes	
10831	Hillsboro	Hillsboro	Century Blvd	Bennett	West Union Rd	Minor Arterial	Extend 2/3 lane with US 26 Overpass, connect existing segments.	$ 12,920,000	$ 26,173,549	2018-2025	x	Roads/bridges	Yes	
10832	Hillsboro	Hillsboro	Quatama Road	Cornelius Pass	227th/69th Ave	Collector	Widen and extend 2/3 lane with bike/sidewalks.	$ 1,800,000	$ 3,646,470	2018-2025	x	Roads/bridges	Yes	
10833	Hillsboro	Hillsboro	Grant Street Extension	28th	Brookwood	Collector	Extend 3 lane road with bike lanes/sidewalks.	$ 11,300,000	$ 22,891,727	2018-2025	x	Roads/bridges		
10834	Hillsboro	Hillsboro	28th Ave.	Main	25th	Minor Arterial	Widen to 3 lanes with bike/sidewalks.	$ 3,750,000	$ 7,596,812	2018-2025	x	Roads/bridges		
10835	Hillsboro	Hillsboro	185th Ave.	Cornell Rd	Walker Rd	Major Arterial	Widen to 7 lanes. Local TSPs and the TV Hwy. Corridor Refinement Plan will need to re-evaluate the need for this project which exceeds the RTP policy of 5 lane arterials. Sufficient documentation will need to be provided that all other solutions have been exhausted, including system management and operations strategies, increased transit service, changes to land use, etc. consistent with the congestion management process. The projects were identified to meet current mobility standards that may be revised as part of the alternative mobility standards work that will be conducted in 2010.	$ 10,000,000	$ 20,258,165	2018-2025	x	Roads/bridges		
10836	Hillsboro	Hillsboro	Evergreen Rd	Glencoe Rd	25th	Minor Arterial	Widen to 5 lanes with bike lanes and sidewalks.	$ 5,440,000	$ 16,312,946	2026-2035	x	Roads/bridges		
10837	Hillsboro	Hillsboro	Campus Court Extension	W. end Campus Ct	Ray Circle	Collector	Extend 3 lane road with bike lanes/sidewalks.	$ 1,500,000	$ 4,498,055	2026-2035	x	Roads/bridges		
10838	Hillsboro	Hillsboro	Davis Road	Brookwood	234th (Century)	Collector	Extend 3 lane road with bike lanes/sidewalks.	$ 2,700,000	$ 3,996,660	2008-2017	x	Roads/bridges		Yes
10839	Hillsboro	Hillsboro	Century Blvd (234th)	Alexander	South UGB	Collector	Extend 3 lane road with bike lanes/sidewalks.	$ 4,000,000	$ 5,920,977	2008-2017	x	Roads/bridges	Yes	
10840	Hillsboro	Hillsboro	Regional Center Improvements	N/A	N/A	N/A	Miscellaneous Improvements to maintain capacity.	$ 2,000,000	$ 4,051,633	2018-2025	x	Roads/bridges	Yes	Yes
10841	Hillsboro	Hillsboro	Other Traffic Signals	N/A	N/A	N/A	Future Traffic Signals (Town Centers, 2040 Corridors).	$ 5,000,000	$ 7,401,221	2008-2017	x	Roads/bridges	Yes	Yes
10842	Hillsboro	Hillsboro	Other Collector Reconstruction	N/A	N/A	N/A	Miscellaneous locations.	$ 4,000,000	$ 8,103,266	2018-2025	x	Roads/bridges		
10843	Hillsboro	Hillsboro	Intersection Improvements	N/A	N/A	N/A	Miscellaneous locations.	$ 10,000,000	$ 20,258,165	2018-2025	x	Roads/bridges		
10846	Hillsboro	ODOT	TV Hwy.	196th Ave.	Brookwood	Principal arterial	Expand capacity including access management, bike/sidewalks and intersection improvements. Local TSPs and the TV Hwy. Corridor Refinement Plan will need to re-evaluate the need for this project which exceeds the RTP policy of 5 lane arterials. Sufficient documentation will need to be provided that all other solutions have been exhausted, including system management and operations strategies, increased transit service, changes to land use, etc. consistent with the congestion management process. The projects were identified to meet current mobility standards that may be revised as part of the alternative mobility standards work that will be conducted in 2010.	$ 42,000,000	$ 125,945,539	2026-2035	x	Roads/bridges		
10847	Hillsboro	Hillsboro	Regional Center Ped Improvements	N/A	N/A	N/A	Infill and enhance missing pedestrian sidewalks, improve lighting	$ 4,550,000	$ 9,217,465	2018-2025	x	Pedestrian	Yes	
10848	Hillsboro	Hillsboro	Tanasbourne/Amberglen Ped Improvements	N/A	N/A	N/A	Infill missing pedestrian sidewalks.	$ 5,000,000	$ 10,129,083	2018-2025	x	Pedestrian		
10849	Hillsboro	Hillsboro	Regional Center- Bike Improvement	N/A	N/A	N/A	Infill missing bike lane connections.	$ 2,000,000	$ 4,051,633	2018-2025	x	Bike	Yes	
10850	Hillsboro	Hillsboro	Beaverton Ck Trail, Bronson Ck Trail,	Baseline Rd, 185th	Rock Creek Trail	Other	Construct bike/ped trail.	$ 1,000,000	$ 2,025,817	2018-2025	x	Regional Trail		Yes

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10851	Hillsboro	Hillsboro	Rock Ck Trail - Multi Use	River Road	Orchard Park (East of Cornelius Pass Rd)	Other	Construct bike/ped trail.	$ 5,520,000	$ 11,182,507	2018-2025	x	Regional Trail		Yes
10852	Wilsonville		95th/Boones Ferry/Commerce Circle Intersection Improvements	95th Ave.	Southbound off-ramp of I-5/Stafford Interchange	Major Arterial	Construct dual left-turn and right-turn lanes; improve signal synchronization, access manaagement & sight-distance	$ 2,500,000	$ 3,700,611	2008-2017	x	Freight	Yes	
10853	Wilsonville	Wilsonville	Kinsman Rd. Extension	Ridder Rd.	Day St.	Local	Construct three lane road extension with sidewalks & bike lanes	$ 6,500,000	$ 9,621,588	2008-2017	x	Freight	Yes	
10854	Metro	To be determined	Tonquin Trail	Tualatin-Sherwood Rd.	Clackamas Co. Line	NA	Construct mult-use trail with some on-street segments connecting multiple communities in Washington and Clackamas County. Targeted as Metro Strategic Investment priority.	$ 3,000,000	$ 4,440,733	2008-2017	x	Regional Trail	Yes	
10855	Metro		Regional TOD Implementation Program	2040 Centers, Stations Areas and Corridors	2041 Centers, Stations Areas and Corridors	N/A	Metro, the government of the Portland metropolitan region responsible for growth management, is implementing a highly integrated land use and transportation plan calling for substantial amounts of the region's growth to occur in medium- to high-density mixed-use, walkable urban "centers" linked by high quality transit service. TOD Program funding helps cause the construction of "transit villages" and other catalyst projects by the private sector. These projects mix of moderate- to high-intensity land uses, are physically or functionally connection to the transit system (including MAX light rail, Portland streetcar, commuter rail and high frequency bus), and create a walkable communities through design features that reinforce pedestrian relationships and scale.	$ 67,500,000	$ 121,793,510	2008-2035	X	Transit capital	Yes	Yes
10856	Gresham		Richey/Foster Connection	Intersection Richey/Foster		Minor Arterial	Construct roundabout and related improvements to Foster.	$ 656,452	$ 1,329,851	2018-2025	X	Roads/bridges	Yes	Yes
10860	Gresham	Gresham	Collector 72 (Knapp)	172nd	182nd	Local	Build new road to green street collector standards.	$ 10,703,002	$ 15,843,058	2008-2017	X	Roads/bridges		
10861	Gresham	Gresham	Collector 72 (Knapp)	182nd	190th	Local	Build new road to green street collector standards.	$ 10,368,393	$ 15,347,754	2008-2017	X	Roads/bridges		Yes
10862	Gresham	Gresham	Community Street 72	190th	Binford Parkway	Local	Build new road to green street community standards.	$ 9,991,393	$ 14,789,702	2008-2017	X	Roads/bridges		Yes
10863	ODOT	ODOT	Troutdale Interchange (Exit 17) Improvements	Troutdale interchange (Exit 17)	N/A	Collector	Improve eastbound off-ramp, widen South Frontage Road, , improve intersection at Graham Road. Also includes initial reconstruction of west end of interchange (NW Marine Dr.)	$ 32,200,000	$ 65,231,292	2018-2025	X	Freight	Yes	
10864	ODOT	ODOT	New interchange on US 26 to serve industrial area.	Callister Road	267th Ave.	Interstate	New interchange on US 26 to serve industrial area.	$ 29,500,000	$ 59,761,587	2018-2025	X	Throughways		
10865	ODOT	ODOT	I-205/Airport Way interchange	I-205 and Airport Way		Interstate	Implement recommendations consistent with I-205/Airport Way Study.	$ 10,500,000	$ 15,542,565	2008-2017	X	Throughways	Yes	
10867	ODOT	ODOT	I-5 from I-405 to I-84 (Rose Quarter/Lloyd District) Planning and PE	I-84	Greeley St.	Interstate	Conduct planning, preliminary engineering and environmental work to improve safety and operations on I-5, connection between I-84 and I-5, and access to the Lloyd District and Rose Quarter.	$ 30,000,000	$ 44,407,329	2008-2017	X	Freight		
10869	ODOT	ODOT	Sunrise Project: Construct improvements in the Sunrise Corridor consistent with the supplemental EIS	I-205	122nd Ave./Hwy. 212/224	Interstate	Construct improvements consistent with the supplemental EIS, 2-lane mainline; new O'Xing of I-205 connec-ting 82nd Ave. < > 82nd Dr.; 3rd WB lane, UPRR viaduct < > I-205; PE 162nd x OR 212.	$ 150,000,000	$ 222,036,643	2008-2017	X	Throughways	Yes	Yes
10872	ODOT	ODOT	Add lane: SB I-205 to SB I-5 interchange ramp and extend acceleration lane and add auxiliary lane on SB I-5 to Elligsen Road.	I-205	Elligsen Road	Interstate	Add lane to SB I-205 to SB I-5 interchange ramp and extend acceleration lane and add auxiliary lane on SB I-5 to Elligsen Road.	$ 9,700,000	$ 14,358,370	2008-2017	X	Throughways	Yes	
10873	ODOT	ODOT	US 26W: Widen highway to 6 lanes	185th Ave.	Cornelius Pass Road	Principal arterial	Widen highway to 6 lanes.	$ 36,119,034	$ 53,464,994	2008-2017	X	Throughways		
10874	ODOT	ODOT	I-5 Delta Park Phase 2	Victory	Lombard	Interstate	Construct highest priority improvements consistent with the Delta-Lombard Environmental Assessment.	$ 46,000,000	$ 68,091,237	2008-2017	X	Freight		Yes
10875	ODOT	ODOT	OR 217: Braid OR 217 ramps between Beaverton-Hillsdale Hwy. and Allen Blvd. in both directions.	Beaverton-Hillsdale Hwy.	Allen Blvd.	Principal arterial	Braid OR 217 ramps between Beaverton-Hillsdale Highway and Allen Boulevard in both directions.	$ 79,600,000	$ 117,827,445	2008-2017	X	Throughways		
10876	ODOT	ODOT	I-84: Extend Halsey exit lane to I-205 NB exit	Halsey exit	I-205 NB exit	Interstate	I-84 Lane Extension: Halsey to I-205 NB ramp.	$ 13,000,000	$ 19,243,176	2008-2017	X	Throughways		Yes
10884	ODOT	ODOT	I-5 from I-405 to I-84 (Rose Quarter/Lloyd District) Right-of-way	I-84	Greeley St.	Interstate	Acquire right-of-way to improve safety and operations on I-5, connection between I-84 and I-5, and access to the Lloyd District and Rose Quarter.	$ 20,000,000	$ 40,516,330	2018-2025	X	Throughways	Yes	
10890	ODOT	ODOT	Sunrise Project: Acquire right-of-way: Webster Rd. to SE 172nd Ave	Webster Rd./Hwy. 224	172nd Ave./Hwy. 212	Principal arterial	Acquire right-of-way: Webster Rd. to SE 172nd Ave. to accommodate six-through lane expressway, plus auxiliary lanes.	$ 145,000,000	$ 214,635,421	2008-2017	X	Throughways	Yes	Yes

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10893	ODOT	ODOT	Improve I-5/Columbia River bridge	Victory Blvd.	Washington state line	Interstate	Replace I-5/Columbia River bridges and improve interchanges on I-5.	$ 2,982,000,000	$ 4,414,088,458	2008-2017	X	Throughways	Yes	
10894	ODOT	ODOT	Sunrise Hwy. PE: Webster Rd. to SE 172nd Ave	Webster Rd./Hwy. 224	172nd Ave./Hwy. 212	Principal arterial	Preliminary engineering and EIS fromWebster Rd. to SE 172nd.	$ 20,000,000	$ 29,604,886	2008-2017	X	Throughways	Yes	
10899	TriMet		Washington County Commuter Rail spare DMUs	N/A	N/A	N/A	1 powered and 2 trailer DMUs for spares and service reliability.	$ 14,000,000	$ 20,723,420	2008-2017	x	Transit capital	Yes	
10901	TriMet		MAX light rail: South Corridor Ph 2: Portland to Milwaukie	N/A	N/A	Other	Portland, N Macadam, OMSI, Brooklyn, Milwaukie, (Park Ave.).	$ 1,148,000,000	$ 1,699,320,439	2008-2017	x	Transit capital		
10902	TriMet		MAX light rail: Yellow Line: CRC / I-5 North extension	N/A	N/A	Other	CRC - Expo to Vancouver, north on Main to Lincoln.	$ 755,600,000	$ 1,118,472,582	2008-2017	x	Transit capital		
10912	TriMet		Streetcar Extension: Portland to Lake Oswego via Willamette Shore	N/A	N/A	Other	Portland to Lake Oswego extension of Portland Streetcar.	$ 221,700,000	$ 328,170,158	2008-2017	x	Transit capital		
10916	TriMet		Bus Improvements: SE McLoughlin to Oregon City and CCC	N/A	N/A	Other	Bus improvements along McLoughlin Blvd in Milwaukie, Galdstone, Oregon City, and CCC to improve access in corridor and connect to PMLR	$ 6,000,000	$ 8,881,466	2008-2017	x	Transit capital		
10921	TriMet		MAX LRT on Steel Bridge: Capacity and operations improvements	N/A	N/A	N/A	Possible additional tracks, bridge rehabilitation, seismic upgrade.	$ 60,000,000	$ 88,814,657	2008-2017	x	Transit capital	Yes	
10926	TriMet		Transit dispatch center upgrade	N/A	N/A	N/A	To accommodate increasing operating complexities. Part of the work is incorporated in Portland to Milwaukie Light Rail Project	$ 4,000,000	$ 5,920,977	2008-2017	x	Transit capital		
10927	TriMet		MAX LRT: Operational upgrades	N/A	N/A	N/A	Sidings, powered turnouts, block and signal control infill.	$ 19,000,000	$ 34,282,618	2008-2035	x	Transit capital	Yes	
10928	TriMet		New MAX LRT vehicles	N/A	N/A	N/A	fleet expansion to meet growing demand	$ 49,000,000	$ 72,531,970	2008-2017	x	Transit capital		
10979	Portland		Burnside/Couch Streetcar, East & West [NW 23rd to E 14th]	NW 23rd	E 14th	Other	Construct streetcar from NW 23rd Avenue to E 14th Avenue after an alternatives analysis study is completed.	$ 118,500,000	$ 175,408,948	2008-2017	X	Transit capital		
10981	TriMet		Regional Bus: North Macadam / Line 35 realignment	N/A	N/A	Other	Shift of Line 35 through this fast-growing area until Lake Oswego Streetcar is complete	$ 100,000	$ 148,024	2008-2017	x	Transit capital	Yes	
10984	TriMet		Reconfiguration of Millikan Way Park & Ride	N/A	N/A	N/A	Reconfigure lot in response to lease expiration.	$ 2,000,000	$ 2,960,489	2008-2017	x	Transit capital	Yes	Yes
10989	TriMet		181st park & ride lot	N/A	N/A	N/A	Redevelop site in conjunction with TOD opportunity.	$ 4,000,000	$ 5,920,977	2008-2017	x	Transit capital		
10990	TriMet		Park & Ride management strategy implementation	N/A	N/A	N/A	Convert major park & ride lots for shared use and/or pay lots.	$ 1,000,000	$ 1,804,348	2008-2035	x	Transit capital	Yes	
10993	TriMet		Milwaukie bus layover facility	N/A	N/A	N/A	Modification to Milwaukie Park & Ride.	$ 627,000	$ 928,113	2008-2017	x	Transit capital	Yes	
10995	TriMet		Rose Quarter Bike Improvements	N/A	N/A	N/A	Modify Rose Quarter to accommodate through bike traffic.	$ 250,000	$ 370,061	2008-2017	x	Transit capital	Yes	Yes
10997	TriMet		Willow Creek Transit Center	N/A	N/A	N/A	Reconstruct TC portion of MAX/bus facility for TOD opportunity (PCC).	$ 6,000,000	$ 8,881,466	2008-2017	x	Transit capital	Yes	
10998	TriMet		Bus replacements	N/A	N/A	N/A	Approximately 40 buses annually to keep fleet to fleet age standards	$ 368,160,000	$ 664,288,869	2008-2035	x	Transit capital		
10999	TriMet		Bus purchases for congestion and expansion	N/A	N/A	N/A	fleet expansion to meet growing demand	$ 46,020,000	$ 83,036,109	2008-2035	x	Transit capital	Yes	
11016	TriMet		LIFT vehicle replacement and expansion of fleet	N/A	N/A	N/A	Replace and expand fleet. Starting at approximately 40 LIFT vehicles annually in early years and expanding.	$ 106,250,000	$ 191,712,007	2008-2035	x	Transit capital	Yes	Yes
11032	TriMet		Ruby Junction light rail operating base expansion	N/A	N/A	N/A	LRV maintenance and storage facility, including expansion on west side of Eleven-Mile Ave. Capital cost is included in Milwaukie and CRC projects.		$ -	2008-2017	x	Transit capital	Yes	
11035	TriMet		Powell bus operating base expansion	N/A	N/A	N/A	Expand bus operations, maintenance and storage facility to accommodate larger fleet.	$ 11,637,609	$ 17,226,504	2008-2017	x	Transit capital	Yes	
11036	TriMet		Merlo fuel / service house replacement	N/A	N/A	N/A	Over due replacement, creates new entrance.	$ 6,411,300	$ 9,490,290	2008-2017	x	Transit capital		
11038	TriMet		Center Street bus operating base expansion	N/A	N/A	N/A	Includes upgrades to bus facilities and responses to some changes needed to accommodate Portland to Milwaukie Light Rail	$ 10,000,000	$ 14,802,443	2008-2017	x	Transit capital	Yes	
11042	TriMet		Bus priority treatment	N/A	N/A	N/A	Traffic signal priority treatments, jump lanes, etc. regionwide. Including adding bus priority when other signal improvements are made.	$ 5,029,837	$ 9,075,578	2008-2035	x	Transit capital		
11043	TriMet		Pedestrian access improvements	N/A	N/A	N/A	Sidewalks, crosswalks and ADA improvements to transit access.	$ 5,000,000	$ 9,021,741	2008-2035	x	Transit capital		

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11044	Metro		Regional Trail Master Plans	N/A	N/A	N/A	Develop trail master plans, working with local jurisdictions, trail advocate organizations, local residents, property owners, railroad companies, and businesses, for the following locations: Hillsboro to Council Creek & Gales Creek Trail, East Buttes Loop Trail Master Plan: Gresham and Happy Valley to Damascus; Springwater Corridor to Clackamas Bluffs and Greenway, Gateway to the Columbia Gorge Trail: Gresham/Fairview to Troutdale to Columbia Gorge Trail Connections, Portland South Waterfront to Lake Oswego to West Linn Trail, Columbia Slough Trail, Regional Trails Strategy and Master Plan for the Portland Metro Area (including relationship of regional trails to on-street bikeways and local trail system).	$ 1,100,000	$ 1,628,269	2008-2017	X	Regional Trail		
11054	Metro		Regional Travel Options Program	Employment Areas, 2040 Centers, new corridor projects and congested corridors	Employment Areas, 2040 Centers, new corridor projects and congested corridors	N/A	RTO is the region's tool to manage congestion and reduce air pollution. RTO implements transportation demand management strategies such as employer outreach to encourage employers to subsidize and provide end-of-trip facilities to help employees choose options other than driving alone. RTO supports Transportation Management Associations and other public/private partnerships that reduce VMT. RTO also addresses non-commute trips through individualized marketing; helping residents try new travel options fro some or all of their trips. As the region's population and economy grows, the RTO program will gain efficiencies moving people and goods on built-out transportation infrastructure.	$ 74,250,000	$ 133,972,861	2008-2035	X	Regional Program	Yes	
11071	ODOT	ODOT	I-5/Wilsonville Road Interchange	Hubbard cut-off	Wilsonville Road	Interstate	Reconstruct all interchange ramps and improve Wilsonville Road at interchange. Add NB auxiliary lane from Hubbard cut-off to Wilsonville Rd.	$ 21,200,000	$ 31,381,179	2008-2017	X	Throughways	Yes	
11074	Gresham	Gresham	East Buttes Loop Trail: From Springwater Trail to Rodlun Road	Springwater Trail	Rodlun Road	Other	Construct new shared use trail (12' wide pervious asphalt)	$ 8,300,000	$ 12,286,028	2008-2017	X	Regional Trail	Yes	
11081	Lake Oswego		Boones Ferry Rd bike lanes	Country Club	North City Limits	Minor Arterial	Add bike lanes	$ 5,710,000	$ 8,452,195	2008-2017	X	Roads/bridges		Yes
11088	Oregon City	Clackamas Co.	Holly Lane	Redland Rd.	Holcomb Rd.	Local	Through lanes, sidewalks, bike lanes, turn lanes to serve UGB expansion area.	$ 21,000,000	$ 42,542,147	2018-2025	x	Roads/bridges		
11089	Washington Co.	Washington Co.	92nd Ave. Ped.	Garden Home Blvd.	Allen Blvd.	Arterial	Completes 3800 feet of sidewalk improvements to transit corridor	$ 3,922,000	$ 5,805,518	2008-2017	X	Pedestrian	Yes	Yes
11090	Washington Co.	Washington Co.	10th Ave/Cornell Bike	Baseline Rd.	25th Ave.	Arterial	Completes 2100 feet of bike lanes in transit corridor	$ 4,740,000	$ 7,016,358	2008-2017	X	Bike		Yes
11091	Portland/Port	Portland/Port	Columbia Blvd./I-205 Interchange: SB On-Ramp Improvement			Freeway	Expand the on-ramp to three lanes, including for truck/HOV	$ 750,000	$ 1,110,183	2008-2017	X	Throughways		
11093	Washington Co.	Washington Co.	Flashing Yellow Arrow Program (ITS)	Various locations in urban Washington Co.		N/A	Install flashing yellow arrow signal phase at more than 200 intersections . This project is funded with ARRA funds.	$ 650,000	$ 962,159	2008-2017	X	ITS		Yes
11094	Cornelius		Baseline Boulevard Improvement	10th	19th	Major Arterial	Build sidewalks & other pedestrian amenities	$ 3,600,000	$ 5,328,879	2008-2017	X	Pedestrian	Yes	Yes
11095	Cornelius		11th-17th Avenue	Baseline	Adair	Local	Ped improvement of Main Street Dist local streets	$ 3,400,000	$ 5,032,831	2008-2017	X	Bike		
11099	Gresham	Gresham	Barnes Rd.: Orient to south city limits	Orient	South City limit	Collector	Widen road and add improvements.	$ 7,135,229	$ 14,454,665	2018-2025	X	Roads/bridges	Yes	
11100	Gresham	Gresham	East Buttes Loop Trail: From Rodlun Road to 190th	Rodlun	190th	Other	Construct new shared use trail (12' wide pervious asphalt)	$ 2,800,000	$ 4,144,684	2008-2017	X	Regional Trail	Yes	
11102	Portland		Burnside/Couch Streetcar Extension to Hollywood via Sandy Blvd	E 14th	Hollywood District	Other	Extend streetcar from E 14th Avenue to the Hollywood District after an alternatives analysis study is completed.	$ 70,000,000	$ 103,617,100	2008-2017	X	Transit capital	Yes	
11103	Metro		Regional Planning			N/A		$ 67,500,000	$ 121,793,510	2008-2035	X	Regional Program	Yes	Yes
11104	Metro		Regional ITS/TSMO			N/A		$ 40,500,000	$ 73,076,106	2008-2035	X	Regional Program		
11107	SMART		Extension of transit service from Wilsonville to downtown Portland			Other	Additional Service hours for new services and related bus stop and ROW improvements	$ 1,152,000	$ 1,705,241	2008-2017	X	Transit capital		
11108	SMART		New Service to West Wilsonville Developments			Other	Additional Service hours for new services and related bus stop and ROW improvements	$ 1,550,000	$ 2,294,379	2008-2017	X	Transit capital	Yes	Yes
11109	SMART		Bus Replacements			N/A	Purchase buses to replace those that are no longer safe or reliable.	$ 14,000,000	$ 25,260,876	2008-2035	X	Transit capital		
11110	SMART		Wilsonville Park & Ride Expansion			N/A	Design & construct an additional 250 spaces of parking at the Wilsonville Stations	$ 4,500,000	$ 6,661,099	2008-2017	X	Transit capital		
11111	SMART		SMART Administrative Building			N/A	Design and construct SMART offices near the Wilsonville commuter rail station	$ 4,000,000	$ 5,920,977	2008-2017	X	Transit capital		
11112	SMART		Wilsonville SMART Fleet Services Facility			N/A	Design and construct a transit fleet services facility near the Wilsonville commuter rail station	$ 8,000,000	$ 11,841,954	2008-2017	X	Transit capital	Yes	

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11113	SMART		Transportation Management Association (TMA)			N/A	Form a transportation management association (TMA) to provide transportation services and information on alternatives to local employers and employees	$ 1,190,000	$ 2,410,722	2018-2035	X	TDM	Yes	
11118	Washington Co.		185th Ave. to Kinnaman Improvements	TV Hwy.	Kinnaman Rd.	Arterial	Widen to 3 lanes with bike lanes and sidewalks.	$ 5,820,000	$ 8,615,022	2008-2017	X	Roads/bridges		
11120	Washington Co.		Bethany Blvd. to Bronson Improvements	West Union Rd.	Bronson Rd.	Arterial	Widen to 5 lanes with bike lanes and sidewalks.	$ 14,328,000	$ 21,208,940	2008-2017	X	Roads/bridges		
11121	ODOT	ODOT	I-5 Delta Park Phase 1	Victory	Lombard	Interstate	Widen I-5 to 3 lanes and realign ramps.	$ 50,000,000	$ 74,012,214	2008-2017	X	Throughways		
11122	ODOT	ODOT	OR 217: Sunset Hwy to TV Hwy	US 26	OR 8	Principal arterial	Widen OR 217 and structures.	$ 37,676,000	$ 55,769,684	2008-2017	X	Throughways	Yes	
11123	ODOT	ODOT	I-5 North Macadam	I-5/Macadam interchange	N/A	Interstate	Construct improvements in North Macadam/South Waterfront area to enhance safety and access.	$ 15,000,000	$ 22,203,664	2008-2017	X	Throughways		
11124	ODOT	ODOT	US 26W Cornell to 185th	Cornell Rd	185th Ave.	Principal arterial	Widen US 26 to 6 lanes from Cornell Rd. to 185th Ave.	$ 20,000,000	$ 29,604,886	2008-2017	X	Throughways	Yes	Yes
11125	ODOT	ODOT	US 26E Springwater at grade intersection	N/A	N/A	Principal arterial	Construct at-grade intersection connecting Springwater area to US 26.	$ 2,000,000	$ 2,960,489	2008-2017	X	Throughways		
11126	Milwaukie	Milwaukie	Milwaukie Town Center: Main/Harrison/21st	SE Scott and SE Main	SE Jackson and SE Main	Collector	Improvements include renovated block faces, two travel lanes, bike lanes, 15 foot sidewalks, planter strips, lighting, benches and ADA-compliant sidewalks.	$ 501,505	$ 742,350	2008-2017	X	Pedestrian	Yes	
11127	Portland	Portland	School Access Safety Improvements: various locations	N/A	N/A	N/A	Pedestrian safety enhancements at 11 elementary schools.	$ 499,600	$ 739,530	2008-2017	X	Pedestrian		
11131	Portland		Vermont St., SW, (30th - 45th): Bicycle and Pedestrian Improvements	SW 30th	SW 45th	Local	Multi-modal street improvements including bicycle and pedestrian facilities.	$ 1,350,000	$ 2,734,852	2018-2025	x	Roads/bridges		
11132	Clackamas Co.	Clackamas Co.	Clackamas Industrial area muli-modal improvements	area wide improvements			Complete bike and pedestrian connections within the Clackamas Industrial area.	$ 5,000,000	$ 7,401,221	2008-2017	x	Bike		Yes
11133	Portland		NEW St. Johns Truck Strategy Implementation Phase II				Addresses pedestrian safety, bicycle safely and neighborhood livability impacts associated with cut-through truck traffic on N. Fessenden St. The project will construct pedestrian crossing safety and traffic calming improvements, such as curb extensions and median islands.	$ 1,000,000	$ 2,998,703	2026-2035	x	Pedestrian		Yes
11134	THPRD		Westside Trail (Regional)	Bronson Creek Trail (Kaiser Ridge Park)	Rock Creek Trail (Kaiser Woods Park)	Regional Trail	To design and construct a regional trail multi-use segment in a utility corridor, 10'-12' wide paved.	$ 2,675,000	$ 3,959,653	2008-2017	x	Regional Trail		Yes
11135	Happy Valley	Happy Valley	Rock Creek Blvd. improvements	Hwy. 212/224 (planned Sunrise Corridor Rock Creek Interchange)	177th Ave.	Major Arterial	Construct a new 5 lane roadway with sidewalks, bike lanes and traffic signals	$ 34,347,149	$ 50,842,171	2008-2017	x	Roads/bridges		
11136	Hillsboro	ODOT	TV Hwy/209th Intersection	N/A	N/A	Regional Arterial	Add eastbound right turn lane, widen crossing for second northbound to westbound left turn lane, add second southbound lane, protected N-S turn phasing	$ 3,800,000	$ 5,624,928	2008-2017	x	Roads/bridges		Yes
11137	Hillsboro	ODOT/Hillsboro	TV Hwy/Century Blvd Intersection	N/A	N/A	Regional Arterial	Add second southbound lane, Add northbound left turn lane, widen rail crossing, add offroad bike lanes on Century from TV Hwy to Alexander	$ 1,800,000	$ 2,664,440	2008-2017	x	Roads/bridges		Yes
11138	Hillsboro	Hillsboro	206th Ave	LRT	Von Neumann Rd.	Collector	Widen roadway to add sidewalks and bike lanes	$ 1,200,000	$ 1,776,293	2008-2017	x	Roads/bridges		
11139	Hillsboro	Hillsboro	Baseline at Brookwood Intersection Improvements	Ihly Way	500' south of Baseline Rd	Minor Arterial	Widen for second northbound and southbound thru the intersection	$ 1,000,000	$ 1,480,244	2008-2017	x	Roads/bridges		
11140	Hillsboro	Hillsboro	Brookwood Parkway	Ihly Way	Cornell Rd.	Minor Arterial	Widen to five lanes with offstreet sidewalk and bikeway	$ 9,000,000	$ 18,232,349	2018-2025	x	Roads/bridges		
11141	Hillsboro	Hillsboro	Brodgen Ave	28th Ave	Brookwood Ave.	Collector	Widen to provide sidewalks and Bikeway network signage access to LRT and parks. New traffic signal at Brookwood.	$ 3,000,000	$ 6,077,450	2018-2025	x	Roads/bridges		Yes
11142	Hillsboro	Hillsboro	37th Ave	Main St	Brogden Ave	Neighborhood Route	Widen to provide sidewalks and Bikeway Network signage access to LRT and Fairgrounds	$ 1,000,000	$ 1,480,244	2008-2017	x	Roads/bridges		
11143	Hillsboro	Hillsboro	Holly Street Extension	Edgeway	185th	Collector	Construct 3 lane roadway with sidewalks and signal at 185th	$ 1,000,000	$ 1,480,244	2008-2017	x	Roads/bridges		
11144	Hillsboro	Hillsboro	Edgeway (Salix)	Heritage	Holly Street	Collector	Construct 3 lane roadway with bike lanes and sidewalks	$ 1,000,000	$ 1,480,244	2008-2017	x	Roads/bridges		Yes
11145	Hillsboro	Hillsboro	Airport Rd	48th Ave	Brookwood Pkwy	Collector	Widen to 2/3 lanes with bike lanes and sidewalks	$ 1,500,000	$ 3,038,725	2018-2025	x	Roads/bridges		
11146	Hillsboro	Hillsboro	Shute Rd (renamed Brookwood Pkway)	Evergreen Rd.	Meek Rd (realigned)	Major Arterial	Construct off street combined bike/ped paths	$ 1,000,000	$ 1,480,244	2008-2017	x	Bike		
11147	Hillsboro	Hillsboro	Schaaf Rd	Pinefarm Pl	Century	Collector	Construct 3 lane roadway with bike lanes and sidewalks.	$ 2,500,000	$ 5,064,541	2018-2025	x	Roads/bridges		Yes

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11148	Hillsboro	Hillsboro	Westmark Dr.	Croeni Rd.	West Union Rd.	Collector	Construct 3 lane roadway with bike lanes and sidewalks.	$ 1,700,000	$ 3,443,888	2018-2025	x	Roads/bridges		
11149	Hillsboro	Hillsboro	Helvetia Rd.	Schaaf Rd	West Union Rd.	Minor Arterial	Construct 3 lane roadwy with bike lanes and sidewalks	$ 4,000,000	$ 8,103,266	2018-2025	x	Roads/bridges		
11150	Hillsboro	Hillsboro	Jacobson Rd.	Century Blvd	Helvetia Rd	Collector	Complete 3 lane roadway with bike lanes and sidewalks	$ 2,500,000	$ 3,700,611	2008-2017	x	Roads/bridges		Yes
11151	Hillsboro	Hillsboro	Bentley St.	32nd Ave.	Brookwood Ave.	Collector	Construct sidewalks and bike lanes.	$ 3,000,000	$ 6,077,450	2018-2025	x	Roads/bridges		Yes
11152	Hillsboro	Hillsboro	Cedar St.	32nd Ave.	Brookwood Ave.	Neighborhood Route	Construct sidewalks	$ 1,000,000	$ 2,025,817	2018-2025	x	Roads/bridges		Yes
11153	Hillsboro	Hillsboro	Golden Rd.	Brookwood Ave.	Imlay Ave.	Collector	Widen to provide bike lanes and sidewalks	$ 2,000,000	$ 4,051,633	2018-2025	x	Roads/bridges		Yes
11154	Hillsboro	Hillsboro	Francis St.	Imlay Ave.	Cornelius Pass Rd.	Collector	Widen to provide bike lanes and sidewalks	$ 1,000,000	$ 1,480,244	2008-2017	x	Roads/bridges		
11155	Hillsboro	Hillsboro	Drake St.	Imlay Ave.	67th Ave.	Collector	Widen to provide 2/3 lanes with bike lanes and sidewalks	$ 1,800,000	$ 3,646,470	2018-2025	x	Roads/bridges		
11156	Hillsboro	Hillsboro	Drake St.	Brookwood Ave.	Imlay Ave.	Collector	Widen to provide 2/3 lanes with bike lanes and sidewalks	$ 1,500,000	$ 3,038,725	2018-2025	x	Roads/bridges		
11157	Hillsboro	Hillsboro	Imlay Ave.	TV Hwy	Lois St.	Collector	Widen to provide bike lanes and sidewalks	$ 2,000,000	$ 4,051,633	2018-2025	x	Roads/bridges		
11158	Hillsboro	Hillsboro	206th Ave.	Baseline	Rock Rd.	Collector	Widen to provide bike lanes and sidewalks	$ 3,000,000	$ 6,077,450	2018-2025	x	Roads/bridges		
11159	Hillsboro	Hillsboro	Alexander St.	Brookwood (247th)	56th Ct.	Collector	Widen to provide bike lanes and sidewalks	$ 1,000,000	$ 1,480,244	2008-2017	x	Roads/bridges		
11160	Hillsboro	Hillsboro	Witch Hazel Rd.	River Road	Brookwood (247th)	Collector	Widen to provide sidewalks	$ 1,000,000	$ 2,025,817	2018-2025	x	Roads/bridges		
11161	Hillsboro	Hillsboro	Rood Bridge Rd	River Road	South UGB	Collector	Widen to provide bike lanes and sidewalks	$ 2,500,000	$ 7,496,758	2026-2035	x	Roads/bridges		
11162	Hillsboro	Hillsboro	24th Ave	Maple	Main Street	Collector	Widen to provide bike lanes and sidewalks, bridge over Dawson Creek	$ 4,000,000	$ 11,994,813	2026-2035	x	Roads/bridges	Yes	Yes
11163	Hillsboro	Hillsboro	Sunrise Lane	Jackson School	25th	Collector	Widen to provide sidewalks	$ 1,700,000	$ 3,443,888	2018-2025	x	Roads/bridges		
11164	Hillsboro	Hillsboro	17th Ave	Cornell Rd	Sunrise Ln	Collector	Widen to provide sidewalks	$ 1,000,000	$ 2,025,817	2018-2025	x	Roads/bridges		Yes
11165	Hillsboro	Hillsboro	15th Ave.	Sunrise Ln	Evergreen Rd	Collector	Widen to provide bike lanes and sidewalks	$ 1,500,000	$ 3,038,725	2018-2025	x	Roads/bridges	Yes	
11166	Hillsboro	Hillsboro	25th Ave.	Intel Jones Farm (north end)	Evergreen	Minor Arterial	Widen to provide bike lanes and sidewalks	$ 1,500,000	$ 3,038,725	2018-2025	x	Roads/bridges	Yes	Yes
11167	Hillsboro	Hillsboro	Garibaldi	Ebberts	Connell	Collector	Widen to provide sidewalks. Bike network Wayfinding signage	$ 500,000	$ 740,122	2008-2017	x	Roads/bridges	Yes	Yes
11168	Hillsboro	Hillsboro	Connell	Garibaldi	Darnielle	Collector	Widen to provide sidewalks. Bike boulevard Wayfinding signage	$ 500,000	$ 740,122	2008-2017	x	Roads/bridges	Yes	
11169	Hillsboro	Hillsboro	Cornell/25th Ave Intersection Improvements	N/A	N/A	Minor Arterial	Widen 25th Ave for double southbound to eastbound left turn lanes, second northbound lane within 500 feet of intersection	$ 2,800,000	$ 4,144,684	2008-2017	x	Roads/bridges		
11170	Hillsboro	Hillsboro	Cornell/Brookwood Prkwy Intersection Improvements	N/A	N/A	Major Arterial	Widen Cornell Rd to provide double left turn lanes eastbound and westbound	$ 3,300,000	$ 4,884,806	2008-2017	x	Roads/bridges	Yes	Yes
11171	Lake Oswego		Tryon Creek Bridge - Willamette River Shoreline regional trail	Mouth of Tryon Creek	Mouth of Tryon Creek	N/A	Construct new bridge over the mouth of Tryon Creek	$ 1,700,000	$ 2,516,415	2008-2017	X	Regional Trail	Yes	
11172	Lake Oswego	ODOT	Hwy 43 Bike Connection	Terwilliger Blvd	McVey Ave	Major Arterial	Add bike facility for safety improvement	$ 2,500,000	$ 3,700,611	2008-2017	X	Roads/bridges	Yes	Yes
11174	Milwaukie	Milwaukie	29th/40th/42nd Bike Boulevard Intersection Improvements	Monroe	Springwater Trail	Local	Construct street improvement from Springwater Trail to 28th; signage & striping improvements at minor intersections; major intersection improvements, such as bulbouts/medians at Harvey/32nd, Olsen/42nd, Harrison/40th; traffic calming along full corridor.	$ 2,742,000	$ 4,058,830	2008-2017	x	Roads/bridges		Yes
11175	Milwaukie	Milwaukie	Downtown Parking Structure	n/a	n/a	n/a	Provide public contribution to private and/or wholly-owned public structured parking in downtown.	$ 4,000,000	$ 11,994,813	2026-2035	x	Other	Yes	Yes
11176	ODOT	ODOT	I-5 from I-405 to I-84 (Rose Quarter/Lloyd District) Construction	I-84	Greeley St.	Interstate	Construct improvements to enhance safety and operations on I-5, connection between I-84 and I-5, and access to the Lloyd District and Rose Quarter.	$ 85,704,966	$ 126,864,286	2008-2017	X	Throughways	Yes	
11177	ODOT	ODOT	I-5 northbound auxiliary lane from Elligsen Road interchange to I-205 interchange	Elligsen Rd	I-205	Interstate	Construct northbound auxiliary lane on I-5 between Elligsen Road interchange and I-205 interchange.	$ 11,000,000	$ 16,282,687	2008-2017	X	Throughways	Yes	
11178	ODOT	ODOT	US Highway 26 at Shute Road interchange improvements	US 26 and Shute Road	N/A	Principal Arterial	Interchange improvements to improve operations and construct a new westbound-southbound loop ramp to serve Shute Road.	$ 45,000,000	$ 66,610,993	2008-2017	X	Throughways	Yes	Yes

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11179	ODOT	ODOT	I-5 to 99W replacement projects	N/A	N/A	N/A	Construct improvements consistent with recommendations from I-5/99W connector process.	$ 10,000,000	$ 14,802,443	2008-2017	X	Roads/bridges		
11180	ODOT	ODOT	I-205/Hwy. 213 Interchange	Washington St.	I-205	Principal arterial	Improve and widen OR 213, including reconstruction of intersection of OR 213 and Washington Street.	$ 22,000,000	$ 32,565,374	2008-2017	X	Throughways		
11181	ODOT	ODOT	OR 43 Sellwood Bridge Interchange	OR 43 at Sellwood Bridge	N/A	Minor Arterial	Improve connection at the west end (OR 43) of the Sellwood Bridge, including the interchange influence area.	$ 30,000,000	$ 44,407,329	2008-2017	x	Roads/bridges	Yes	Yes
11182	Oregon City	Oregon City	Molalla Ave. Roundabout	Taylor	Division	Major Arterial	Reconfigure intersection for safety and LOS into roundabout	$ 3,000,000	$ 4,440,733	2008-2017	x	Roads/bridges		Yes
11183	Oregon City	Oregon City	Leland Road Sidewalk and Bike Infill (active transportation project)	Warner Milne	Meyers Road	Minor Arterial	Construct sidewalks and bike lanes or multi-use path for safety and to connect pedestrian generators.	$ 5,000,000	$ 7,401,221	2008-2017	x	Roads/bridges	Yes	
11184	Oregon City	Oregon City	Main Street Extension Ped and Bike Imp.	15th Street	Dunes Drive	Minor Arterial	Construct separated multi-use path or sidewalks and bike lanes on both sides	$ 5,000,000	$ 7,401,221	2008-2017	x	Bike		Yes
11185	Oregon City	Oregon City	Downtown Pedestrian Improvements	5th Street	15th Street	Main Street	Sidewalk, ramp, and streetscape improvements	$ 2,500,000	$ 3,700,611	2008-2017	x	Pedestrian		
11186	Oregon City	Oregon City	McLoughlin Blvd. Ped and Bike Improvements	S. 2nd Street	UGB	Major Arterial	Provide pedestrian and bike access through Canemah	$ 10,000,000	$ 20,258,165	2018-2025	x	Pedestrian	Yes	
11187	Oregon City	Oregon City	Abernethy Road Sidewalk Infill	Redland Rd.	Washington Street	Minor Arterial	Sidewalk infill improvements	$ 3,500,000	$ 7,090,358	2018-2025	x	Pedestrian	Yes	
11188	Oregon City	Oregon City	Warner Milne Road/Molalla Intersection Imp.	Beavercreek Rd.	Molalla Ave.	Minor Arterial	Realign intersection per TSP, pavement preservation, integrate with utility upgrades	$ 1,400,000	$ 2,072,342	2008-2017	x	Roads/bridges	Yes	Yes
11189	Oregon City	Oregon City	McLoughlin Promenade Historic Restoration	Singer Hill	Tumwater	Multi-Use Path	Rehabilitate rails, sidewalk portions, basalt columns, Grand Staircase, tunnel walls	$ 1,100,000	$ 1,628,269	2008-2017	x	Roads/bridges	Yes	
11190	Port of Portland	Multnomah Co.	Sundial Road Improvements	Sundial Road	North of Marine Drive	TBD	Widen north of Swigert Way and construct signal and turn lanes at Graham Road.	$ 3,200,000	$ 4,736,782	2008-2017	x	Roads/bridges	Yes	
11191	Portland		Citywide Bicycle Boulevards	N/A	N/A	N/A	Develop 100 miles of the new bicycle boulevards, and bring our existing bicycle boulevards up to a higher standard of operation	$ 31,250,000	$ 93,709,479	2026-2035	x	Bike		Yes
11192	Portland		Streetcar Planning/ Alternatives Analysis	N/A	N/A	N/A	This project will perform follow up and alternatives analysis of the Streetcar System Plan (SSP) for up to three of its highest rated corridors.	$ 6,250,000	$ 18,741,896	2026-2035	x	Transit capital	Yes	Yes
11193	Portland		Citywide Sidewalk Infill Program	N/A	N/A	N/A		$ 12,500,000	$ 37,483,791	2026-2035	x	Pedestrian	Yes	Yes
11195	Portland	Portland	SE Water Realignment				Realign temporary Water Avenue to permanent alignment to facilitate freight traffic, streetcar, bicycle, pedestrian and light rail improvements in the Central Eastside Industrial District	$ 9,000,000	$ 13,322,199	2008-2017	x	Roads/bridges		
11196	Portland		East Portland Advisory Bicycle Lane Network	NE and SE Portland	NE and SE Portland		Build out the proposed network of advisory bicycle lanes in East Portland (28 miles). This project is the East Portland equivalent of the bicycle boulevard project. Advisory bicycle lanes are the shared roadway facility type best adapted to conditions in East Portland. This 28 miles is currently mapped and the projects can be listed with specific "from-to" information.	$ 12,000,000	$ 17,762,931	2008-2017	x	Bike		
11197	Portland		Swan Island Active Transportation Access and Mobility Improvements	Various roadways on Swan Island	Various roadways on Swan Island		Improve access and mobility on Swan Island by constructing recommended bikeway network. This includes separated bikeways on: N Basin Ave (N Going to Greenway Trail), N Channel and N Lagoon (N Dolphin to N Going), N Anchor St (N Basin to N Channel); Shared Roadway Bikeway on: N Ballast and N Commerce (N Channel to N Lagoon); and pathway connections from Willamette to Basin and Lagoon to Channel.	$ 9,000,000	$ 13,322,199	2008-2017	x	Bike	Yes	
11198	Portland	ODOT	Portland-Milwaukie Light Rail Active Transportation Enhancements Project	Various roadways following the PMLR alignment	Various roadways following the PMLR alignment		This project includes the following elements: Pathway extension of SW Moody to Montgomery Avenue, two-way cycle track on SW Moody between Gibbs Street and Marquam Bridge, bicycle-pedestrian path between SE 11th & Clinton and SE Division Place & 9th following the rail alignment, shared-use path in the McLoughlin right-of-way between 17th Avenue and the Springwater Corridor Trail, and a bicycle parking center at the Tacoma/Springwater light rail station.	$ 34,000,000	$ 50,328,306	2008-2017	x	Transit capital		
11199	Portland		N Ivanhoe (St. Johns)	N Richmond	N St. Louis			$ 2,100,000	$ 3,108,513	2008-2017	x	Other	Yes	
11200	Portland		Bicycle Boulevards (signage and striping)	citywide			Striping and Signage - Wayfinding	$ 1,000,000	$ 1,480,244	2008-2017	x	Bike	Yes	
11201	Portland		SW Columbia & SW Jefferson Bus Pads: Naito - 14th	SW Naito	SW 14th		Concrete Bus Pads on SW Columbia and SW Jefferson	$ 325,000	$ 974,579	2026-2035	x	Transit capital	Yes	
11202	Portland		SW 3rd & SW 4th Reconstruction (Portland)	3rd: Glisan 4th: Glisan	3rd: Market 4th: Lincoln		Base repair and paving on areas of 3rd and 4th damaged by bus loads. Preservation of arterial, transit, bicycle.	$ 325,000	$ 974,579	2026-2035	x	Transit capital		Yes
11203	Portland		SW Yamhill & SW Morrison brick intersections	intersection	-		Replacement of brick intersections on SW Yamhill & SW Morrison	$ 1,000,000	$ 2,998,703	2026-2035	x	Roads/bridges	Yes	Yes
11204	Portland		Sullivan's Gulch Trail Master Plan	Eastbank Esplanade	122nd		Study to provide off-street trail next to I-5 that crosses under bridges over freeway.	$ 224,000	$ 671,710	2026-2035	x	Regional Trail	Yes	

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11205	Portland		SW and E Portland Sidewalk Infill				Infill several missing sidewalk segments on SW Barbur Blvd, 82nd Ave and NE Glisan east of 122nd Ave. Target locations where curbs currently exist and include ADA corner curb ramps.	$ 2,000,000	$ 5,997,407	2026-2035	x	Pedestrian	Yes	
11206	Portland		Active Corridor Management Projects on I-84/Powell/Glisan/Sandy				This project expands traveler information and enables incident management techniques that reduce traveler delay and improve safety through the I-84 corridor. The project provides real-time traveler information along I-84 and parallel facilities so travelers can make informed route decisions. It also implements incident management strategies such as variable speed limits and event signal timing plans.		$ -	2026-2035	x	ITS		
11207	Port of Portland		T6 Modernization	Terminal 6			Provide improvements to container terminal. Seismic retrofits and crane modernization to the container terminal. Add crane rail to allow service to two post-panamax ships at once.		$ -	2008-2017	X	Freight	Yes	Yes
11208	Port of Portland		T4 Modernization	Terminal 4			Renovate operation areas at T4 to create intermodal processing areas. Rail spur relocation, grain elevator demolition, wharf removal		$ -	2008-2017	X	Freight	Yes	
11209	Port of Portland		Airport Way East Terminal Access Link Roadway	PDX Terminal Area			Construct Airport Way East Terminal access link roadway. Facilitates direct East Terminal Access, preventing failure of Main Terminal Roadway	$ 19,092,300	$ 28,261,268	2008-2017	X	Roads/bridges		
11210	THPRD	THPRD	Separated Grade Crossing of Tualatin Valley Highway by the Westside Trail			Regional Trail	Would avoid out-of-direction bike/ped trips on a major regional trail that is otherwise complete in this area.	$ 4,000,000	$ 5,920,977	2008-2017	x	Roads/bridges	Yes	Yes
11211	THPRD	THPRD	Bridge crossing of Hwy. 26 by the Westside Trail			Regional Trail	Would avoid out-of-direction bike/ped trips on a major regional trail	$ 4,000,000	$ 5,920,977	2008-2017	x	Roads/bridges	Yes	Yes
11212	THPRD	THPRD	Bridge crossing of Farmington Rd. by the Westside Trail			Regional Trail	Would avoid out-of-direction bike/ped trips on a major regional trail that is otherwise complete in this area.	$ 3,000,000	$ 4,440,733	2008-2017	x	Bike	Yes	
11213	THPRD	THPRD	Bridge crossing of Scholls Ferry Road by the Westside Trail			Regional Trail	Would avoid out-of-direction bike/ped trips on a major regional trail that is otherwise complete in this area.	$ 3,000,000	$ 4,440,733	2008-2017	x	Roads/bridges		Yes
11214	THPRD	THPRD	Westside /Waterhouse Trail Connection	Westside Trail @ Westside MAX tracks	southern terminus of Waterhouse Trail @ Merlo Rd.	Regional Trail	To design and construct a multi-use regional trail segment 10'-12' wide paved.	$ 1,500,000	$ 2,220,366	2008-2017	x	Regional Trail		
11215	THPRD	THPRD	Waterhouse Trail Segments #1, 5, West Spur	Merlo Road	Springville Rd.	Community Trail	To design and construct multi-use community trail segments 8'-10' wide paved.	$ 3,700,000	$ 5,476,904	2008-2017	x	Regional Trail		
11216	THPRD	THPRD	Rock Creek Trail Segments #5, Allenbach	185th	Westside Trail	Regional Trail	To design and construct multi-use regional trail segments 10'-12' wide paved.	$ 1,400,000	$ 2,072,342	2008-2017	x	Bike	Yes	
11217	Tigard	Tigard	McDonald Street Improvements	Hall	99W	Arterial	Construct turn lanes & intersection improvements; add bike lanes & sidewalks in gaps	$ 8,000,000	$ 16,206,532	2018-2025	x	Roads/bridges	Yes	
11220	Tigard	ODOT/Tigard	Hall Blvd. Improvements	Locust	Durham	Arterial	Widen to 3 lanes; build sidewalks & bike lanes; safety improvements	$ 13,000,000	$ 19,243,176	2008-2017	x	Roads/bridges	Yes	Yes
11221	Tigard	Tigard	Regional Bikeway Improvements	Multiple locations	Various	Various	Make spot improvements on key low-volume, low speed through-routes to facilitate bike & pedestrian travel; identify them as bike/pedestrian routes	$ 4,000,000	$ 5,920,977	2008-2017	x	Bike		Yes
11222	Tigard	TriMet	High Capacity Transit Planning	Downtown Portland	Sherwood	Regional Transit Priority	Identify potential alignments, station locations etc.	$ 5,000,000	$ 7,401,221	2008-2017	x	Transit capital		
11223	Tigard	ODOT/Tigard	Hall/Hunziker/Scoffins Intersection Realignment	Hall Blvd.	Intersection with Hunziker & Scoffins	Arterial	Realign offset intersection to cross intersection to alleviate congestion and safety issues	$ 5,000,000	$ 7,401,221	2008-2017	x	Roads/bridges	Yes	Yes
11224	Tigard	Tigard	Greenburg/Tiedeman/N. Dakota Reconfiguration	Tiedeman Ave.	N. Dakota St.	Arterial & Collector	Realign one or more streets to improve intersection configurations, railroad crossings & creek crossings	$ 10,000,000	$ 14,802,443	2008-2017	x	Roads/bridges		
11225	Tigard	Tigard	Downtown Circulation Plan Implementation	Downtown Tigard	Between Hwy. 99W, Hall & Fanno Creek	Various	Acquire ROW, construct streets and streetscape improvements in downtown Tigard	$ 4,000,000	$ 5,920,977	2008-2017	x	Roads/bridges	Yes	Yes
11226	Tigard	Tigard	Pedestrian Improvements	Multiple locations		Arterials & Collectors	Fill gaps in sidewalk & pedestrian network	$ 5,000,000	$ 7,401,221	2008-2017	x	Pedestrian	Yes	
11227	Tigard	Tigard	Neighborhood Trails & Regional Trail Connections	Multiple locations		Regional Pedestrian and Bike systems	Construct high priority neighborhood trails to regional trails, sidewalks & transit	$ 5,000,000	$ 7,401,221	2008-2017	x	Regional Trail	Yes	Yes
11228	Tigard	P&W RR	Portland & Western Rail Trail	Tiedeman Ave.	Main Street		Construct trail along portion of abandoned rail line	$ 1,000,000	$ 1,480,244	2008-2017	x	Regional Trail		Yes
11229	Tigard	Tigard	Walnut Street Improvements	99W	116th Ave.	Arterial	Widen to 3 lanes; build sidewalks & bike lanes; safety improvements	$ 12,000,000	$ 17,762,931	2008-2017	x	Roads/bridges	Yes	
11230	TriMet		Frequent Service Bus Capital Improvements - Phase 2				Bus stop and ROW improvements to support expansion of frequent service bus	$ 15,000,000	$ 22,203,664	2008-2017	x	Transit capital	Yes	

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11231	Troutdale/Port	Troutdale	Swigert Way Extension	Existing terminus	Graham Road	Local	Extend Swigert Way from its existing terminus to Graham Road	$ 2,500,000	$ 3,700,611	2008-2017	x	Roads/bridges		Yes
11232	Troutdale/Port	Troutdale	Graham Road Reconstruction Phase 1	I-84 North Frontage Road	Sundial Road	Local	Reconstruct and widen Graham Road	$ 5,000,000	$ 7,401,221	2008-2017	x	Roads/bridges	Yes	
11233	Washington Co.	Washington Co.	Walker Rd. Improvements	185th	158th Ave.	Arterial	Widen from two to five lanes with bike lanes and sidewalks.	$ 13,576,000	$ 27,502,485	2018-2025	x	Roads/bridges	Yes	Yes
11234	Washington Co.	Washington Co.	Walker Rd. Improvements	158th	Murray Blvd.	Arterial	Widen from two to five lanes with bike lanes and sidewalks.	$ 19,096,000	$ 38,684,992	2018-2025	x	Roads/bridges	Yes	Yes
11235	Washington Co.	Washington Co.	Walker Rd. Improvements	Murray Blvd.	Hwy. 217	Arterial	Widen from two to five lanes with bike lanes and sidewalks.	$ 25,673,000	$ 52,008,787	2018-2025	x	Roads/bridges	Yes	Yes
11236	Washington Co.	Washington Co.	Cedar Hills Blvd. Improvements	Butner Rd	Celeste Ln	Arterial	Widen to five lanes thru Barnes, turn lane improvements at US26, signalize US26 EB	$ 4,000,000	$ 5,920,977	2008-2017	X	Roads/bridges	Yes	
11237	Washington Co.	Washington Co.	Barnes Rd Improvements	Lois Lane	St. Vincent east access	Arterial	Add turn lane improvements, Hwy 217 offramp improvements	$ 4,000,000	$ 5,920,977	2008-2017	X	Roads/bridges	Yes	
11238	Washington Co.	Washington Co.	Cedar Mill Local Street Connectivity	Cedar Mill Town Center		Special Area Collector or Local	Connect local streets to reduce out of direction travel and use of arterial roads for local trips	$ 10,000,000	$ 14,802,443	2008-2017	X	Roads/bridges	Yes	
11239	Washington Co.	Washington Co.	Aloha Bike Blvd.	Westside Trail	Brookwood Ave.	Collector/Local	Grade-separate bicycle and pedestrian crossings of major roads in the Aloha area	$ 16,000,000	$ 23,683,909	2008-2017	X	Roads/bridges	Yes	
11240	Washington Co.	Washington Co.	Murray Blvd. Bikelane & sidewalk	Farmington Rd.	TV Hwy.	Arterial	Construct a six-foot wide bikelane on west side of Murray & replace existing asphalt path with six-foot wide concrete sidewalk & five-foot wide planting strip	$ 1,500,000	$ 2,220,366	2008-2017	X	Roads/bridges	Yes	
11241	Washington Co.	Washington Co.	Evergreen Rd. Bike Lanes	NW 215th Ave.	Cornelius Pass Rd.	Arterial	Construct six-foot wide bike lanes east and westbound & correct vertical alignment	$ 2,000,000	$ 2,960,489	2008-2017	X	Roads/bridges		
11242	West Linn	ODOT	I-205 / 10th Street Improvements	Willamette Falls Drive	Blankenship Rd / Salamo Road	Other	Construct a long-term interchange improvement (SPUI or Split Diamond)	$ 20,000,000	$ 40,516,330	2018-2025	x	Throughways	Yes	
11243	Wilsonville	Washington Co.	Day Street	Grahams Ferry Rd.	Boones Ferry Rd.	Arterial	Reconstruct road to accommodate increasing volumes of heavy trucks	$ 3,200,000	$ 4,736,782	2008-2017	x	Roads/bridges		
11344	Metro		Active Transportation Program					$ 75,000,000	$ 224,902,749	2026-2035	X	Bike	Yes	
11345	Portland		SW Stephenson(Boones Ferry - 35th): Multi-modal Improvements	SW Boones Ferry	SW 35th	Local	Install bikeway and pedestrian facilities from SW Boones Ferry Road to 35th Ave.	$ 2,374,408	$ 7,120,145	2026-2035	x	Bike		
11346	Happy Valley	Clackamas Co.	162nd Ave. Extension South Phase 2	157th Ave.	Rock Creek Blvd.	Collector	Construct a new 3 lane roadway with traffic signals and bridge over Rock Creek. The first phase is Project #10041.	$ 15,600,000	$ 23,091,811	2008-2017	x	Roads/bridges	Yes	
11347	Clackamas County	Clackamas County	Sunrise Multi- use path	I-205	Rock Creek Junction	regional bikeway	Construct new mullti use path to/from I-205 paralleling the Sunrise project.	$ 6,000,000	$ 8,881,466	2008-2017	x	Pedestrian	Yes	Yes
11348	Clackamas County	Clackamas County	Springwater Corridor trail	Rugg Road	Dee St	regional bikeway	Construct an unimproved section of the Springwater Corridor trail within Boring, with a 10 to 12 foot wide multi-use pathway for use by bicyclists, pedestrians, and equestrians	$ 1,895,000	$ 2,805,063	2008-2017	x	Pedestrian		
11349	Clackamas County	ODOT	Hwy-212/224 improvements	82nd	98th	Principal arterial	Construct 3rd WB lane on Hwy. 212/224	$ 20,000,000	$ 29,604,886	2008-2017	x	Freight		
11350	Clackamas County	ODOT	Milwaukie Expressway improvements	I-205	Webster	Principal arterial	3rd WB lane on Milwaukie Expressway (Hwy-224) from I-205 to/past Webster Rd	$ 5,000,000	$ 7,401,221	2008-2017	x	Freight		Yes
11352	Port of Portland	UPRR	Barnes Yard to Bonneville Yard Trackage	Barnes Yard	Bonneville Yard		Addresses limited Rivergate staging area for unit trains approaching or departing the marine terminals. Reduces switching bottlenecks, limits to terminal access and other operational conflicts in the Columbia Corridor.	$ 11,912,000	$ 17,632,670	008-201	x	Freight	Yes	Yes
11353	Port of Portland	BNSF	West Hayden Island Rail Access	BNSF Rail Bridge	West Hayden Island		Advance rail-dependent development.	$ 3,000,000	$ 6,077,450	2018-2025	x	Freight	Yes	Yes
11354	Port of Portland	Port	West Hayden Island Rail Yard	West Hayden Island	West Hayden Island		Advance rail development on West Hayden Island.	$ 9,500,000	$ 19,245,257	2018-2025	x	Freight		Yes
11355	Port of Portland	UPRR	Barnes to Terminal 4 Rail	Terminal 4	Barnes Yard		Improve Rail Access to Terminal 4.	$ 3,000,000	$ 6,077,450	2018-2025	x	Freight		Yes
11356	Port of Portland	UPRR	Kenton Rail Line Upgrade	Kenton	North Portland Junction		Expand rail capacity and reduce delays for greater efficiency.	$ 25,382,000	$ 51,419,275	2018-2025	x	Freight		
11357	Port of Portland	BNSF	Terminal 6 Rail Support Yard Improvements	Terminal 6			Increase Terminal 6 rail capacity.	$ 10,000,000	$ 20,258,165	2018-2025	x	Freight	Yes	
10006	Clackamas Co.	Clackamas Co.	Monterey Improvements	82nd Ave.	90th Ave.	Minor Arterial	Widen to three lanes from 82nd to I-205, add main street amenities.	$ 8,000,000	$ 11,841,954	2008-2017		Roads/bridges	Yes	
10011	Clackamas Co.	Clackamas Co.	122nd/Hubbard/135th Improvement	Sunnyside Rd.	Hwy. 212	Minor Arterial	Add bike lanes and sidewalk - complete gap.	$ 1,100,000	$ 2,228,398	2018-2025		Roads/bridges		Yes
10015	Clackamas Co.	Clackamas Co.	Causey Ave. Extension	Bob Schumacher Rd.	W.Otty Rd.	Local	Construct new two lane extension.	$ 13,629,000	$ 20,174,249	2008-2017		Roads/bridges		

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10016	Clackamas Co.	Clackamas Co.	Fuller Rd. Extension	Otty Rd.	King Rd.	collector	Construct new two lane extension.	$ 7,500,000	$ 22,490,275	2026-2035		Roads/bridges		Yes
10023	Clackamas Co.	Clackamas Co.	SE 82nd Dr. Improvements	Hwy 212	Gladstone PH2	Minor Arterial	Widen to five lanes.	$ 17,627,801	$ 52,860,545	2026-2035		Roads/bridges		
10030	Clackamas Co.	Clackamas Co.	Stafford Rd. Improvements	I-205	Boeckman Rd.	Rural Arterial	Reconstruct, widen and add turn lanes.	$ 26,759,562	$ 54,209,963	2018-2025		Roads/bridges		Yes
10031	Clackamas Co.	Clackamas Co.	Carmen Dr. Improvements	I-5	Quarry	Collector	Reconstruct and widen to three lanes to include bike lanes.	$ 8,979,923	$ 26,928,125	2026-2035		Roads/bridges	Yes	Yes
10035	Damascus	Damascus	Foster Rd. Improvements	Hwy 212	172nd Ave.	Minor Arterial	Widen to three lanes	$ 24,000,000	$ 71,968,880	2026-2035		Roads/bridges	Yes	
10036	Happy Valley	Clackamas Co.	145th Ave.	Clatsop St.	Monner Rd.	Collector	Widen to 3 lanes with sidewalks and bike lanes, add traffic signals.	$ 7,700,000	$ 15,598,787	2018-2025		Roads/bridges	Yes	
10037	Happy Valley	Clackamas Co.	162nd Ave.	Hagen Rd.	Palermo Ave.	Collector	Widen to 3 lanes with sidewalks and bike lanes, add traffic signals.	$ 2,600,000	$ 5,267,123	2018-2025		Roads/bridges		Yes
10043	Clackamas Co.	Clackamas Co.	Borland Rd.	SW 65th Ave.	Stafford Rd.	Minor Arterial	Widen to 4 lanes with left-turn lanes.	$ 20,000,000	$ 40,516,330	2018-2025		Roads/bridges		
10045	Happy Valley	Clackamas Co.	Clatsop St.	132nd Ave.	162nd Ave.	Collector	Widen to 3 lanes with sidewalks and bike lanes, add traffic signals.	$ 7,800,000	$ 15,801,369	2018-2025		Roads/bridges		Yes
10050	Clackamas Co.	Clackamas Co.	Johnson Rd., Clackamas Rd., McKinley Rd.	Lake Rd.	Hwy 212	Collector	Reconstruct & widen (urban).	$ 8,000,000	$ 23,989,627	2026-2035		Roads/bridges		Yes
10054	Clackamas Co.	Clackamas Co.	Oatfield Rd.	Oatfield /Park Intersection		Minor Arterial	Signal, left turn lanes.	$ 1,358,150	$ 2,010,394	2008-2017		Roads/bridges		
10055	Clackamas Co.	Clackamas Co.	Oatfield Rd.	Oatfield / Hill Intersection		Minor Arterial	Left turn lanes, signal if warranted.	$ 1,653,700	$ 2,447,880	2008-2017		Roads/bridges		
10056	Clackamas Co.	Clackamas Co.	Oatfield Rd.	Oatfield/McNary Intersection		Minor Arterial	Add turn lanes.	$ 1,043,510	$ 1,544,650	2008-2017		Roads/bridges		Yes
10058	Clackamas Co.	Clackamas Co.	River Rd.	River Rd./Courtney intersection		minor Arterial	Add turn lanes to four legs of the intersection.	$ 1,560,550	$ 2,309,995	2008-2017		Roads/bridges		
10059	Clackamas Co.	Clackamas Co.	Roots Rd./McKinley Rd.	Webster Rd.	Hwy 212	Minor Arterial	Bring to urban standards.	$ 10,426,862	$ 31,267,066	2026-2035		Roads/bridges	Yes	
10060	Happy Valley	Clackamas Co.	SE 132nd Ave.	King Rd.	Clatsop Rd.	Collector	Widen to 3 lanes.	$ 3,047,500	$ 9,138,548	2026-2035		Roads/bridges	Yes	
10061	Clackamas Co.	Clackamas Co.	SE 142nd Ave.	Sunnyside Rd.	Hwy 212	minor Arterial	Widen to 3 lanes.	$ 10,374,007	$ 31,108,569	2026-2035		Roads/bridges		Yes
10063	Clackamas Co.	Clackamas Co.	Thiessen Rd.	Thiessen/Hill Intersection		Minor Arterial	Widen, add left turn lane on Thiessen Rd.	$ 1,248,210	$ 2,528,644	2018-2025		Roads/bridges		Yes
10064	Clackamas Co.	Clackamas Co.	Webster Rd.	Webster/Jennings and Roots intersection		Minor Arterial	Construct traffic signals, turn lanes.	$ 3,722,090	$ 5,509,602	2008-2017		Roads/bridges		
10065	Clackamas Co.	Clackamas Co.	Webster Rd.	Webster/Strawberry Ln. intersection		Minor Arterial	Traffic signal.	$ 1,102,850	$ 2,234,172	2018-2025		Roads/bridges		Yes
10084	Happy Valley	Happy Valley	King Rd.	King Rd./145th Ave. intersection		Collector	Traffic signal, realign, turn lanes.	$ 1,150,000	$ 3,448,509	2026-2035		Roads/bridges		
10086	Lake Oswego		Turf to Surf Rail with Trail	downtown Lake Oswego	Tualatin River Trail	N/A	Build trail linking Tualatin and Lake Oswego.	$ 6,800,000	$ 10,065,661	2008-2017		Regional Trail		
10097	Milwaukie	Milwaukie	Stanley N/S bike/ped route	Johnson Creek Blvd.	Railroad Ave.	state	Construct sidewalks and bike lanes. Key connection between Johnson Creek Boulevard, Harrison Street, and Harmony Road (Arterials).	$ 3,249,585	$ 9,744,541	2026-2035		Pedestrian		
10102	Milwaukie	Milwaukie	Linwood Ave. Pedestrian Improvements	Johnson Creek Blvd.	Harmony Rd.	Arterial	Construct sidewalks and bike lanes. Key connection between Johnson Creek Boulevard, Harrison Street, and Harmony Road (Arterials).	$ 2,853,659	$ 8,557,277	2026-2035		Pedestrian		
10107	Milwaukie	Milwaukie	Harrison/UPRR grade separation	Hwy. 224	32nd Ave.	Arterial	Grade separate UP mainline from principal E-W arterial.	$ 25,000,000	$ 74,967,583	2026-2035		Roads/bridges		
10114	Clackamas Co.		Sunrise Parkway	Rock Creek Junction	US 26	Principal arterial	Preliminary engineering and EIS.	$ 6,000,000	$ 8,881,466	2008-2017		Throughways		
10119	Oregon City	ODOT	Hwy. 213 - Phase 2	Redland Rd.	Beavercreek Rd.	Principal arterial	Add through lane in both directions.	$ 25,000,000	$ 50,645,413	2018-2025		Roads/bridges	Yes	
10121	Oregon City	Oregon City	Molalla Ave. Frequent Bus	Oregon City Transit Center	Clackamas Community College	Major Arterial	Improve sidewalks, lighting, crossings, bus shelters and benches.	$ 1,000,000	$ 2,998,703	2026-2035		Transit capital		
10122	Oregon City	Oregon City	Oregon City TMA Startup Program	Oregon City Regional Center		N/A	Implements a transportation management association program with employers.	$ 700,000	$ 1,418,072	2018-2025		TDM		
10123	Oregon City	Oregon City	Willamette River Shared-Use Path	10th St.	Blue Heron	Major Arterial	Construct shared use path.	$ 2,000,000	$ 2,960,489	2008-2017		Regional Trail		
10125	Oregon City	Oregon City	Molalla Ave. Streetscape Improvements Phase 4	Beavercreek	Hwy. 213	Major Arterial	Streetscape improvements including widening sidewalks, sidewalk infill, ADA accessibility, bike lanes, reconfigure travel lanes, add bus stop amenities.	$ 8,000,000	$ 11,841,954	2008-2017		Pedestrian	Yes	Yes
10126	Oregon City	Oregon City	Swan Extension	Livesay	UGB	Collector	Through lanes, sidewalks, bike lanes, turn lanes to serve UGB expansion area.	$ 41,000,000	$ 83,058,477	2018-2025		Roads/bridges	Yes	Yes

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10136	Clackamas Co.	Clackamas Co.	Kellogg Creek (Oatfield Rd.) Bridge Replacement	Kellogg Creek	n/a	Minor Arterial	Construct two lane bridge with sidewalks and bike lanes.	$ 4,702,881	$ 9,527,173	2018-2025		Roads/bridges		
10140	Oregon City	ODOT	Hwy. 213 - Phase 1	Clackamas Community College	Conway Dr.	Principal arterial	Add one SB and NB through lane, bike lanes, and sidewalks.	$ 5,000,000	$ 10,129,083	2018-2025		Roads/bridges		
10144	Oregon City	ODOT	SB 99E/I-205 Interchange Access	Dunes Dr.	I-205 SB Ramp Terminus	Major Arterial	Dual left turn lanes on 99E approach to SB I-205 ramp, ramp widening to accommodate approach.	$ 3,000,000	$ 4,440,733	2008-2017		Roads/bridges		Yes
10145	Oregon City	ODOT	McLoughlin Blvd. Improvements - Phase 1	10th St.	I-205	Major Arterial	Complete boulevard design improvements.	$ 6,000,000	$ 8,881,466	2008-2017		Pedestrian		
10151	Oregon City	Oregon City	Trolley Trail Bridge	Portland Ave.	Oregon City Clackamas R. Trail	Other	Regional trail would connect the proposed regional Trolley Trail to the Clackamas River Trail via an old railroad bridge spanning the Clackamas River.	$ 5,000,000	$ 10,129,083	2018-2025		Regional Trail		
10152	Wilsonville	ODOT	Wilsonville Rd./I-5 Interchange Improvements - Auxiliary Lanes	N. of Interchange	S. of Interchange	Major Arterial	Provide auxiliary lanes for enhanced safety and capacity.	$ 12,500,000	$ 18,503,054	2008-2017		Throughways		
10156	Wilsonville	Wilsonville	Boeckman Rd. at Boeckman Creek	Canyon Creek Rd. N	Stafford Rd.	Minor Arterial	Widen Boeckman Road to 3 lanes with bike lanes, sidewalks and connections to regional trail system, remove culvert and install bridge.	$ 5,800,000	$ 8,585,417	2008-2017		Roads/bridges		
10157	Clackamas Co.	Clackamas Co.	Carver (Springwater Rd.) Bridge	Hattan Rd.	Hwy 224	Rural Arterial	widen Carver bridge to 5 lanes, realign to Hattan Road.	$ 23,600,000	$ 34,933,765	2008-2017		Roads/bridges		Yes
10179	Portland		Burnside/Sandy/12th, E: Intersection Improvements	Intersection E Burnside/Sandy/12th		Major Arterial	Redesign intersection to improve safety for all modes of travel. Relocate north-south crosswalk on east side of NE/SE 12th to eliminate safety hazards.	$ 6,481,860	$ 13,131,059	2018-2025		Roads/bridges		
10180	Portland		Sandy Blvd., NE (47th - 101st): Multi-modal Improvements, Phase II	NE 47th	NE 101st	Major Arterial	Retrofit existing street with multi-modal street improvements including bike lanes, redesign of selected intersections to improve pedestrian crossings, streetscape, and safety improvements.	$ 6,481,860	$ 13,131,059	2018-2025		Roads/bridges		
10183	Portland		Lents Pedestrian District, SE			N/A	Pedestrian facility improvements to key links accessing the Foster-Woodstock couplet.	$ 1,403,000	$ 2,842,221	2018-2025		Pedestrian		
10184	Portland		Foster Rd., SE (Powell - 90th): Pedestrian/Bicycle/Safety Improvements	SE Powell	SE 90th	Major Arterial	Improve sidewalks, lighting, crossings, bus shelters & benches on Foster and improve pedestrian crossing at Foster/82nd intersection to benefit pedestrian access to transit.	$ 5,401,550	$ 16,197,646	2026-2035		Bike		Yes
10188	Multnomah Co./Portland		Scholls Ferry, SW (Humphrey - County line): Multimodal Improvements	SW Humphrey	County Line	Minor Arterial	Add bicycle and pedestrian facilities; intersection improvements at Patton.	$ 3,226,900	$ 9,676,516	2026-2035		Bike		
10193	Portland		Division St., SE (Grand -60th): Multi-modal Improvements, Phase I	SE Grand	SE 60th	Local	Construct improvements that enhance access to transit, improve safety and enhance streetscape such as traffic signals, alt lane and on-street parking configuration, stormwater mgmt, lighting, bus shelters, benches, and crossings. Add bike lanes (52nd - 60th).	$ 3,908,758	$ 5,785,917	2008-2017		Roads/bridges	Yes	Yes
10200	Portland		Killingsworth Pedestrian District, NE			N/A	Plan and develop improvements to the pedestrian environment including sidewalks, lighting, crossings, bus shelters and benches.	$ 1,403,000	$ 2,842,221	2018-2025		Pedestrian	Yes	Yes
10205	Portland		Gateway Regional Center, Local and Collector Streets			N/A	High priority local and collector street and pedestrian improvements in the Gateway Regional Center.	$ 4,209,000	$ 8,526,662	2018-2025		Pedestrian		
10235	Portland	ODOT	South Portland Improvements, SW	SW Naito Parkway	SW Barbur	Minor Arterial	Reconstruct Naito Pkwy as two-lane road w/bike lanes, sidewalks, left turn pockets, & on-street parking. Includes realignment/regrading at intersecting streets; removal of Barbur tunnel, Ross Is Br ramps, Arthur/Kelly viaduct & Grover ped bridge.	$ 39,695,079	$ 80,414,947	2018-2025		Roads/bridges		
10236	Portland		Water Ave., SE (Caruthers - Division Pl): Street Extension Phase II	Caruthers	Division Pl	Local	Provide new roadway connection with sidewalks, bike lanes, landscaping, access to Willamette Greenway, & reconstruction of existing roadway.	$ 405,116	$ 1,214,823	2026-2035		Roads/bridges	Yes	Yes
10237	Portland		Southern Triangle Circulation Improvements, SE	Powell (12th/Ross Island Bridge)	Hawthorne Bridge (railroad mainline)	N/A	Improve local street network and regional access routes in the area between the Powell/12th, Willamette River, railroad mainline and Hawthorne Bridge. Improve freeway access route from CEID to I-5 SB via the Ross Island Bridge.	$ 4,051,163	$ 12,148,234	2026-2035		Roads/bridges	Yes	Yes
10239	Portland		11th/12th/Railroad Crossing, SE (West of Division): Intersection Improvements	Railroad Crossing	12th	Minor Arterial	Reconstruct intersection to upgrade traffic signalization and establish bike and ped routes.	$ 561,200	$ 1,136,888	2018-2025		Roads/bridges	Yes	
10240	Portland		Belmont Ramp, SE (Eastside of Morrison Bridge): Ramp Reconstruction	SE Belmont Ramp at Morrison bridge		Local	Reconstruct ramp to provide better access to the Central Eastside.	$ 2,104,500	$ 4,263,331	2018-2025		Roads/bridges	Yes	
10241	Portland		Clay/MLK Jr, SE: Intersection Improvements	Intersection of SE Clay/MLK		Major Arterial	Geometric, signalization and channelization improvements to allow transit and general traffic access to westbound Clay street from southbound MLK.	$ 1,296,372	$ 3,887,435	2026-2035		Roads/bridges	Yes	Yes
10242	Portland		N. Interstate Ave. Ramp	N Interstate/Larrabee Bridge		Major Arterial	Replacement of the existing N. Interstate to Larrabee flyover ramp with a new structure.	$ 20,592,147	$ 61,749,739	2026-2035		Roads/bridges		Yes
10243	Portland		12th, NE (Bridge at Lloyd Blvd): Seismic Retrofit	NE 12th/Lloyd Blvd Bridge		Collector	Seismic retrofit.	$ 583,367	$ 1,749,346	2026-2035		Roads/bridges		Yes

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10244	Portland		Kittridge, NW (Bridge at Yeon): Seismic Retrofit	NW Kittridge/Yeon Bridge		Minor Arterial	Seismic retrofit.	$ 1,403,000	$ 4,207,181	2026-2035		Roads/bridges		Yes
10245	Portland	ODOT	Steel Bridge, NE (East Ramps): Seismic Retrofit	Steel Bridge		Collector	Seismic retrofit.	$ 1,403,000	$ 4,207,181	2026-2035		Roads/bridges		
10246	Portland		7th/8th Ave., SE: New Street Connection	SE 7th	SE 8th	Local	Construct new street connection from SE 7th to 8th Ave. at Division Street.	$ 810,233	$ 1,199,342	2008-2017		Roads/bridges	Yes	Yes
10247	Portland		Corbett/Hood/Sheridan, SW: Pedestrian and Bike Improvements	SW Sheridan	SW Sheridan/I-5	Local	Construct bike and pedestrian improvements under I-5 to the CTLH neighborhood at SW Sheridan St.	$ 210,450	$ 311,517	2008-2017		Bike	Yes	Yes
10248	Portland		South Waterfront District, SW: Bicycle and Pedestrian Improvements			Other	Implement pedestrian and bicycle district access improvements identified in the North Macadam Framework Plan.	$ 3,250,050	$ 4,810,867	2008-2017		Pedestrian		Yes
10249	Portland		South Waterfront Transit Improvements, SW			N/A	Implement transit improvements identified in the North Macadam Framework Plan, including central city transit hub and local bus service improvements.	$ 2,806,000	$ 5,684,441	2018-2025		Transit capital		
10250	Portland		Burnside, W (NW 15th to NW 23rd): Blvd. Improvements	NW 15th	NW 23rd	Major Arterial	Boulevard design improvements including pavement reconstruction, wider sidewalks, curb extensions, safer crossings, traffic signals at 20th Plan and 22nd, and traffic management to limit motorist delays.	$ 14,030,000	$ 20,767,827	2008-2017		Roads/bridges	Yes	Yes
10251	Portland		Bancroft St., SW (River Parkway - Macadam): Street Improvements	River Parkway	Macadam	Local	Widen SW Bancroft in conformance with district street standards.	$ 1,403,000	$ 2,076,783	2008-2017		Roads/bridges	Yes	
10253	Portland		Arthur, Gibbs & Lowell, SW (River Parkway - Moody): Street Improvements	River Parkway	SW Moody	Local	Arthur, Gibbs, and Lowell are the primary connectors between Moody-Bond and River Parkway and will be constructed in phases as development occurs in North Macadam District.	$ 5,261,250	$ 7,787,935	2008-2017		Roads/bridges		Yes
10254	Portland		River Parkway, SW: New Street	SW (new St.)		Local	New north-south local access street in the emerging North Macadam District. This street will have an enhance pedestrian environment and will be built to accommodate future streetcar. It will constructed in four phases beginning FY00/01.	$ 4,910,500	$ 7,268,740	2008-2017		Roads/bridges	Yes	Yes
10255	Portland	ODOT	Macadam/Curry, SW: Intersection Improvements	Intersection Macadam/Curry	SW Macadam/Curry	Principal arterial	Design and construct improvements to the Macadam/Curry intersection.	$ 1,403,000	$ 2,076,783	2008-2017		Roads/bridges		
10256	Portland		Broadway/Weidler, NE (15th - 28th): Multi-modal Improvements, Phases II & III	NE 15th	NE 28th	Major Arterial	Boulevard retrofit of street including street trees, traffic signals, curb extensions, and wider sidewalks (15th - 24th) and stripe bike lanes (24th-28th).	$ 9,058,399	$ 13,408,644	2008-2017		Roads/bridges	Yes	Yes
10257	Portland		Grand/MLK Jr, SE/NE: CEID/Lloyd District Streetscape Improvements			Major Arterial	Complete boulevard design improvements including street trees, tree grates, ornamental lighting, and curb extensions.	$ 4,861,395	$ 9,848,294	2018-2025		Roads/bridges		
10258	Portland		DivisionSt/9th, SE (7th - Center): Bikeway	SE 7th	SE Center	Local	Retrofit bike lanes to existing street.	$ 27,548	$ 82,608	2026-2035		Bike		
10259	Portland	ODOT	Powell, SE (Ross Island Bridge - 92nd): Multi-modal Improvements	Ross Island Bridge	SE 50th	Major Arterial	Retrofit existing street with multimodal and safety improvements including enhanced pedestrian and bicycle crossings, pedestrian and bike activated signals, median islands with trees, redesign of selected intersections and stormwater management facilities.	$ 7,997,100	$ 11,837,662	2008-2017		Pedestrian		
10260	Portland		Clay/2nd, SW: Pedestrian/Vehicle Signal	Intersection Clay/2nd		Collector	New signal installation.	$ 162,047	$ 485,929	2026-2035		Pedestrian		
10262	Portland		14/16th Connections, NW	W Burnside	Yeon	Minor Arterial	Improve or create connections to W. Burnside, Yeon, and Vaughn and provide directional signage to route non-local traffic to 14th/16th couplet.	$ 280,600	$ 841,436	2026-2035		Freight		
10263	Portland		Naito Parkway (Broadway Br - north of Terminal One): Street and Pedestrian Improvements	Broadway Bridge	North of Terminal One	Minor Arterial	Construct streetscape improvements include pedestrian amenities.	$ 4,559,750	$ 6,749,544	2008-2017		Roads/bridges	Yes	Yes
10264	Portland		Central City Traffic Management, N, NW, NE, SE, SW: Transportation System Management improvements			N/A	Implement Central City TSM improvements to arterials.	$ 3,240,930	$ 9,718,588	2026-2035		Roads/bridges		
10265	Portland		18th/Jefferson St., SW: ITS	Intersection of 18th/Jefferson		Local	Communications infrastructure including closed circuit TV cameras, variable message signs for remote monitoring and control of traffic flow at SW 18th/Jefferson intersection.	$ 112,240	$ 336,574	2026-2035		ITS		
10266	Portland		14th/16th, NW/SW & 13th/14th, SE, (Glisan - Clay): ITS	SW Clay	NW Glisan	Minor Arterial	Six signals between Clay and Glisan including communications infrastructure; closed circuit TV cameras, variable message signs for remote monitoring and control of traffic flow.	$ 505,080	$ 1,514,585	2026-2035		ITS		
10267	Portland		Going, N (Interstate - Basin): Bikeway	N Interstate	N Basin	Major Arterial	Design & implement bike lanes.	$ 126,270	$ 378,646	2026-2035		Bike		
10268	Portland		Hollywood Pedestrian District, NE: Multi-modal Improvements			N/A	Multi-modal street improvements including traffic signals, restriping, improved pedestrian crossings and connections to transit center.	$ 10,776,092	$ 21,830,386	2018-2025		Pedestrian		

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10270	Portland		Ellis St, SE (92nd - Foster): Bikeway	SE 92nd	SE Foster	Local	Retrofit bike lanes to existing street.	$ 648,186	$ 1,943,718	2026-2035		Bike		
10271	Portland		92nd Ave., SE (Powell - City Limits): Bicycle & Pedestrian Improvements	SE Powell	City Limits	Collector	Construct sidewalks, crossing improvements and bike lanes.	$ 4,910,500	$ 7,268,740	2008-2017		Bike		
10274	Portland		Beaverton-Hillsdale /Bertha/Capitol Hwy, SW: Intersection Improvements	Intersection B-H Hwy/Bertha/Capitol Hwy	B-H Hwy/Bertha/ Capitol Hwy	Minor Arterial	Redesign intersection to improve safety.	$ 1,403,000	$ 2,076,783	2008-2017		Roads/bridges		
10275	Portland		Vermont St., SW, (45th - Oleson): Bicycle and Pedestrian Improvements	SW 45th	SW Oleson	Local	Multi-modal street improvements including bicycle and pedestrian facilities.	$ 7,909,800	$ 16,023,803	2018-2025		Bike		
10276	Portland		30th Ave., SW (Vermont to B-H Hwy): Bicycle & Pedestrian Improvements	SW Vermont	B-H Hwy	Local	Retrofit bike lanes to existing street, construct sidewalks, and improve pedestrian crossing at Beaverton-Hillsdale Hwy/30th.	$ 1,839,333	$ 3,726,151	2018-2025		Bike		
10277	Portland		Bertha, SW (B-H Hwy - Barbur): Multi-modal Improvements	B-H Hwy	Barbur Blvd	Collector	Design and implement bike lanes on missing piece of Bertha Blvd (Vermont-B-H Hwy), construct walkway for pedestrian travel and access to schools (Barbur-B-H Hwy); and improve street to City standards (Vermont-Capitol).	$ 2,104,500	$ 4,263,331	2018-2025		Bike		
10278	Portland		Hillsdale Pedestrian District, SW			N/A	Pedestrian improvements on town center streets including Capitol, Beaverton-Hillsdale Hwy, Bertha, and neighborhood streets. Provide a Bike Central facility.	$ 4,861,395	$ 9,848,294	2018-2025		Pedestrian		
10279	Portland		Beaverton-Hillsdale Hwy, SW (Capitol Hwy - 65th): Multi-modal Improvements	SW Capitol Hwy	SW 65th	Major Arterial	Retrofit existing street to include better sidewalks and crossings, bike lanes and other improvements to enhance access to transit. Install median refuge to improve pedestrian crossing at SW 62nd.	$ 3,565,023	$ 10,690,446	2026-2035		Bike		
10280	Portland		Sunset Blvd., SW (Dosch - Capitol): Bicycle & Pedestrian Improvements	SW Dosch	SW Capitol Hwy	Local	Construct bike lanes, sidewalks and crossing improvements.	$ 1,683,600	$ 5,048,617	2026-2035		Bike		
10281	Portland		Beaverton-Hillsdale Hwy, SW: ITS	SW Terwilliger	Shattuck	Major Arterial	CCTV at Terwilliger, Berth, Shattuck; changeable signs.	$ 315,675	$ 467,276	2008-2017		ITS		
10282	Portland	ODOT	Barbur/Capitol/Huber/Taylors Ferry, SW: Intersection Improvements	Intersection of Barbur/Capitol/Huber /Taylors Ferry		Major Arterial	Construct safety improvements, including traffic signals, at the intersection of Capitol Hwy, Taylors Ferry, Huber, and Barbur. Provide better sidewalks and crossings.	$ 1,403,000	$ 2,842,221	2018-2025		Pedestrian		
10285	Portland	ODOT	Barbur Blvd, SW (Terwilliger - City Limits): Multi-modal Improvements	SW Terwilliger	City Limits	Major Arterial	Complete boulevard design improvements including sidewalks and street trees, safe pedestrian crossings, enhance transit access and stop locations, traffic signal at Barbur/30th, and bike lanes (Bertha - City Limits).	$ 24,833,100	$ 36,759,054	2008-2017		Pedestrian		
10286	Portland		Pedestrian Overpass near Markham School, SW			Minor Arterial	Construct pedestrian path and bridge over Barbur Blvd. and I-5 to connect SW Alfred and SW 52nd to the rear of Markham School.	$ 4,861,395	$ 14,577,881	2026-2035		Pedestrian		
10287	Portland	ODOT	West Portland Town Center, SW: Pedestrian Improvements			N/A	Improve sidewalks, lighting, crossings, bus shelters & benches on Barbur, Capitol Hwy & neighborhood streets.	$ 7,015,000	$ 21,035,904	2026-2035		Pedestrian		
10288	Portland		Parkrose Connectivity Improvements, NE			Local	Supplement access route for commercial properties in Parkrose by creating a loop road connection (102nd and 109th, NE, Killingsworth - Sandy; Killingsworth, NE, 109th - 102nd) serving truck access functions, pedestrian, and bike connections.	$ 1,403,000	$ 4,207,181	2026-2035		Roads/bridges		
10289	Portland		Division St., SE (60th - I-205): Multimodal Improvements, Phase II	SE 60th	I-205	Minor Arterial	Construct improvements that enhance access to transit, improve safety and enhance the streetscape such as traffic signals, lighting, bus shelters, benches, and crossings. Add bike lanes (60th - 73rd).	$ 2,806,000	$ 8,414,362	2026-2035		Pedestrian		
10290	Portland		Division St., SE (I-205 - 174th): Multimodal Improvements, Phase II	I-205	SE 174th	Minor Arterial	Improve sidewalks, lighting, crossings, bus shelters & benches. Add bike lanes (148th - 162nd).	$ 5,710,912	$ 11,569,259	2018-2025		Pedestrian		
10291	Portland	ODOT	82nd Ave., SE (Schiller - City Limits), SE: Street Improvements	SE Schiller	City Limits	Major Arterial	Expand into fully curbed, 4-lane, 60-foot wide roadway w/ continuous left-turn lane, sidewalks, street trees, storm drainage improvements, street lighting, & ROW acquisition.	$ 7,015,000	$ 14,211,103	2018-2025		Pedestrian		
10292	Portland		Belmont St., SE (25th - 43rd): Street and Pedestrian Improvements	SE 25th	SE 43rd	Local	Identify improvements along Belmont to enhance pedestrian access to transit, improve safety, and enhance streetscape such as traffic signals, lighting, bus shelters, benches, and crossings.	$ 3,240,930	$ 4,797,368	2008-2017		Pedestrian		
10293	Portland		Fremont St., NE (42nd-52nd): Pedestrian and Safety Improvements	NE 42nd	NE 52nd	Local	Construct streetscape and transportation improvements (42nd to 52nd).	$ 405,116	$ 820,691	2018-2025		Pedestrian		
10294	Portland		Killingsworth, N (Denver to Greeley): Pedestrian Improvements	N Denver	N Greeley	Local	Plan and develop streetscape and transportation improvements.	$ 1,851,960	$ 5,553,479	2026-2035		Pedestrian		
10295	Portland		Milwaukie, SE (Yukon - Tacoma): Bicycle & Pedestrian Improvements	SE Yukon	SE Tacoma	Local	Plan and develop streetscape and pedestrian/bike improvements.	$ 1,403,000	$ 2,842,221	2018-2025		Bike		
10296	Portland		Killingsworth Bridge, N (at I-5): Bridge Improvements	N Killingsworth/I-5 Bridge		Minor Arterial	Improvements to bridge to create a safe and pleasant crossing for pedestrians and bicyclists over I-5.	$ 3,788,100	$ 11,359,388	2026-2035		Bike		

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10297	Portland		Spokane & Umatilla, SE (7th - Tacoma Overcrossing): Bikeway	SE 7th	Tacoma Overcrossing	Local	Implement bike boulevard improvements.	$ 350,750	$ 1,051,795	2026-2035		Bike		
10298	Portland		Tacoma, SE (Sellwood Bridge - 45th/Johnson Creek): ITS	Sellwood Bridge	SE 45th	Minor Arterial	Communications infrastructure; closed circuit TV cameras, variable message signs for remote monitoring and control of traffic flow for four signals.	$ 231,495	$ 468,966	2018-2025		ITS		
10299	Portland	ODOT	Lombard, N (I-5 - Denver): Street Improvements	I-5	N Denver	Minor Arterial	Establish a landscaped boulevard to promote pedestrian-oriented uses and to create a safe, pleasant pedestrian link over I-5 w/ new traffic light and road access to Fred Meyer development.	$ 1,703,242	$ 2,521,214	2008-2017		Pedestrian	Yes	
10300	Portland		Prescott Station Area Street Improvements, N			N/A	Construct improvements to Prescott & Skidmore (Interstate-Maryland) & Maryland (Interstate-Prescott) to provide neighborhood focal point at LRT.	$ 4,770,200	$ 9,663,550	2018-2025		Pedestrian		Yes
10301	Portland		Sandy Blvd., NE (82nd - Burnside): ITS	NE 82nd	E Burnside	Major Arterial	CCTV at various locations; variable signs, changeable signs; monitoring stations.	$ 519,110	$ 1,556,657	2026-2035		ITS		Yes
10302	Portland		MLK Jr, N (Columbia Blvd. - CEID): ITS	Columbia Blvd	CEID	Major Arterial	CCTV at various locations & traffic monitoring stations at Clay and Burnside.	$ 989,115	$ 2,003,766	2018-2025		ITS		Yes
10303	Portland		Capitol Hwy, SW (West Portland Town Center - 49th): Pedestrian Improvements	West Portland Town Center	SW 49th	Minor Arterial	Complete curb extensions and medians recommended in the Capitol Hwy Plan.	$ 1,403,000	$ 2,842,221	2018-2025		Pedestrian		Yes
10304	Portland		Klickitat/Siskiyou, NE (7th - Rocky Butte Rd.): Bikeway	NE 7th	Rocky Butte Rd.	Local	Design & implement bike boulevard on Klickitat (7th-67th) and Siskiyou (67th-Rocky Butte) including traffic calming and intersection improvements.	$ 105,330	$ 213,380	2018-2025		Bike		
10305	Portland		Holgate Blvd., SE (52nd - I-205): Bikeway, Phase I	SE 52nd	I-205	Local	Retrofit bike lanes to existing street.	$ 42,090	$ 126,215	2026-2035		Bike		Yes
10306	Portland		Holgate Blvd., SE (39th - 52nd): Street Improvements	SE 39th	SE 52nd	Local	Reconstruct SE Holgate pavement structure, stormwater drainage facilities, corner curb ramps to ADA standards, improve pedestrian crossings, and add bike lanes.	$ 1,118,191	$ 1,655,196	2008-2017		Pedestrian		
10307	Portland		Holgate Blvd., SE (McLoughlin - 39th): Bikeway, Phase II	McLoughlin	SE 39th	Collector	Retrofit bike lanes to existing street.	$ 27,548	$ 55,807	2018-2025		Bike		Yes
10308	Portland		Boones Ferry Rd., SW (Terwilliger - City Limits): Bikeway	SW Terwilliger	City Limits	Collector	Retrofit bike lanes to existing street.	$ 7,015,000	$ 21,035,904	2026-2035		Bike		
10309	Portland	ODOT	Macadam, SW (Bancroft - County line): Multi-modal Improvements	SW Bancroft	County Line	Major Arterial	Complete bikeway connection in the N. Macadam corridor and improve pedestrian crossings (Bancroft, Boundary, Hamilton, Nebraska, and Nevada), and address circulation at west approach to Sellwood Bridge.	$ 3,549,590	$ 7,190,818	2018-2025		Bike		Yes
10310	Portland		Prescott, NE (47th - I-205): Pedestrian and Bicycle Improvements	NE 47th	I-205	Local	Construct bike lanes, sidewalks, and crossing improvements for pedestrian and bike safety and to improve access to transit.	$ 1,403,000	$ 2,842,221	2018-2025		Bike		
10311	Portland		Skidmore, N/NE, (Interstate - Cully): Bikeway	N Interstate	NE Cully	Local	Design & implement bike boulevard including traffic calming techniques and intersection improvements.	$ 105,330	$ 213,380	2018-2025		Bike	Yes	
10312	Portland		Banfield LRT Stations, NE/SE: Pedestrian Improvements			Local	Retrofit existing streets along eastside MAX and at intersecting streets to include better sidewalks and crossings, curb extensions, bus shelters, and benches at 82nd, 148th, and 162nd stations.	$ 3,156,750	$ 6,394,996	2018-2025		Pedestrian		
10313	Portland		Ventura Park Pedestrian District, NE/SE			Local	Improve sidewalks, lighting, crossings, bus shelters & benches to improve ease of crossing and install curb extensions at transit stops.	$ 1,403,000	$ 2,842,221	2018-2025		Pedestrian		
10314	Portland		99th & 96th, NE/SE (Glisan-Market: Gateway Plan District Street Improvements, Phase II & III	NE Glisan	SE Market	Local	Reconstruct primary local main street in Gateway Regional Center. Phase II - 99th (Glisan - Washington). Phase III - 96th (Washington to Market).	$ 4,910,500	$ 9,947,772	2018-2025		Roads/bridges	Yes	
10315	Portland		39th Ave., NE/SE (Sandy - Woodstock): Safety & Pedestrian Improvements	NE Sandy Blvd	SE Woodstock	Major Arterial	Reconstruct street (Burnside-Holgate). Construct sidewalks and crossing improvements (Stark - Schiller). Upgrade three pedestrian signals to full signals, remodel two full signals, and provide channelization improvements to three other signals to improve safety at high accident locations.	$ 3,086,600	$ 4,568,922	2008-2017		Pedestrian	Yes	
10316	Portland		Halsey, NE (Bridge at I-84): Seismic Retrofit	NE Halsey/I-84		Collector	Seismic retrofit bridge.	$ 129,637	$ 388,744	2026-2035		Roads/bridges		
10317	Portland		Halsey/Weidler, NE (I-205 - 114th): Multi-modal Improvements	I-205	NE 114th	Major Arterial	Implement Gateway Regional Center Plan boulevard design including new traffic signals, improved pedestrian facilities and crossings and street lighting.	$ 17,014,883	$ 51,022,585	2026-2035		Roads/bridges		
10318	Portland		Glisan St, NE (I-205 - 106th): Gateway Plan District Multi-modal Improvements	I-205	NE 106th	Major Arterial	Implement Gateway regional center plan with boulevard design retrofit, new traffic signals, bike facilities, improved pedestrian facilities and crossings, and street lighting.	$ 3,240,930	$ 9,718,588	2026-2035		Roads/bridges		
10319	Portland		Stark & Washington, SE (92nd - 111th): Gateway Plan District Street Improvements	SE 92nd	SE 111th	Major Arterial	Implement Gateway regional center plan with boulevard design retrofit including new traffic signals, improved pedestrian facilities and crossings, and street lighting.	$ 6,157,767	$ 18,465,316	2026-2035		Roads/bridges		Yes
10320	Portland		Halsey, NE (39th - I-205): Bikeway	NE 39th	I-205	Major Arterial	Retrofit bike lanes to existing street.	$ 161,345	$ 238,830	2008-2017		Bike		Yes
10321	Portland		Stark, SE (111th - City Limits): Bikeway	SE 111th	City Limits	Major Arterial	Retrofit bike lanes to existing street (excluding 92nd - 111th).	$ 243,070	$ 492,415	2018-2025		Bike		Yes

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10322	Portland		Stark, SE (75th - I-205): Bikeway	SE 75th	I-205	Major Arterial	Retrofit bike lanes to existing street.	$ 243,070	$ 359,803	2008-2017		Bike	Yes	
10323	Portland		111th/112th Ave., SE (Market - Mt. Scott Blvd.): Bicycle & Pedestrian Improvements	SE Market	Mt. Scott Blvd	Collector	Retrofit bike lanes to existing street (Market - Mt. Scott Blvd.) and construct sidewalks (Holgate - Mt. Scott Blvd.).	$ 2,070,127	$ 6,207,695	2026-2035		Bike		
10324	Portland		Glisan St., NE (106th - 122nd): Bikeway	NE 106th	NE 122nd	Major Arterial	Retrofit bike lanes to existing street.	$ 81,023	$ 164,138	2018-2025		Bike		
10325	Portland		Glisan St., NE (47th - I-205): Bikeway	NE 47th	I-205	Major Arterial	Retrofit bike lanes to existing street.	$ 81,023	$ 119,934	2008-2017		Bike		
10326	Portland		Gateway Regional Center, NE/SE: Local Street Improvements, Phase II			Local	High priority local street and pedestrian improvements in regional center.	$ 8,418,000	$ 17,053,323	2018-2025		Pedestrian		
10327	Portland		Gateway District Plan, NE/SE: Traffic Management			N/A	Implement a comprehensive traffic management plan throughout the regional center to reduce cut-through traffic on residential streets and improve traffic flow on regional streets. Project includes utility improvements.	$ 1,944,558	$ 2,878,421	2008-2017		Roads/bridges		
10328	Portland		Gateway Regional Center, NE/SE: Local Street Improvements, Phase III			Local	High priority local street and pedestrian improvements in regional center.	$ 8,418,000	$ 25,243,085	2026-2035		Pedestrian		
10329	Portland		Marine Dr./122nd, NE: Intersection Improvements	NE Marine Dr/122nd		Local	Signalize and widen dike to install left turn lane on Marine Drive.	$ 2,361,249	$ 3,495,225	2008-2017		Roads/bridges		
10330	Portland		148th, NE (Marine Dr - Glisan): Bicycle & Pedestrian Improvements	NE Marine Dr	NE Glisan	Minor Arterial	Retrofit bike lanes to existing street (Marine Dr - I-84) and construct sidewalk and safety improvements including signal/ intersection improvements at 148th/Sandy (Airport Way-Glisan).	$ 2,568,893	$ 5,204,106	2018-2025		Bike		
10331	Portland		Columbia Blvd, N (Bridge at Taft): Seismic Retrofit			Principal arterial	Seismic retrofit of bridge.	$ 583,367	$ 1,749,346	2026-2035		Roads/Bridges		
10332	Portland	ODOT	Lombard, N/NE (MLK Jr - Philadelphia) (US 30): ITS	MLK Jr. Blvd	Philadelphia	Minor Arterial	Communications infrastructure including closed circuit TV camera, variable message signs for remote monitoring and control of traffic flow at the intersections with MLK Jr, Interstate, Greeley, Portsmouth, Philadelphia/Ivanhoe.	$ 673,440	$ 1,364,266	2018-2025		ITS		
10335	Portland		42nd Bridge, NE (at Lombard): Bridge Replacement	NE 42nd at Lombard		Collector	Replace 42nd bridge over Lombard to remove weight restriction.	$ 4,209,000	$ 12,621,542	2026-2035		Roads/bridges		
10337	Portland		33rd/Marine Dr., NE: Intersection Improvements	33rd/Marine Dr.		Local	Signalize intersection for freight movement.	$ 350,750	$ 710,555	2018-2025		Roads/bridges		
10338	Portland/Port		Alderwood St., NE, (Alderwood Trail - Columbia Blvd.): Bikeway	Alderwood Trail	Columbia Blvd	Collector	Provide bike lanes. Project includes some shoulder widening.	$ 561,200	$ 1,136,888	2018-2025		Bike	Yes	
10339	Portland		Columbia Blvd., N/NE (MLK Jr BL - Lombard): Bikeway	MLK Jr. Blvd	N Lombard	Principal arterial	Retrofit bike lanes to existing street.	$ 153,944	$ 311,863	2018-2025		Bike	Yes	Yes
10340	Portland		Cornfoot, NE (47th - Alderwood): Road Widening & Intersection Improvements	NE 47th	NE Alderwood	Collector	Road widening project including lighting and landscaping, left turn lanes, and bike lanes (47th - AirTrans Way). Signalize Cornfoot/AirTrans intersection and reconfigure traffic flow. Stripe bike lanes (AirTrans - Alderwood).	$ 2,806,000	$ 4,153,565	2008-2017		Roads/bridges	Yes	
10341	Portland		Columbia Blvd, N (Swift - Portland Rd. & Argyle Way - Albina): Pedestrian Improvements, Phase I & II	N Swift	N Argyle Way	Principal arterial	Construct sidewalk and crossing improvements.	$ 4,213,209	$ 12,634,164	2026-2035		Pedestrian		
10342	Portland		Columbia Blvd, N/NE(I-205 - Burgard): ITS	I-205	N Burgard	Principal arterial	Communications infrastructure including closed circuit TV cameras, variable message signs for remote monitoring and control of traffic flow for six signals.	$ 589,260	$ 872,249	2008-2017		ITS	Yes	
10344	Portland		Force/Broadacre/Victory, N: Bikeway	N Marine Dr.	N Whitaker	Local	Signed bikeway connection to I-5 river crossing.	$ 28,060	$ 84,144	2026-2035		Bike		
10346	Portland		Marine Dr, N/NE (Portland Rd. to 185th): ITS	N Portland Rd.	NE 185th	Collector	CCTV at N Portland Rd. Changeable message signs at Portland Rd, Vancouver and 185th.	$ 238,510	$ 483,177	2018-2025		ITS		
10347	Portland/Gresham		Foster Rd., SE (162nd - Giese Rd.): Multi-modal Street Improvements	SE 162nd	SE Giese Rd.	Minor Arterial	Multimodal improvements based on PV Implementation Plan.	$ 2,525,400	$ 7,572,925	2026-2035		Roads/bridges		
10348	Portland		Foster Rd., SE (102nd - Foster Pl): Pedestrian Improvements	SE102nd	SE Foster Pl	Major Arterial	Construct walkway and crossing improvements to facilitate pedestrian travel and access to transit.	$ 1,403,000	$ 2,842,221	2018-2025		Roads/bridges	Yes	Yes
10349	Portland		174th & Jenne Rd. , SE (Foster - Powell): Multi-modal Improvements	SE Powell	SE Foster Rd.	Local	Roadway improvements to increase safety and capacity to accommodate increased residential development. Widen roadway to 3 lanes and provide bike lanes, sidewalks to provide better transportation links in this vital north/south link.	$ 7,155,300	$ 14,495,325	2018-2025		Bike	Yes	Yes
10350	Clackamas Co./Portland		Clatsop, SE (162nd - City Limits): Street Extension	SE 162nd	City Limits	Collector	Extend street east into PV based on PV Implementation Plan.	$ 5,429,610	$ 16,281,790	2026-2035		Roads/bridges		

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10351	Portland		Wildwood Bridge at West Burnside	Wildwood Trail north of W Burnside	Wildwood Trail south of W Burnside	Other	Provide pedestrian bridge over W Burnside instead on dangerous at-grade crossing.	$ 2,126,948	$ 3,148,403	2008-2017		Regional Trail		
10356	Portland		Willamette Greenway - St Johns segment [previous called Willamette Greenway Trail Extension']	Cathedral Park	Pier Park	Other	Provide trail route from Willamette Greenway at Cathedral Park to future Columbia Slough Trail at St. Johns Landfill.		$ -	2018-2025		Regional Trail		
10383	Multnomah Co./Gresham		I-84 to US26 Connection(s)	I-84	US 26		Implement recommendations of I-84/US 26 Corridor Refinement Plan conducted in accordance with the Cities 2007 MOU.	$ 35,000,000	$ 51,808,550	2008-2017		Throughways		
10416	Gresham	Gresham	Hogan Corridor Improvements	Stark	Burnside	Principal arterial	Interim capacity improvements and access controls.	$ 19,140,461	$ 28,332,558	2008-2017		Roads/bridges		Yes
10417	Gresham	Gresham	Hogan Corridor Improvements	Palmquist	Springwater Trail	Arterial	Complete study and construct new principal arterial connection.	$ 7,507,673	$ 15,209,168	2018-2025		Roads/bridges		Yes
10422	Gresham	Gresham	Division St. Improvements	257th Ave.	268th Ave.	Collector	Improve to community street standards, including bikelanes.	$ 3,945,711	$ 7,993,287	2018-2025		Roads/bridges	Yes	
10432	Gresham	Gresham	Division St. Improvements	Birdsdale	Wallula	Minor Arterial	Complete boulevard design improvements.	$ 12,162,471	$ 24,638,935	2018-2025		Roads/bridges		
10433	Gresham	Gresham	Division St. Improvements	Kelly	Burnside	Minor Arterial	Complete boulevard design improvements.	$ 10,331,749	$ 15,293,512	2008-2017		Roads/bridges		
10448	Gresham	Gresham	201st: Glisan to Halsey	Glisan	Halsey	Collector	Improve to collector standards.	$ 6,100,075	$ 9,029,601	2008-2017		Freight		
10451	Gresham	Gresham	202nd: Burnside to Powell	Burnside	Powell	Collector	Upgrade to collector standards.	$ 10,174,125	$ 15,060,190	2008-2017		Roads/bridges		Yes
10452	Gresham	Gresham	202nd Projects: Stark to Glisan	Stark	Glisan	Collector	Improve to collector standards.	$ 8,028,609	$ 11,884,303	2008-2017		Roads/bridges		Yes
10457	Gresham	Gresham	223rd Ave. Improvements	Glisan	Stark	Major Arterial	Improve sidewalks, lighting, crossings, bus shelters, benches.	$ 102,229	$ 151,324	2008-2017		Roads/bridges		
10461	Gresham	Gresham	Towle Ave. Improvements	Butler	Eastman Parkway	Minor Arterial	Construct sidewalks, bike lanes and intersection improvements.	$ 3,302,775	$ 4,888,914	2008-2017		Roads/bridges		
10492	Gresham	Gresham	162nd RR bridge@I-84	162nd/I-84	N/A	Collector	Reconstruct RR bridge to accommodate alternative modes.	$ 2,621,250	$ 3,880,090	2008-2017		Regional Trail		Yes
10510	Gresham	Gresham	Hillyard, Palmblad to Anderson	Palmblad	Anderson	Minor Arterial	Widen roadway and construct curb and gutter, sidewalks, bike lanes, streetlights, storm drainage and intersection improvements.	$ 9,628,553	$ 19,505,682	2018-2025		Bike		
10514	Gresham	Gresham	Powell: Burnside to Kane	Burnside	Kane	Minor Arterial	Construct to arterial standards, 4 travel lanes, center turn lane, bike lanes and pedestrian facilities.	$ 5,294,917	$ 10,726,530	2018-2025		Roads/bridges		
10515	Gresham	Gresham	Riverside Dr. ext. to Sandy Blvd	190th	Sandy	Local	Extend collector from 190th to Sandy to improve industrial access.	$ 10,975,110	$ 16,245,844	2008-2017		Roads/bridges		
10517	Gresham	Gresham	Welch Rd., Anderson to 282nd	Anderson Rd.	282nd	collector	Widen roadway and construct improvements.	$ 9,507,235	$ 14,073,030	2008-2017		Roads/bridges		
10520	Gresham	Gresham	184th Ave., Wilkes to San Rafael	Wilkes	San Rafael	Local	Construct new collector street.	$ 7,353,375	$ 14,896,589	2018-2025		Freight		
10522	Gresham	Gresham	Burnside, Hogan to Powell	Hogan	Powell	Major Arterial	Safety improvements and reconstruction.	$ 8,807,400	$ 17,842,176	2018-2025		Freight		
10523	Gresham	Gresham	Chase Rd., Orient Dr. to 282nd	Orient	282nd	collector	Widen road and construct improvements.	$ 2,494,006	$ 5,052,399	2018-2025		Roads/bridges		Yes
10524	Gresham	Gresham	Cleveland Ave., Glisan to Stark	Glisan	Stark	Local	Construct new collector street.	$ 15,277,585	$ 30,949,584	2018-2025		Roads/bridges		
10525	Gresham	Gresham	Clyde, Glisan to Stark	Glisan	Stark	Local	Construct new collector street.	$ 16,277,585	$ 32,975,401	2018-2025		Roads/bridges	Yes	
10526	Gresham	Gresham	Heiney St./14th, Pl View Dr. to 18th Court	Pl View/Binford	18th Court	Local	Widen road and construct improvements.	$ 3,583,249	$ 7,259,005	2018-2025		Roads/bridges		
10529	Gresham	Gresham	Salquist Rd. / Barnes Rd. to 282nd Ave.	Barnes Rd.	282nd Ave.	Collector	Widen road and construct improvements.	$ 5,528,671	$ 11,200,073	2018-2025		Roads/bridges		
10532	Gresham	Gresham	Williams Rd., Powell Valley to Div.	Powell Valley Rd.	Division St.	Collector	Widen road and construct improvements.	$ 7,202,147	$ 14,590,228	2018-2025		Roads/bridges	Yes	
10536	Portland	Portland	Clatsop: Improvements	162nd	Portland Boundary	Collector	Improve Clatsop to minor arterial standards, and signalize Clatsop at 162nd.	$ 4,202,582	$ 6,220,848	2008-2017		Roads/bridges		
10542	Portland	Portland	Foster Rd. Improvements	162nd	Jenne Rd.	Local	Improve Foster Rd. to Minor Arterial (Parkway) standards, 2 lanes, with turn pockets where appropriate.	$ 3,014,698	$ 4,462,489	2008-2017		Roads/bridges	Yes	

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10552	Washington Co.	Washington Co.	Cornell/Cornelius Pass Interchange	N/A	N/A	Arterial	Grade separate Cornell at Cornelius Pass. Local TSPs and the TV Hwy. Corridor Refinement Plan will need to re-evaluate the need for this project which exceeds the RTP policy of 5 lane arterials. Sufficient documentation will need to be provided that all other solutions have been exhausted, including system management and operations strategies, increased transit service, changes to land use, etc. consistent with the congestion management process. The projects were identified to meet current mobility standards that may be revised as part of the alternative mobility standards work that will be conducted in 2010.	$ 21,200,000	$ 63,572,510	2026-2035		Roads/bridges		
10556	Washington Co.	Washington Co.	Tualatin-Sherwood/Boones Ferry Intersection	N/A	N/A	Arterial	Grade separate Tualatin-Sherwood/Boones Ferry intersection. Local TSPs and the TV Hwy. Corridor Refinement Plan will need to re-evaluate the need for this project which exceeds the RTP policy of 5 lane arterials. Sufficient documentation will need to be provided that all other solutions have been exhausted, including system management and operations strategies, increased transit service, changes to land use, etc. consistent with the congestion management process. The projects were identified to meet current mobility standards that may be revised as part of the alternative mobility standards work that will be conducted in 2010.	$ 25,000,000	$ 74,967,583	2026-2035		Roads/bridges		
10557	Washington Co.	Washington Co.	Murray/TV Hwy. Intersection	Farmington Rd.	TV Hwy.	Arterial	Grade separate the intersections of TV Hwy. and Farmington with Murray Blvd. Local TSPs and the TV Hwy. Corridor Refinement Plan will need to re-evaluate the need for this project which exceeds the RTP policy of 5 lane arterials. Sufficient documentation will need to be provided that all other solutions have been exhausted, including system management and operations strategies, increased transit service, changes to land use, etc. consistent with the congestion management process. The projects were identified to meet current mobility standards that may be revised as part of the alternative mobility standards work that will be conducted in 2010.	$ 25,000,000	$ 74,967,583	2026-2035		Roads/bridges		
10573	Washington Co.	Washington Co.	Barnes Rd. to Multnomah Co. Line Improvements	Leahy Rd.	Multnomah. Co. Line	Arterial	Widen from two to three lanes with bike lanes and sidewalks.	$ 17,326,000	$ 51,955,534	2026-2035		Roads/bridges	Yes	Yes
10575	Washington Co.	Washington Co.	West Union to Cornelius Pass Improvements	Cornelius Pass Rd.	185th Ave.	Arterial	Widen from two to five lanes with bike lanes and sidewalks.	$ 26,192,000	$ 78,542,037	2026-2035		Roads/bridges	Yes	
10577	Washington Co.	Washington Co.	Scholls Ferry Improvements	Allen Blvd.	Beaverton-Hillsdale Hwy.	Arterial	Widen roadway from two to three lanes with bike lanes and sidewalks	$ 22,587,000	$ 67,731,712	2026-2035		Roads/bridges	Yes	
10580	Washington Co.	Washington Co.	Butner Rd. Improvements	Murray Blvd.	Cedar Hills Blvd.	Collector	Widen to 3 lanes with bike lanes and sidewalks.	$ 18,515,000	$ 55,520,992	2026-2035		Roads/bridges	Yes	
10582	Washington Co.	Washington Co.	185th Ave. Improvements	T.V. Hwy.	Farmington Rd.	Arterial	Widen to five lanes with bike lanes and sidewalks	$ 26,435,000	$ 79,270,722	2026-2035		Roads/bridges		Yes
10584	Washington Co.	Washington Co.	Alexander St. Improvements	170th Ave.	209th Ave.	Collector	Widen to three lanes with bike lanes and sidewalks.	$ 26,233,000	$ 78,664,984	2026-2035		Roads/bridges		
10585	Washington Co.	Washington Co.	Johnson St. Improvements	185th Ave.	Cornelius Pass Rd.	Collector	Widen to three lanes with bike lanes and sidewalks.	$ 24,333,000	$ 72,967,448	2026-2035		Roads/bridges		
10586	Washington Co.	Washington Co.	198th Ave. Improvements	T.V. Hwy.	Baseline Rd.	Collector	Widen to three lanes with bike lanes and sidewalks.	$ 24,194,000	$ 72,550,628	2026-2035		Roads/bridges	Yes	
10591	Washington Co.	Washington Co.	Glencoe Rd. Improvements	Evergreen Rd.	Jackson Ave.	Arterial	Widen to three lanes with bike lanes and sidewalks.	$ 26,016,000	$ 52,703,642	2018-2025		Roads/bridges		
10594	Tigard	Washington Co.	Greenburg Rd. Improvements	Gomartin Ln.	Washington Square Dr.	Major Arterial	Widen to five lanes with bike lanes and sidewalks.	$ 15,547,000	$ 46,620,841	2026-2035		Roads/bridges		Yes
10595	Washington Co.	ODOT	Hall Blvd. Improvements	Scholls Ferry Rd.	Durham Rd.	Arterial	Widen to five lanes with bike lanes and sidewalks.	$ 85,401,000	$ 173,006,756	2018-2025		Roads/bridges		Yes
10598	Washington Co.		I-5/99W Southern Arterial ROW	Hwy. 99W	I-5	Arterial	Purchase right-of-way when all project conditions are met: including integration with land use plans for UGB expansion areas and Urban Reserves, Conducting the I-5 South Corridor Refinement Plan, including Mobility Corridors 2, 3, and 20 and resolution of access between I-5 and southern arterial with no negative impacts to I-5 and I-205 beyond the forecasted No-Build condition, addressing NEPA to determine the preferred alignment and addressing any conditions associated with land use goal exception for southern arterial.	$ 90,000,000	$ 133,221,986	2008-2017		Roads/bridges	Yes	
10599	Washington Co.	ODOT	Hwy. 217/72nd Ave. Interchange Improvements	N/A	N/A I-5	Freeway/Arterial	Complete interchange reconstruction with additional ramps and overcrossings.	$ 19,537,000	$ 39,578,377	2018-2025		Throughways		
10609	Washington Co.	Washington Co.	Science Park Dr. Bike	Murray Blvd.	Cornell Rd.	Collector	Complete 3600 feet of bike lanes in town center.	$ 2,124,000	$ 3,144,039	2008-2017		Pedestrian		
10623	Beaverton	Beaverton	Hall Blvd. multimodal street extension to Jenkins Rd.	Hall Blvd.	Jenkins Rd.	Arterial	Construct new 4 lane street (2 lane boulevard design if all other Regional Center street connections are complete) with bike lanes and sidewalks.	$ 14,400,000	$ 43,181,328	2026-2035		Roads/bridges	Yes	
10637	Beaverton	Beaverton	Millikan Way safety, bicycle and pedestrian improvements and 4/5 lanes from Murray to 141st	Tualatin Valley Hwy	141st Ave.	Collector	Add bikelanes in gaps, vehicle and turn lanes as needed, and signals as warranted.	$ 17,100,000	$ 34,641,462	2018-2025		Roads/bridges		Yes

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10641	Washington Co.		102nd/103rd 2 lane multimodal connection	Western Ave.	Walker Rd.	Neighborhood Route	Connect streets and construct bike lanes and sidewalks. Realign intersection at BH Hwy and Western.	$ 16,500,000	$ 49,478,605	2026-2035		Roads/bridges		
10675	Sherwood		Adams Ave Signal & Interconnect on T-S Rd.	T-S Rd.	at Adams	Minor Arterial	Install traffic signal at Adams Ave. and interconnect the signals along T-S road between Cipole and Borchers.	$ 1,875,000	$ 2,775,458	2008-2017		Roads/bridges		Yes
10678	Sherwood	Sherwood	Century Dr.	Adams Ave	T-S Rd.	Collector	Construct 3 lane road and sidewalks.	$ 5,170,000	$ 7,652,863	2008-2017		Roads/bridges		
10684	Sherwood	Sherwood	Cedar Brook Way	99W	99W	Local	Construction of 2 lane road.	$ 2,640,000	$ 3,907,845	2008-2017		Roads/bridges		
10686	Sherwood	Sherwood	Smith Ave	Meinecke	Woodhaven Dr	Local	Construction of 2 lane road.	$ 2,090,000	$ 4,233,957	2018-2025		Roads/bridges		
10687	Sherwood	Sherwood	South Loop Rd.	99W	99W	Local	Construction of 2 lane frontage road.	$ 3,410,000	$ 6,908,034	2018-2025		Roads/bridges		
10688	Sherwood	Sherwood	Villa Rd.	Park St	Stellar Dr	Local	Construction of 2 lane road.	$ 5,010,700	$ 15,025,603	2026-2035		Roads/bridges		Yes
10689	Sherwood	Sherwood	Cannery Arterials			Local	Phase 2 of Downtown Streetscapes Master Plan.	$ 6,667,000	$ 9,868,789	2008-2017		Roads/bridges	Yes	
10696	Sherwood	Sherwood	Town Center Pedestrian Improvements			N/A	Pedestrian upgrades in town center: 12th St., Century, 99W cross streets, Main St, Washington, Langer, Baler, Borchers.	$ 1,590,600	$ 3,222,264	2018-2025		Pedestrian		Yes
10697	Sherwood	Sherwood	2040 Corridor Pedestrian Improvements			N/A	Sherwood Blvd, Edy Rd, Oregon St pedestrian upgrades.	$ 3,026,000	$ 6,130,121	2018-2025		Pedestrian		
10698	Sherwood	Sherwood	Sunset Blvd.	Aldergrove	Eucalyptus	Minor Arterial	Reconstruct road to 3 lane arterial standards; address vertical crest sight distance issue near Pine St.	$ 8,316,000	$ 24,937,217	2026-2035		Roads/bridges		
10706	Sherwood	ODOT	99W Pedestrian Improvements	UGB South	UGB North	Principal arterial	Pedestrian upgrades.	$ 1,090,000	$ 2,208,140	2018-2025		Pedestrian	Yes	
10707	Sherwood	ODOT	99W - Sherwood TC Bicycle/Ped Bridges	Sunset Blvd	Edy Rd	Principal arterial	Ped/bike bridges over 99W at Sunset, Meinecke, Edy.	$ 13,300,000	$ 39,882,754	2026-2035		Pedestrian		
10710	Tualatin	Tualatin	Cipole	Herman	N/A	Local	Signalize intersection & realign railroad crossing.	$ 5,600,000	$ 11,344,572	2018-2025		Roads/bridges		
10711	Tualatin	Tualatin	Teton	Tualatin Rd	N/A	Local	Signalize intersection.	$ 307,000	$ 621,926	2018-2025		Roads/bridges		
10712	Tualatin	Tualatin	Boones Ferry	Martinazzi	Lower Boones Ferry	Minor Arterial	Reconstruction/widen from Martinazzi to Lower Boones Ferry Road.	$ 12,300,000	$ 24,917,543	2018-2025		Roads/bridges		
10713	Tualatin	Tualatin	Leveton	130th	Cipole Rd	Local	Extension.	$ 9,070,000	$ 18,374,156	2018-2025		Roads/bridges		
10717	Tualatin	Tualatin	Cipole	ORE 99W	Tualatin-Sherwood	Local	Reconstruct/widen to 3 lanes from 99W to Tualatin-Sherwood Road.	$ 13,000,000	$ 26,335,615	2018-2025		Roads/bridges		
10719	Tualatin	Tualatin	Leveton Ind. Area	108th	118th	Local	Widen Leveton Drive to 5 lanes, signalize the 108th/Leveton intersection, signalize 108th/Tualatin intersection.	$ 10,400,000	$ 21,068,492	2018-2025		Freight		
10723	Tualatin	ODOT	ORE 99W	Cipole	River	Major Arterial	Widen to 6 lanes from Cipole to the Tualatin River.	$ 14,400,000	$ 43,181,328	2026-2035		Roads/bridges	Yes	Yes
10726	Tualatin	Tualatin	Sagert	Martinazzi	65th	Local	Widen to 5 lanes from Martinazzi to 65th, signalize 65th/Sagert intersection & sidewalks on overpass.	$ 40,000,000	$ 119,948,133	2026-2035		Roads/bridges	Yes	
10727	Tualatin	Tualatin	90th	Tualatin	Tualatin-Sherwood	Local	Widen to 5 lanes from 90th to Tualatin-Sherwood.	$ 36,250,000	$ 108,702,995	2026-2035		Roads/bridges		
10732	Tualatin	ODOT	Boones Ferry	Norwood	Day	Minor Arterial	Widen to 5 lanes from Norwood to Day Rd.	$ 40,050,000	$ 81,133,951	2018-2025		Roads/bridges	Yes	
10743	Tualatin	ODOT	99W	City Limits	City Limits	Major Arterial	Install sidewalks from Cipole to Tualatin River.	$ 10,400,000	$ 31,186,515	2026-2035		Pedestrian	Yes	
10750	Tigard		Greenburg Road Improvements	Tiedeman Ave.	Hwy. 99W	Arterial	Widen to 5 lanes.	$ 15,017,000	$ 30,421,687	2018-2025		Roads/bridges	Yes	
10752	Tigard	Tigard	Bonita Road Improvements	Hall Blvd.	Bangy Road	Arterial	Widen to 4 lanes.	$ 36,000,000	$ 53,288,794	2008-2017		Roads/bridges		
10756	Tigard	Tigard	72nd Ave. Improvements	Hunziker Road	Bonita Road	Arterial	Widen to 5 lanes with bikeways and sidewalks	$ 28,166,850	$ 41,693,819	2008-2017		Freight		
10757	Tigard	Tigard	72nd Ave. Improvements	Bonita Road	Durham Road	Arterial	Widen to 5 lanes with bikeways and sidewalks	$ 15,425,000	$ 22,832,768	2008-2017		Roads/bridges		
10758	Tigard	Tigard	Dartmouth Street Extension	Durham Road	Hunziker Road	Collector	3 lane extension; new Highway 217 overcrossing.	$ 58,690,500	$ 118,896,184	2018-2025		Roads/bridges		
10765	Tigard	Washington Co.	Hall Blvd. Extension	Durham Road	Tualatin	Arterial	Extend Hall Boulevard across Tualatin River.	$ 87,220,000	$ 176,691,716	2018-2025		Roads/bridges		
10772	Forest Grove	Forest Grove	David Hill	HWY 47	Brook St.	Minor Arterial	Extend easterly from Thatcher Road to Sunset Drive (Highway 47) as a arterial facility with left-turn lanes at major intersections, traffic signal and turn lanes at Hwy47.	$ 5,000,000	$ 7,401,221	2008-2017		Roads/bridges	Yes	
10780	Forest Grove	ODOT	Hwy 47 Intersection Improvements	Purdin	B St.	Local	Various intersection improvements including signalization, turning lanes, widening, and access improvements (Purdin/Verborrt, David Hill, Porter, Oak, Martin/24th, Quince/Pacific, 19th, Fern Hill/Oak, B Street).	$ 8,300,000	$ 12,286,028	2008-2017		Roads/bridges		

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10825	Hillsboro	Hillsboro	Amberglen Parkway	Wilkins	Stucki Extn	Minor Arterial	Extend 3 lane road with bike lanes/sidewalks.	$ 1,800,000	$ 2,664,440	2008-2017		Roads/bridges	Yes	
10828	Hillsboro	Hillsboro	Edgeway	Holly St.	Walker Rd	Collector	Extend as 2/3 lane with bike/sidewalks.	$ 4,000,000	$ 8,103,266	2018-2025		Roads/bridges		Yes
10829	Hillsboro	Hillsboro	Wilkins Extension	206th	185th	Collector	Extend as 2/3 lane with bike/sidewalks.	$ 16,000,000	$ 47,979,253	2026-2035		Roads/bridges	Yes	Yes
10844	Hillsboro	Hillsboro	Cornelius Pass Road	TV Hwy.	Rosa Rd Extn	Major Arterial	Extend as a 5 lane facility with bike lanes/sidewalks with rail grade separation and Butternut Creek Bridge. Add turn lanes at TV Hwy. Realign P&W RR.	$ 45,000,000	$ 91,161,743	2018-2025		Roads/bridges	Yes	Yes
10845	Hillsboro	Hillsboro	Evergreen Rd	Glencoe Rd	Hornecker	Local	Extend new 3-lane roadway with bike/sidewalks.	$ 12,512,000	$ 37,519,776	2026-2035		Roads/bridges		Yes
10857	Portland	Portland	Jenne/Foster	Intersection Jenne/Foster		Minor Arterial	Add second EB left turn lane. Requires widening of Jenne North.	$ 540,780	$ 1,095,521	2018-2025		Roads/bridges	Yes	
10858	Portland	Portland	174th/Powell	Intersection of 174th/Powell		Major Arterial	Improve intersection to 5 lane section.	$ 1,860,824	$ 3,769,688	2018-2025		Roads/bridges	Yes	Yes
10859	Gresham	Gresham	Pleasant View Dr., Powell Loop to Highland Drive	Powell Loop	Highland Drive	Local	Widen roadway and construct curb and gutter, sidewalks, bike lanes and storm drainage.	$ 8,965,420	$ 13,271,012	2008-2017		Roads/bridges		
10900	TriMet		Washington County Commuter Rail Frequency improvements	N/A	N/A	Other	Beaverton to Wilsonville frequency and span of service improvements. Will require capital improvements including DMUs.	$ 250,000,000	$ 370,061,071	2008-2017		Transit capital		
10905	TriMet		MAX light rail: Blue Line east : station upgrades	N/A	N/A	Other	Refurbish older MAX station platforms along Banfield / Burnside.	$ 15,000,000	$ 22,203,664	2008-2017		Transit capital		
10907	TriMet		High Capacity Transit: Barbur / 99W Corridor (Portland to Tigard or Sherwood)	N/A	N/A	Other	Portland to Tigard/King City HCT Line. Assumes expansion of existing bases or 3rd LRT operating base as part of project. Continue work as part of the HCT System Expansion Policy. Priority for next corridor to enter project development will be determined as part of the RTP this fall.	$ 1,656,250,000	$ 2,451,654,597	2008-2017		Transit capital		
10909	TriMet		Powell / Division On-Street BRT	N/A	N/A	N/A	On-Street BRT on Powell/Division from Portland CBD to Gresham TC.	$ 20,000,000	$ 36,086,966	2008-2035		Transit capital		
10920	TriMet		MAX LRT: Rose Quarter junction track and intersection improvements	N/A	N/A	Other	Improve operations, possible grade separation, bike accommodation.	$ 25,000,000	$ 37,006,107	2008-2017		Transit capital		
10922	TriMet		MAX LRT: Gateway junction restructuring	N/A	N/A	Other	Track reconfiguration to provide direct N/S operations and eliminate single track section.	$ 70,000,000	$ 141,807,156	2018-2025		Transit capital		
10923	TriMet		MAX LRT: Downtown Portland speed and capacity improvements	N/A	N/A	Other	Train speed and station spacing study, signal upgrades.	$ 5,000,000	$ 9,021,741	2008-2035		Transit capital	Yes	
10980	Portland		Streetcar Master Plan	N/A	N/A	Other	Planning program for future Portland streetcar lines.		$ -	2008-2017		Transit capital	Yes	
10985	TriMet		Sunset Park & Ride rework to match Peterkort redevelopment	N/A	N/A	N/A	Redesign to expand park & ride lot and integrate station with pending site development.	$ 6,000,000	$ 8,881,466	2008-2017		Transit capital		
10986	TriMet		Fuller Rd Park & Ride reconfiguration	N/A	N/A	N/A	Reconfigure / structure Fuller P&R for TOD opportunity.	$ 10,000,000	$ 20,258,165	2018-2025		Transit capital		
10987	TriMet		Gresham City Hall Park & Ride reconfiguration	N/A	N/A	N/A	Reconfigure / structure City Hall P&R for TOD opportunity.	$ 3,000,000	$ 4,440,733	2008-2017		Transit capital		
10988	TriMet		Incremental increases in park & ride lots and capacities	N/A	N/A	N/A	50-space +/- lots (or additions to existing lots) in communities. 20 lots region-wide.	$ 20,000,000	$ 29,604,886	2008-2017		Transit capital	Yes	Yes
10991	TriMet		Gateway Phase 2 TOD development	N/A	N/A	N/A	Coordinate with development and garage expansion.	$ 3,724,000	$ 5,512,430	2008-2017		Transit capital	Yes	
10992	TriMet		Gateway Phase 3 TOD development	N/A	N/A	N/A	Reconfigure bus TC function alongside P&R structure per master plan.	$ 3,500,000	$ 5,180,855	2008-2017		Transit capital	Yes	Yes
10996	TriMet		Rose Quarter Transit Center reconstruction	N/A	N/A	N/A	Reconstruct TC to better suit circulation and redevelopment needs.	$ 8,000,000	$ 11,841,954	2008-2017		Transit capital		
11037	TriMet		Merlo bus operating base expansion	N/A	N/A	N/A	Pave graveled property for bus parking expansion.	$ 1,000,901	$ 2,027,642	2018-2025		Transit capital		Yes
11039	TriMet		Center Street bus operating base expansion	N/A	N/A	N/A	Phase 2 to include administrative offices.	$ 11,997,000	$ 17,758,491	2008-2017		Transit capital		
11041	TriMet		4th bus base	N/A	N/A	N/A	Land acquisition and construction of a 4th bus base.	$ 77,000,000	$ 230,900,156	2026-2035		Transit capital	Yes	
11045	Washington Co.		Baseline @ 185th Improvement	185th Ave.	Baseline	Arterial	Grade separate intersection. Local TSPs and the TV Hwy. Corridor Refinement Plan will need to re-evaluate the need for this project which exceeds the RTP policy of 5 lane arterials. Sufficient documentation will need to be provided that all other solutions have been exhausted, including system management and operations strategies, increased transit service, changes to land use, etc. consistent with the congestion management process. The projects were identified to meet current mobility standards that may be revised as part of the alternative mobility standards work that will be conducted in 2010.	$ 24,700,000	$ 50,037,668	2018-2025		Roads/bridges		

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11056	Tualatin	Tualatin	108th Ave.	Leveton Dr	Herman Rd	Major Arterial	Widen 108th Ave from one travel lane in each direction to two travel lanes in each direction with a continuous left turn lane.	$ 5,600,000	$ 11,344,572	2018-2025		Roads/bridges	Yes	
11075	Gresham	Gresham	East Buttes Loop Trail (S) (Informally known as "Kelly Creek Trail"	East Buttes Loop Trail approx. 0.7 mile south of the	South of Kelley Creek approx. 2.2 miles then back to the	Other	Construct 8' wide "soft surface" trail	$ 1,450,527	$ 2,147,134	2008-2017		Regional Trail		
11082	Lake Oswego		Carman Dr. sidewalks & bike lanes	Meadows Rd	I-5	Major Collector	Add bike lanes and pedestrian pathway	$ 760,000	$ 1,124,986	2008-2017		Pedestrian		Yes
11083	Lake Oswego		Iron Mountain / Upper Drive	10th St.	Bryant Rd.	Major Collector	Add bike lanes	$ 3,900,000	$ 5,772,953	2008-2017		Bike	Yes	
11084	Lake Oswego		Pilkington Rd bike lanes/ sidewalk	Boones Ferry Rd	Childs Rd	Major Collector	Widen and improve to provide bike//ped facility	$ 1,510,000	$ 2,235,169	2008-2017		Bike	Yes	
11085	Lake Oswego		Kerr Parkway bike lanes	Stephenson	Boones Ferry Rd	Minor Arterial	Add bike lanes and reconstruct roadway	$ 3,000,000	$ 4,440,733	2008-2017		Bike	Yes	
11087	Lake Oswego		Bryant Rd bike lanes/pathway	Childs Rd	Boones Ferry Rd	Major Collector	Add bike lanes	$ 4,295,000	$ 6,357,649	2008-2017		Bike	Yes	
11096	Gresham	Gresham	Cleveland St. Reconstruction.	Burnside	Stark	Collector	Reconstructs street from Stark to Burnside.	$ 13,838,103	$ 20,483,773	2008-2017		Roads/bridges	Yes	Yes
11097	Gresham	Gresham	Orient Dr. Imps.	South City Limits	East to 282nd Ave.	Arterial	Upgrades to arterial 4 lane standards.	$ 9,000,000	$ 18,232,349	2018-2025		Roads/bridges	Yes	
11098	Gresham	Gresham	Rockwood TC 181st LRT station and Ped Enhancements			Other	Improve sidewalks, lighting, crossings, bus shelters, benches at 181st LRT station, on Stark St. and other intersecting streets.	$ 8,919,615	$ 18,069,503	2018-2025		Transit capital	Yes	
11101	Gresham	Gresham	East Buttes Loop Trail: 190th west to Springwater Trail	190th	Springwater Trail	Other	Construct new shared use trail (12' wide pervious asphalt)	$ 5,515,000	$ 8,163,547	2008-2017		Regional Trail		
11116	Portland		SW Garden Home Road	SW Capitol Hwy	SW Multnomah Blvd	Collector	Pedestrian and bicycle safety improvements, including drainage designed for constrained right-of-way.	$ 1,795,000	$ 2,657,038	2008-2017		Roads/bridges	Yes	
11117	Portland		St. Helens Rd. (US 30), (in vicinity of NW Balboa) Connectivity Improvements	NW Balboa		Collector	Provide an alternative crossing of the BNSF Railroad to improve connectivity and safety between US 30 and the industrial properties served by NW Front Avenue in the Willbridge area of the NW Industrial District.	$ 23,113,022	$ 34,212,919	2008-2017		Roads/bridges	Yes	
11128	Multnomah Co.	Multnomah Co.	Morrison Bridge Rehabilitation - Phase 2			Major Arterial	Rehabilitate mechanical system, approach structure, corrosion control, phase 1 seismic. (Phase 2)	$ 19,300,000	$ 28,568,715	2008-2017		Roads/bridges	Yes	
11129	Multnomah Co.	Multnomah Co.	Burnside Bridge Rehabilitation - Phase 2			Major Arterial	Rehabilitate mechanical system, approach structure, corrosion control, phase 1seismic. (Phase 2)	$ 16,600,000	$ 24,572,055	2008-2017		Roads/bridges	Yes	
11130	Troutdale/Port	Troutdale	Graham Road Reconstruction Phase 2	I-84 North Frontage Road	Sundial Road	Local	Reconstruct and widen Graham Road	$ 8,500,000	$ 12,582,076	2008-2017		Roads/bridges	Yes	
11245	Cornelius	Cornelius	Davis St.	10th Ave	19th Ave	Local	Widen street and add sidewalks	$ 750,000	$ 1,110,183	2008-2017		Roads/bridges	Yes	
11246	Cornelius	Cornelius	Dogwood St.	12th Ave	20th Ave	Local	Build out sidewalk gaps.	$ 210,000	$ 310,851	2008-2017		Pedestrian	Yes	
11247	Cornelius	Cornelius	Heather St.	8th Ave	10th Ave	Local	Build out sidewalk gaps.	$ 75,000	$ 151,936	2018-2025		Pedestrian	Yes	
11248	Cornelius	Cornelius	4th Ave	3F Railroad	Barlow	Local	Build out sidewalk gaps.	$ 75,000	$ 111,018	2008-2017		Pedestrian	Yes	
11249	Cornelius	Cornelius	19th/20th Ave	N.City Limits	S. City Limits	Local	Build out sidewalk gaps.	$ 225,000	$ 333,055	2008-2017		Pedestrian	Yes	
11250	Cornelius	Cornelius	26th Ave	Holladay St	S. City Limits	Local	Build out sidewalk gaps.	$ 110,000	$ 162,827	2008-2017		Pedestrian	Yes	
11251	Cornelius	Cornelius	29th Ave	3F Railroad	Baseline	Local	Improve to collector standards including sidewalks.	$ 750,000	$ 1,110,183	2008-2017		Roads/bridges	Yes	
11252	Gresham	Gresham	Halsey St.: Arterial Corridor Management (ACM)	162nd	181st Ave	Major Arterial	Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide realtime and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions.	$ 4,900,000	$ 9,926,501	2018-2025		ITS		
11253	Gresham	Gresham	Stark St.: Arterial Corridor Management (ACM)	162nd	190th	Major Arterial	Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide realtime and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions.	$ 3,600,000	$ 5,328,879	2008-2017		ITS		

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11254	Gresham	Gresham	Glisan St.: Arterial Corridor Management (ACM)	162nd	242nd. Ave.	Major Arterial	Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide realtime and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions.	$ 4,500,000	$ 6,661,099	2008-2017		ITS		
11255	Gresham	Gresham	Division St.: Arterial Corridor Management (ACM) - Signal equipment upgrade	160th	190th	Minor Arterial	Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide realtime and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions.	$ 700,000	$ 1,036,171	2008-2017		ITS		
11256	Gresham	Gresham	Division St.: ACM - Auto-Adaptive Signal Timing and Transit Priority Treatment	Birdsdale	US 26	Minor Arterial	Includes the ACM with both adaptive signal timing and transit priority treatment.	$ 1,400,000	$ 2,072,342	2008-2017		ITS		
11257	Gresham	Gresham	SE Division: ACM - Traveler Information	182nd	Birdsdale	Minor Arterial	Provide real time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions.	$ 250,000	$ 370,061	2008-2017		ITS		
11258	Gresham	Gresham	Powell Blvd.: Arterial Corridor Management (ACM) - Signal equipment upgrade	Birdsdale	US 26	Major Arterial	Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings.	$ 1,900,000	$ 2,812,464	2008-2017		ITS		Yes
11259	Gresham	Gresham	SE Powell Blvd.: ACM - Traveler Information	190th	Birdsdale	Major Arterial	Provide real time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions.	$ 200,000	$ 296,049	2008-2017		ITS		Yes
11260	Gresham	Gresham	223rd Ave.: Arterial Corridor Management (ACM)	Glisan	Burnside	Major Arterial	Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide realtime and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions.	$ 1,200,000	$ 1,776,293	2008-2017		ITS		Yes
11261	Gresham	Gresham	NE 181st/182nd Ave.: ACM with Transit Priority Treatment	Glisan	Powell	Major Arterial	Includes the ACM project with transit signal priority added to traffic signals along a facility.	$ 2,000,000	$ 2,960,489	2008-2017		ITS		Yes
11262	Gresham	Gresham	NE 181st Ave: ACM with Adaptive Signal Timing and Transit Priority Treatment	I-84	Glisan	Major Arterial	Provide real time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions.	$ 1,700,000	$ 2,516,415	2008-2017		ITS		
11263	Gresham	Gresham	Burnside: Traveler Information Only	223rd Ave	Powell	Major Arterial	Adaptive signal timing is in place along this segment, traveler information will be added.	$ 950,000	$ 1,406,232	2008-2017		ITS	Yes	
11264	Gresham	Gresham	US 26 Roadside Travel Time Information	Portland	Gresham	Principal arterial	Provide real time traveler information on westbound US 26 for different routes (arterial and freeway) between Portland and Gresham.	$ 100,000	$ 148,024	2008-2017		ITS	Yes	
11265	Gresham	Gresham	Transportation Management Associations	Gresham Regional Center			Support public private partnerships in regional or town centers that assist employees and/or residents increase use of travel options.	$ 675,000	$ 999,165	2008-2017		TDM	Yes	
11266	Gresham	Gresham	Travel Options - Individualized Marketing	Gresham Civic Station neighborhood			Implement and/or support intensive outreach to targeted neighborhoods that encourages use of travel options through delivery of local travel options information and services to interested residents.	$ 1,170,000	$ 1,731,886	2008-2017		TDM	Yes	
11267	Gresham	Gresham	Transportation Management Associations	Gresham Regional Center			Support public/private partnerships in regional or town centers that assist employees and/or residents increase use of travel options.	$ 675,000	$ 999,165	2008-2017		TDM	Yes	
11268	Gresham	Gresham	Parking management	Gresham Regional Center			Convene stakeholders to plan and implement parking management strategies. Ideally this action raises revenue to expand TDM solutions.	$ 900,000	$ 1,332,220	2008-2017		TDM		
11269	Gresham	Gresham	Bike Sharing	Transit oriented developments, large employers, colleges, hotels and significant transit stops.			Provide funding to implement bikes for loan or rent.	$ 550,000	$ 814,134	2008-2017		TDM		Yes
11270	Gresham	Gresham	Car share operations	Gresham Regional Center			Support 3 or more carsharing vehicles in developing centers.	$ 1,800,000	$ 2,664,440	2008-2017		TDM	Yes	
11271	Happy Valley	Happy Valley	Misty Drive	162nd Ave.	177th Ave.	Collector	Construct a new 3 lane roadway with sidewalks, bike lanes, traffic signals and a bridge over Rock Creek	$ 27,849,847	$ 56,418,680	2018-2025		Roads/bridges		
11272	Hillsboro	Hillsboro	Kinnaman Rd. Extension	209th	Century Blvd. Extension	Collector	Construct 3 lane with bike lanes and sidewalks	$ 7,900,000	$ 11,693,930	2008-2017		Roads/bridges		Yes

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11273	Hillsboro	Hillsboro	Alexander St. Extension	229th	209th at Blanton	Collector	Construct 3 lane with bike lanes and sidewalks	$ 7,000,000	$ 10,361,710	2008-2017		Roads/bridges	Yes	
11274	Hillsboro	Hillsboro	Century Blvd Extension	Area 71 UGB	229th	Collector	Construct 3 lane with bike lanes and sidewalks	$ 3,000,000	$ 4,440,733	2008-2017		Roads/bridges		Yes
11275	Hillsboro	Hillsboro	Walker Rd. Extension	Stucki	Amberwood Dr.	Collector	Construct 3 lane with bike lanes and sidewalks	$ 2,500,000	$ 3,700,611	2008-2017		Roads/bridges		
11276	Hillsboro	Hillsboro	Stucki Ave. Extension	Walker Rd	206th/LRT	Minor Arterial	Construct 3 lane with off-street bike lanes and sidewalks, Realign intersection of Walker and Stucki	$ 10,000,000	$ 14,802,443	2008-2017		Roads/bridges		
11277	Hillsboro	Hillsboro	194th Ave. Extension	Cornell Rd	Amberglen Pkwy	Collector	Construct 2/3 lane with sidewalks and LRT in part or all of new segment	$ 3,000,000	$ 4,440,733	2008-2017		Roads/bridges		
11278	Hillsboro	TriMet	Red Line LRT Extension	Quatama LRT	Evergreen TC	Transit	Provide local match funding to leverage federal funds for LRT extension thru Amberglen. Continue work as part of the HCT System Expansion Policy. Next phase corridor as identified in the HCT System plan and adopted by JPACT and Metro Council.	$ 25,000,000	$ 50,645,413	2018-2025		Transit capital		
11279	Hillsboro	ODOT/Wash. Co	US-26 at 185th/Stucki Interchange Capacity Improvements	N/A	N/A	Throughway	Improvements to interchange access to and from the south.	$ 25,000,000	$ 50,645,413	2018-2025		Throughways		
11280	Hillsboro	Hillsboro	East-West Connector	229th/Century	Aloclek	Neighborhood Route	Construct 2/3 lane roadway with sidewalks	$ 3,000,000	$ 6,077,450	2018-2025		Roads/bridges		
11282	Hillsboro	Hillsboro	Minter Bridge Rd	River Road	South UGB	Minor Arterial	Widen to provide sidewalks and bike lanes	$ 2,000,000	$ 4,051,633	2018-2025		Roads/bridges		Yes
11283	Hillsboro	Hillsboro	Brookwood (247th)	South UGB	River Road	Minor Arterial	Extend 3 lanes with sidewalks and bike lanes South UGB to River Rd with culvert crossing Gordon Creek	$ 13,000,000	$ 26,335,615	2018-2025		Roads/bridges	Yes	Yes
11284	Hillsboro	Washington Co.	Farmington Rd	185th	198th	Minor Arterial	Widen to 5 lanes with bike lanes and sidewalks.	$ 24,000,000	$ 48,619,596	2018-2025		Roads/bridges		Yes
11285	Hillsboro	Washington Co.	Farmington Rd	198th	209th	Minor Arterial	Widen to 5 lanes with bike lanes and sidewalks.	$ 18,000,000	$ 36,464,697	2018-2025		Roads/bridges	Yes	Yes
11286	Lake Oswego		Hwy 43 / Terwilliger Tryon Creek Bridge	G Ave	500-feet North of Terwilliger intersection	Major Arterial	Replace existing box culvert with potential new bridge over Tryon Creek	$ 12,000,000	$ 17,762,931	2008-2017		Roads/bridges	Yes	
11287	Multnomah Co.	Multnomah Co.	Halsey St Improvements	223rd Ave	238th Ave.	Minor Arterial	Improve Halsey St to 3 lane minor arterial with center turn lane/median, sidewalk and bicycle lanes, consistent with Halsey Street Conceptual Design Plan	$ 6,000,000	$ 8,881,466	2008-2017		Roads/bridges		
11289	Multnomah Co.	Multnomah Co.	Cornelius Pass Road Safety Improvements - ITS	US 30	Washington County	Rural Arterial	Implement ITS improvements recommended in FHWA Safety Audit; i.e., electronic messaging signs, photo radar/ticketing.	$ 2,000,000	$ 2,960,489	2008-2017		ITS		
11290	Multnomah Co. & East Co. Cities		Transportation Management Associations	CCRD			Support public/private partnerships in CCRD that assist employees and/or residents increase use of travel options.	$ 675,000	$ 999,165	2008-2017		TDM	Yes	Yes
11291	Multnomah Co. & East Co. Cities	To be determined	CCRD Employee Shuttle	CCRD			Initiate transit/shuttle to regional transit system.	$ 100,000	$ 148,024	2008-2017		TDM	Yes	Yes
11292	Multnomah Co. & East Co. Cities	To be determined	Rideshare incentives - for East Multnomah County	I-84			Leverage regional rideshare services to encourage greater levels of carpooling and vanpooling by providing financial incentives to commuters. $50k annually	$ 450,000	$ 666,110	2008-2017		TDM	Yes	Yes
11293	Multnomah Co. & East Co. Cities	To be determined	Locate efficient living				Support programs and strategies that promote and advance location efficient living strategies.	$ 450,000	$ 666,110	2008-2017		TDM		
11294	Multnomah Co. & East Co. Cities	To be determined	Travel Options: Individualized Marketing	Fairview, Troutdale, Wood Village			Implement and/or support intensive outreach to targeted neighborhoods that encourages use of travel options through delivery of local travel options information and services to interested residents.	$ 450,000	$ 666,110	2008-2017		TDM		
11295	Multnomah Co.	Multnomah Co.	Cornelius Pass Road Reconstuction (north)	US 30	Mile Post 2.8	Rural Arterial	Widen road segments to provide shoulder, new box culvert, possible passing lane segments.	$ 22,000,000	$ 44,567,963	2018-2025		Roads/bridges	Yes	
11296	Multnomah Co.	Multnomah Co.	Cornelius Pass Road Reconstuction (south)	Skyline Rd	Washington County line (MP 4.9)	Rural Arterial	Widen road segments to provide shoulder, possible passing lane, improve intersection of CPR/Skyline	$ 20,000,000	$ 40,516,330	2018-2025		Roads/bridges	Yes	
11297	Multnomah Co.	Multnomah Co.	NE 207th Ave.: Arterial Corridor Management (ACM)	Sandy	Glisan	Major Arterial	Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide realtime and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions.	$ 850,000	$ 1,258,208	2008-2017		ITS		
11298	Multnomah Co.	Multnomah Co.	Cornelius Pass Road Safety Improvements - TSM	US 30	Washington County line (MP 4.9)	Rural Arterial	Implement system management improvements recommended in FHWA Safety Audit; i.e., targeted shoulder widening, new/additional guard rails.	$ 6,000,000	$ 8,881,466	2008-2017		Roads/bridges	Yes	

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11299	Multnomah Co./Gresham	Multnomah Co./Gresham	257th/Kane Dr.: Arterial Corridor Management (ACM) w/ Adaptive Signal Timing	I-84	Orient Dr.	Major Arterial	Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide realtime and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions.	$ 2,800,000	$ 4,144,684	2008-2017		ITS	Yes	
11300	Multnomah Co./Gresham	Multnomah Co./Gresham	238th/242nd Ave/Hogan Dr.: ACM with Adaptive Signal Timing	Sandy	Palmquist	Minor/Principal Arterial	Includes the ACM project with signal systems that automatically adapt to current arterial that automatically adapt to current arterial roadway conditions.	$ 3,600,000	$ 5,328,879	2008-2017		ITS	Yes	
11301	ODOT	ODOT	Sunrise Project Phase 2 Construction	I-205	172nd Ave.	Principal Arterial	Construct improvements in the Sunrise corridor consistent with the supplemental EIS	$ 110,000,000	$ 162,826,871	2008-2017		Throughways		
11302	ODOT	ODOT	I-5/OR 217 Interchange Phase 2	I-5/OR 217 Interchange	N/A	Interstate	I-5/OR 217 Interchange Phase 2 - southbound OR 217 to SB I-5 ramp; southbound I-5 to Kruse Way loop ramp.	$ 50,000,000	$ 74,012,214	2008-2017		Throughways	Yes	Yes
11303	ODOT	ODOT	OR 99W Transportation System Management and Operations	N/A	N/A	Major Arterial	Implement new Transportation System Management and Operations projects on OR 99W.	$ 24,700,000	$ 36,562,034	2008-2017		TDM	Yes	
11304	ODOT	ODOT	I-5 South operational improvements	N/A	N/A	Interstate	Construct improvements to address recurring bottlenecks on I-5 south of the central city. Specific improvements as identified in operational analysis, Mobility Corridor analysis and refinement planning.	$ 220,000,000	$ 325,653,743	2008-2017		Throughways		
11305	ODOT	ODOT	I-205 operational improvements	N/A	N/A	Interstate	Construct improvements to address recurring bottlenecks on I-205. Specific improvements as identified in operational analysis, Mobility Corridor analysis and refinement planning.	$ 170,000,000	$ 251,641,528	2008-2017		Throughways		
11306	Port of Portland		T6 Second Entrance from Marine Drive				Construct 2nd entrance and rail overcrossing to improve capacity and safetyat Terminal 6.	$ 12,000,000	$ 17,762,931	2008-2017		Freight		
11307	Port of Portland		T6 Suttle Road entrance	Terminal 6			Access to T6 off the terminus of Suttle Road, improvements to existing Suttle Road.	$ 3,000,000	$ 4,440,733	2008-2017		Freight		
11308	Port of Portland		11th/13th Grade separation	Columbia	Lombard		Construct roadway overcrossing at NE 11th/13th over Kenton line.	$ 35,000,000	$ 51,808,550	2008-2017		Roads/bridges		
11309	Port of Portland		Cully Blvd. Grade separation	Columbia	Lombard		Construct roadway overcrossing at NE Cully Blvd. over Kenton line.	$ 35,000,000	$ 51,808,550	2008-2017		Roads/bridges		
11316	Portland		Lents Town Center Active Transportation Demonstration Project	Various roadways in SE Portland	Various roadways in SE Portland		Expand from existing 26 miles of developed bikeway to 53 miles, including improvements of existing facilities. Construct 4 miles of new sidewalks and undertake encouragement programs in support of new infrastructure.	$ 57,000,000	$ 170,926,089	2026-2035		Bike		
11317	Portland		Broadway Wielder Streetcar Corridor				Corridor Alternatives Analysis, public outreach, planning, design, engineering, and construction for future streetcar extension from Lloyd District to Hollywood Town Center. The new extension intended to provide streetcar service from Northwest Portland to Hollywood.	$ 65,000,000	$ 194,915,716	2026-2035		Transit capital		
11318	Portland		MLK (Broadway Killingworth) Streetcar Corridor				Corridor Alternatives Analysis, public outreach, planning, design, engineering, and construction for future streetcar extension from Lloyd District to NE Portland. The new extension intended to provide streetcar service from South Waterfront District to Northeast Portland neighborhoods.	$ 65,000,000	$ 194,915,716	2026-2035		Transit capital		Yes
11319	Portland		NW 18th/19th (Burnside to Saiver/Thurman Streetcar Corridor				Corridor Alternatives Analysis, public outreach, planning, design, engineering, and construction for future streetcar extension from western Central City to Hollywood Town Center. The new extension intended to provide streetcar service from Northwest Portland to Hollywood.	$ 35,000,000	$ 104,954,616	2026-2035		Transit capital		
11320	Portland		NE 60th & Glisan LRT Station Area	Various roadway improvements as defined in the Transportation Plan for the 60th & Glisan Station Area	Various roadway improvements as defined in the Transportation Plan for the 60th & Glisan Station Area		LRT station area as the focu for Active Transportation. Improvements are defined by the Transportation Plan included in the Eastside MAX Station Area Communities Project	$ 7,570,723	$ 11,206,519	2008-2017		Pedestrian		
11322	Portland		North Portland Greenway Active Transportation Project	Willamette Cove	to Columbia Slough in Smith & Bybee NA		The proposed trail alignment takes riders and walkers north along the river from Willamette Cove natural area.The trail parallels the active UPRR railroad line, crosses Lampros Steel property and the BES water lab before entering Cathedral Park. The trail segment then travels the Baltimore Woods corridor and turns east along industrial property before it crosses Lombard St. into Pier Park. A new bridge over the UPRR (Union Pacific Railroad) connects Pier with Chimney Park. Finally, the trail safely crosses Columbia Blvd into the Smith and Bybee Wetland Natural Area. The trail section proposed for this grant will terminate at the Columbia Slough.	$ 7,900,000	$ 11,693,930	2008-2017		Bike		

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11323	Portland		Sullivan's Gulch	Eastbank Esplande	NE 21st		Sullivan's Gulch Trail is envisioned as a five mile commuter and recreational trail that will provide a vital east-west link in the Portland Metropolitan area's bike network. A critical section of this proposed trail corridor in Northeast Portland is being submitted as a 2009 Metro Active Demonstration Transportation Project. The proposed trail section for this grant begins at Eastbank Esplanade and runs to NE 21st Street. The Sullivan's Gulch Trail is on the State RTP list. The project has been chosen to fit Metro's criteria and principles of an urban project that serves a large and significant city population "commute shed".	$ 7,700,000	$ 11,397,881	2008-2017		Bike		
11324	Portland	ODOT	Barbur Bridges	City Limits	I-405		For seismic upgrades, reconstruction and bike and ped. facilities.	$ 32,000,000	$ 47,367,817	2008-2017		Roads/bridges		
11325	Portland/Port		Alderwood/82nd Avenue					$ 1,000,000	$ 2,998,703	2026-2035		Other		
11326	Portland/Port	ODOT	NE 82nd/Columbia NB Ramp	Intersection of Columbia Blvd. And 82nd Ave NB Ramp		Major Arterial	Signalize intersection	$ 250,000	$ 749,676	2026-2035		Roads/bridges	Yes	Yes
11327	SMART		Commuter Service to Tualatin/Sherwood				Additional Service hours for new services and related bus stop and ROW improvements	$ 600,000	$ 1,215,490	2018-2035		TDM		Yes
11328	SMART		New Service to Clackamas TC				Additional Service hours for new services and related bus stop and ROW improvements	$ 3,000,000	$ 6,077,450	2018-2035		Transit capital		
11329	TriMet		Capital Projects to support TOD	N/A	N/A	N/A	Reconfigure / structure P&R and other TriMet-owned and -controlled land for TOD opportunity when market conditions or development partnerships allow.	$ 10,000,000	$ 20,258,165	2018-2035		TOD		Yes
11330	TriMet		College Station TOD	N/A	N/A	N/A		$ 1,000,000	$ 1,480,244	2008-2017		TOD		
11331	TriMet		Frequent Service Bus Capital Improvements - Phase 1	N/A	N/A	N/A	Bus stop and ROW improvements to support expansion of frequent service bus	$ 16,000,000	$ 23,683,909	2008-2017		Transit capital		
11332	TriMet		I-205 BRT	N/A	N/A	N/A	Non/Exclusive / In-lane BRT on I-205 between Clackamas and Tualatin	$ 30,000,000	$ 54,130,449	2008-2035		Transit capital		
11333	TriMet		Local and Regional Bus Improvements	N/A	N/A	N/A	Bus stop and ROW and other related transit improvements to support improvement of bus system including new and existing lines	$ 14,000,000	$ 28,361,431	2018-2035		Transit capital		
11334	TriMet		LRT Ops and Maintenance of Rail System	N/A	N/A	N/A	additional capital ops/maintence costs to support existing LRT system, including additional service, LRV and track replacement	$ 98,500,000	$ 177,728,307	2008-2035		Transit capital		
11335	TriMet		Operations and Maintenance of Bus System	N/A	N/A	N/A	Additional capital ops/maintence costs to support existing bus system including ongoing bus purchases as needed to maintain and update fleet.	$ 227,000,000	$ 409,587,064	2008-2035		Transit capital		
11336	TriMet		Parkrose Park & Ride reconfiguration for TOD	N/A	N/A	N/A	Reconfigure / structure Parkrose P&R for TOD opportunity.	$ 2,000,000	$ 4,051,633	2018-2025		TOD		
11337	TriMet		Pedestrian access improvements: Phase 2	N/A	N/A	N/A	Phase 2: Sidewalks, crosswalks and ADA improvements to transit access.	$ 6,846,598	$ 12,353,647	2008-2035		Pedestrian		
11338	TriMet		Rail Operations and Maintenance Base Improvements	N/A	N/A	N/A	Improvements and capacity expansions at Light Rail Operations and maintenance bases	$ 26,000,000	$ 77,966,286	2026-2035		Transit capital		
11339	Washington Co.		I-5/99W Southern Arterial Improvements	Hwy. 99W	124th Ave. Extension	Arterial	Construct the initial 2-3 lane arterial phase of the Southern Arterial from OR99W to the SW 124th Ave. Extension when all project conditions are met: including integration with land use plans for UGB expansion areas and Urban Reserves, Conducting the I-5 South Corridor Refinement Plan, including Mobility Corridors 2, 3, and 20 and resolution of access between I-5 and southern arterial with no negative impacts to I-5 and I-205 beyond the forecasted No-Build condition, addressing NEPA to determine the preferred alignment and addressing any conditions associated with land use goal exception for southern arterial.	$ 130,000,000	$ 263,356,147	2018-2025		Roads/bridges		
11340	Washington Co.		I-5/99W Southern Arterial Improvements	Hwy. 99W	I-5	Arterial	Expand to 4-5 lanes to serve growth in the area after improvements to Tualatin-Sherwood Rd. and an improved connection from SW Tualatin Rd. to the I-5/Lower Boones Ferry Rd. Interchange and when all project conditions are met: including integration with land use plans for UGB expansion areas and Urban Reserves, Conducting the I-5 South Corridor Refinement Plan, including Mobility Corridors 2, 3, and 20 and resolution of access between I-5 and southern arterial with no negative impacts to I-5 and I-205 beyond the forecasted No-Build condition, addressing NEPA to determine the preferred alignment and addressing any conditions associated with land use goal exception for southern arterial.	$ 80,000,000	$ 239,896,266	2026-2035		Roads/bridges		
11341	Hillsboro	Hillsboro	West Union Rd.	Helvetia Rd.	Cornelius Pass	Minor Arterial	Construct 3 lane roadway with bike lanes and sidewalks	$ 25,000,000	$ 50,645,413	2018-2025		Roads/bridges		

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11342	Washington Co.		I-5/99W Connector Southern Arterial/I-5 Interface	Hwy. 99W@ I-5		Arterial	Connect the Southern Arterial to I-5 or other surface arterials in the vicinity of the N. Wilsonville interchange when all project conditions are met: including integration with land use plans for UGB expansion areas and Urban Reserves, Conducting the I-5 South Corridor Refinement Plan, including Mobility Corridors 2, 3, and 20 and resolution of access between I-5 and southern arterial with no negative impacts to I-5 and I-205 beyond the forecasted No-Build condition, addressing NEPA to determine the preferred alignment and addressing any conditions associated with land use goal exception for southern arterial.	$ 50,000,000	$ 149,935,166	2026-2035		Roads/bridges		
11343	SMART		Pedestrian Improvements				Design & construct a variety of pedestrian improvements to enhance access to transit	$ 7,000,000	$ 10,361,710	2008-2017		Transit capital		
11351	Portland		SW Multnomah Blvd. (Barbur Blvd. to 45th Ave.)	Barbur Blvd.	45th Ave.	Local	Reconstruct street to urban standards, including curbs, sidewalks, storm sewers and upgraded street lights.	$ 4,225,000	$ 8,559,075	2018-2025		Bike		
11358	ODOT	ODOT	OR 217: Improvements	US 26	I-5	Principal arterial	Metro, ODOT, Washington County, City of Tigard and City of Beaverton participated in a joint study to explore improvements for OR 217 that improve safety and produce substantial oeprational and reliability improvements at a relatively low cost. Consistent with the Oregon Transportation Plan and the State Highway Plan, it is the intention of the partners to jointly pursue projects identified in the study and pursue additional cutting edge technological, operational and strategic capital improvements to meet identified needs in this corridor. This project would be for aggressive implementation of system management and operational improments consistent with the OR 217 Management Study. Combined with projects #10599, #11302, and #11358 provides an equivalent fo 3 lanes of capacity in each direction to meet the long-term needs identifed for Mobility Corridor #19.	$ 75,000,000	$ 151,936,239	2018-2025		Throughways		

METRO

System Performance Measures for <u>Total Region</u> Trips (includes Clark, Clackamas, Multnomah and Washington counties)
7/15/2010
(Numbers subject to change due to model refinement)

		2005	2035 No Build	2035 Federal Priorities	2035 State Investment Strategy 2.0
Demographic Data					
1	Population	1,961,153	3,096,746	3,096,746	3,096,746
2	Households	767,020	1,208,686	1,208,686	1,208,686
3	Employment	1,032,246	1,799,152	1,799,152	1,799,152
Network Data					
1 a	Total Miles in Network	6,838	6,922	7,038	7,065
b	Freeway Miles	503	516	527	527
c	Arterial Miles	6,335	6,406	6,511	6,538
d	HOV Miles	3.4	3.4	3.4	3.4
2 a	Total Lane Miles	9,621	9,823	10,239	10,314
b	Freeway Lane Miles	1,206	1,260	1,318	1,318
c	Arterial Lane Miles	8,416	8,562	8,921	8,996
3 a	Total Roadway Capacity Miles	8,812,882	9,103,668	9,498,824	9,568,956
b	Freeway Capacity Miles	2,099,974	2,232,448	2,349,539	2,364,772
c	Arterial Capacity Miles	6,712,909	6,871,220	7,149,285	7,204,184
4	Total Lane Miles Added (from 2005)		202	618	693
Motor Vehicle Data - Average Weekday (AWD)					
1 a	AWD Total Auto Person Trips	7,052,078	11,497,033	11,412,172	11,381,026
b	AWD Total SOV Trips	3,725,105	6,068,574	5,993,839	5,958,880
c	AWD Total HOV Vehicle Trips	1,427,278	2,312,059	2,298,332	2,292,560
d	AWD Total Vehicle Trips	5,152,383	8,380,633	8,292,171	8,251,440
e	AWD Total Shared Ride Person Trips	3,326,973	5,428,459	5,418,333	5,422,146
f	AWD Total Person Trips	8,170,426	13,477,916	13,477,916	13,477,916
2	AWD Total VMT	32,657,381	48,730,602	49,231,806	49,443,162
	AWD Total VMT % change from 2005	-	49%	51%	51%
3	AWD VMT/Capita	16.65	15.74	15.90	15.97
	VMT/Capita % change from 2005	-	-6%	-5%	-4%
4	AWD VMT/Employee	31.64	27.09	27.36	27.48
	VMT/Employee % change from 2005	-	-14%	-14%	-13%
5	Single Occupant Vehicle (SOV) Percent of Person Trips	45.59%	45.03%	44.47%	44.21%
6	Non-SOV Percent of Person Trips (shared ride, walk, bike, transit)	54.41%	54.97%	55.53%	55.79%
7	AWD Motor Vehicle Average Trip Length (miles)	6.05	5.52	5.64	5.70
8	Home-Based-Work Average Trip Length (miles)	9.08	8.45	8.56	8.62
9	Auto Occupancy	1.37	1.37	1.38	1.38

METRO

System Performance Measures for Total Region Trips (includes Clark, Clackamas, Multnomah and Washington counties)
7/15/2010
(Numbers subject to change due to model refinement)

		2005	2035 No Build	2035 Federal Priorities	2035 State Investment Strategy 2.0
Motor Vehicle Data - PM 2 Hour Peak					
1	PM 2-HR Motor Vehicle Average Travel Time (minutes)	14.82	16.81	16.61	16.65
2	PM 2-HR Average Motor Vehicle Travel Speed (miles per hour)	28.00	22.77	23.49	23.62
3 a	PM 2-HR Total Congested miles (0.9 <= v/c < 1) (percentage of total miles in network)	136(1.99%)	319(4.60%)	330(4.68%)	315(4.46%)
b	PM 2-HR Freeway Congested miles (percentage of freeway miles in network)	48(9.59%)	56(10.91%)	67(12.76%)	64(12.16%)
c	PM 2-HR Arterial Congested miles (percentage of arterial miles in network)	88(1.38%)	262(4.09%)	262(4.03%)	251(3.84%)
4 a	PM 2-HR Total Severely Congested miles (v/c >=1) (percentage of total miles in network)	83(1.22%)	579(8.37%)	459(6.52%)	449(6.35%)
b	PM 2-HR Freeway Severely Congested miles (percentage of freeway miles in network)	18(3.60%)	75(14.50%)	62(11.80%)	65(12.25%)
c	PM 2-HR Arterial Severely Congested miles (percentage of arterial miles in network)	65(1.03%)	504(7.87%)	396(6.09%)	384(5.87%)
5	PM 2-HR Motor Vehicle Hours	223,817	419,894	411,408	410,363
6 a	PM 2-HR Motor Vehicle Hours of Delay (percentage of total PM 2 Motor Vehicle Hours)	9,755(4.36%)	56,062(13.35%)	45,419(11.04%)	45,184(11.01%)
b	PM 2-HR Freeway VHD (percentage of total PM 2 Motor Vehicle Hours)	5,784(2.58%)	24,832(5.91%)	20,102(4.89%)	20,661(5.03%)
c	PM 2-HR Arterial VHD (percentage of total PM 2 Motor Vehicle Hours)	3,970(1.77%)	31,230(7.44%)	25,317(6.15%)	24,523(5.98%)
	Vehicle Hours of Delay (VHD) is the time accrued above the travel time at v/c=0.9				
Motor Vehicle Data - Midday 1 Hour					
1	MD 1-HR Motor Vehicle Average Travel Time (minutes)	12.59	12.96	12.96	13.03
2	MD 1-HR Average Motor Vehicle Travel Speed (miles per hour)	31.82	28.41	28.96	29.03
3 a	MD 1-HR Total Congested miles (0.9 <= v/c < 1) (percentage of total miles in network)	31(0.45%)	151(2.18%)	146(2.08%)	143(2.03%)
b	MD 1-HR Freeway Congested miles (percentage of freeway miles in network)	17(3.40%)	63(12.30%)	69(13.07%)	68(12.83%)
c	MD 1-HR Arterial Congested miles (percentage of arterial miles in network)	14(0.22%)	88(1.37%)	77(1.19%)	76(1.16%)
4 a	MD 1-HR Total Severely Congested miles (v/c >=1) (percentage of total miles in network)	12(0.17%)	94(1.35%)	61(0.86%)	59(0.84%)
b	MD 1-HR Freeway Severely Congested miles (percentage of freeway miles in network)	3(0.69%)	21(4.16%)	15(2.92%)	13(2.45%)
c	MD 1-HR Arterial Severely Congested miles (percentage of arterial miles in network)	8(0.13%)	72(1.13%)	45(0.70%)	47(0.71%)
5	MD 1-HR Motor Vehicle Hours	72,037	121,513	120,614	120,697
6 a	MD 1-HR Motor Vehicle Hours of Delay (percentage of total MD 1 Motor Vehicle Hours)	594(0.82%)	4551(3.75%)	3359(2.79%)	3328(2.76%)
b	MD 1-HR Freeway VHD (percentage of total MD 1 Motor Vehicle Hours)	377(0.52%)	2637(2.17%)	2093(1.74%)	2020(1.67%)
c	MD 1-HR Arterial VHD (percentage of total MD 1 Motor Vehicle Hours)	217(0.30%)	1914(1.58%)	1266(1.05%)	1308(1.08%)
	Vehicle Hours of Delay (VHD) is the time accrued above the travel time at v/c=0.9				
Freight Data - Average Weekday (AWD)					
1	AWD Total Truck Trips	75,553	124,987	124,987	124,987
2	AWD Truck Average Trip Length (miles)	24.34	24.71	24.69	24.69
4	Freight Network Miles	1,189	1,196	1,204	1,205
	Freight Network Miles added from 2005	-	7	16	16
3	Freight Network Lane Miles	2,442	2,481	2,605	2,610
	Freight Network Lane Miles added from 2005	-	39	163	168
Freight Data - PM 2 Hour Peak					
1	PM 2-HR Truck Average Travel Time (minutes)	40.93	53.15	52.59	52.37
2	PM 2-HR Truck Hours	4,608	9,898	9,793	9,752
3	PM 2-HR Truck Vehicle Hours of Delay (time accrued above v/c > 0.9)	279	1,895	1,440	1,469
4	PM 2-HR Congested Freight Network Miles (0.9 <= v/c < 1)	86	120	143	141
5	PM 2-HR Severely Congested Freight Network Miles (v/c >=1)	46	259	200	194
Freight Data - Midday 1 Hour					
1	MD 1-HR Truck Average Travel Time (minutes)	36.70	43.97	43.70	43.71

METRO

System Performance Measures for Total Region Trips (includes Clark, Clackamas, Multnomah and Washington counties)
7/15/2010
(Numbers subject to change due to model refinement)

		2005	2035 No Build	2035 Federal Priorities	2035 State Investment Strategy 2.0
2	MD 1-HR Truck Hours	3,001	6,019	5,983	5,984
3	MD 1-HR Truck Vehicle Hours of Delay (time accrued above v/c > 0.9)	30	408	294	297
4	MD 1-HR Congested Freight Network Miles (0.9 <= v/c < 1)	22	111	104	103
5	MD 1-HR Severely Congested Freight Network Miles (v/c >=1)	4	58	32	30
Transit Data					
1	AWD Total Transit Trips (originating riders)	266,386	494,932	565,267	602,299
2	AWD Transit Revenue Hours	6,300	6,678	7,247	7,840
3	Transit Percent of Person Trips	3.26%	3.67%	4.19%	4.47%
4	AWD Originating Riders Per Revenue Hour *	42	74	78	77
5	Percent Covered Households - Peak(w/in 1/2 mile of LRT or 1/5 mile of bus stop)	61%	55%	54%	54%
6	Percent Covered Employment - Peak(w/in 1/2 mile of LRT or 1/5 mile of bus stop)	81%	74%	76%	76%
7	Percent Covered Households off peak(w/in 1/2 mile of LRT or 1/5 mile of bus stop)	58%	54%	52%	53%
8	Percent Covered Employment off peak(w/in 1/2 mile of LRT or 1/5 mile of bus stop)	75%	73%	73%	74%
* AWD Transit Revenue Hours were calculated using existing daily peak and off-peak expansion factors					
Pedestrian Data					
1	Total Walk Trips (does not include walk trips to transit)	526,956	944,603	962,861	957,274
2	Walk Percent of Person Trips	6.45%	7.01%	7.14%	7.10%
Bicycle Data					
1	Total Bike Trips	82,366	152,743	149,012	148,713
2	Bike Percent of Person Trips	1.01%	1.13%	1.11%	1.10%

METRO

System Performance Measures for Intra-UGB Trips (within Metro UGB, excludes Clark County, Washington)

7/15/2010

(Numbers subject to change due to model refinement)

		2005	2035 No Build	2035 Federal Priorities	2035 State Investment Strategy 2.0
Demographic Data					
1	Population	1,408,207	2,039,195	2,039,195	2,039,195
2	Households	565,988	830,066	830,066	830,066
3	Employment	869,582	1,434,072	1,434,072	1,434,072
Network Data					
1 a	Total Miles in Network	3,211	3,227	3,340	3,364
b	Freeway Miles	201	201	213	213
c	Arterial Miles	3,010	3,026	3,128	3,151
d	HOV Miles	3.4	3.4	3.4	3.4
2 a	Total Lane Miles	4,836	4,895	5,289	5,355
b	Freeway Lane Miles	540	551	599	599
c	Arterial Lane Miles	4,296	4,344	4,690	4,757
3 a	Total Roadway Capacity Miles	4,412,028	4,466,898	4,837,148	4,902,354
b	Freeway Capacity Miles	1,058,403	1,081,560	1,179,626	1,194,859
c	Arterial Capacity Miles	3,353,626	3,385,338	3,657,522	3,707,495
4	Total Lane Miles Added (from 2005)		59	453	519
Motor Vehicle Data - Average Weekday (AWD)					
1 a	AWD Total Auto Person Trips	5,113,889	7,594,484	7,519,315	7,489,473
b	AWD Total SOV Trips	2,693,510	3,981,194	3,917,668	3,883,521
c	AWD Total HOV Vehicle Trips	1,036,503	1,534,256	1,520,906	1,515,597
d	AWD Total Vehicle Trips	3,730,013	5,515,450	5,438,574	5,399,118
e	AWD Total Shared Ride Person Trips	2,420,379	3,613,290	3,601,647	3,605,952
f	AWD Total Person Trips	5,979,467	9,063,072	9,056,255	9,058,045
2	AWD Total VMT	20,056,391	27,066,029	27,309,936	27,443,788
	AWD Total VMT % change from 2005	-	35%	36%	37%
3	AWD VMT/Capita	14.24	13.27	13.39	13.46
	VMT/Capita % change from 2005	-	-7%	-6%	-6%
4	AWD VMT/Employee	23.06	18.87	19.04	19.14
	VMT/Employee % change from 2005	-	-18%	-17%	-17%
5	Single Occupant Vehicle (SOV) Percent of Person Trips	45.05%	43.93%	43.26%	42.87%
6	Non-SOV Percent of Person Trips (shared ride, walk, bike, transit)	54.95%	56.07%	56.74%	57.13%
7	AWD Motor Vehicle Average Trip Length (miles)	5.16	4.69	4.80	4.86
8	Home-Based-Work Average Trip Length (miles)	7.53	6.99	7.10	7.17
9	Auto Occupancy	1.37	1.38	1.38	1.39

METRO

System Performance Measures for Intra-UGB Trips (within Metro UGB, excludes Clark County, Washington)
7/15/2010
(Numbers subject to change due to model refinement)

		2005	2035 No Build	2035 Federal Priorities	2035 State Investment Strategy 2.0
Motor Vehicle Data - PM 2 Hour Peak					
1	PM 2-HR Motor Vehicle Average Travel Time (minutes)	13.27	15.27	14.94	15.02
2	PM 2-HR Average Motor Vehicle Travel Speed (miles per hour)	24.48	19.57	20.45	20.60
3 a	PM 2-HR Total Congested miles (0.9 <= v/c < 1) (percentage of total miles in network)	118(3.66%)	243(7.54%)	244(7.30%)	232(6.89%)
b	PM 2-HR Freeway Congested miles (percentage of freeway miles in network)	43(21.23%)	43(21.33%)	49(22.97%)	45(21.21%)
c	PM 2-HR Arterial Congested miles (percentage of arterial miles in network)	75(2.49%)	201(6.63%)	195(6.24%)	187(5.93%)
4 a	PM 2-HR Total Severely Congested miles (v/c >=1) (percentage of total miles in network)	69(2.16%)	454(14.05%)	346(10.36%)	337(10.01%)
b	PM 2-HR Freeway Severely Congested miles (percentage of freeway miles in network)	17(8.69%)	62(30.61%)	54(25.30%)	56(26.42%)
c	PM 2-HR Arterial Severely Congested miles (percentage of arterial miles in network)	52(1.72%)	392(12.96%)	292(9.34%)	281(8.90%)
5	PM 2-HR Motor Vehicle Hours	140,463	242,375	234,191	233,506
6 a	PM 2-HR Motor Vehicle Hours of Delay (percentage of total PM 2 Motor Vehicle Hours)	8,880(6.32%)	47,293(19.51%)	38,436(16.41%)	38,117(16.32%)
b	PM 2-HR Freeway VHD (percentage of total PM 2 Motor Vehicle Hours)	5,248(3.74%)	19,952(8.23%)	16,765(7.16%)	17,222(7.38%)
c	PM 2-HR Arterial VHD (percentage of total PM 2 Motor Vehicle Hours)	3,632(2.59%)	27,341(11.28%)	21,671(9.25%)	20,895(8.95%)
	Vehicle Hours of Delay (VHD) is the time accrued above the travel time at v/c=0.9				
Motor Vehicle Data - Midday 1 Hour					
1	MD 1-HR Motor Vehicle Average Travel Time (minutes)	11.01	11.50	11.41	11.48
2	MD 1-HR Average Motor Vehicle Travel Speed (miles per hour)	27.95	24.42	25.18	25.29
3 a	MD 1-HR Total Congested miles (0.9 <= v/c < 1) (percentage of total miles in network)	29(0.92%)	134(4.17%)	121(3.61%)	117(3.48%)
b	MD 1-HR Freeway Congested miles (percentage of freeway miles in network)	17(8.35%)	57(28.27%)	59(27.91%)	58(27.33%)
c	MD 1-HR Arterial Congested miles (percentage of arterial miles in network)	13(0.42%)	78(2.57%)	61(1.96%)	59(1.87%)
4 a	MD 1-HR Total Severely Congested miles (v/c >=1) (percentage of total miles in network)	8(0.24%)	74(2.29%)	46(1.39%)	45(1.33%)
b	MD 1-HR Freeway Severely Congested miles (percentage of freeway miles in network)	3(1.72%)	19(9.52%)	15(6.86%)	12(5.69%)
c	MD 1-HR Arterial Severely Congested miles (percentage of arterial miles in network)	4(0.14%)	55(1.80%)	32(1.02%)	33(1.03%)
5	MD 1-HR Motor Vehicle Hours	44,997	70,604	69,301	69,281
6 a	MD 1-HR Motor Vehicle Hours of Delay (percentage of total MD 1 Motor Vehicle Hours)	579(1.29%)	4120(5.83%)	3114(4.49%)	3082(4.45%)
b	MD 1-HR Freeway VHD (percentage of total MD 1 Motor Vehicle Hours)	377(0.84%)	2419(3.43%)	2022(2.92%)	1949(2.81%)
c	MD 1-HR Arterial VHD (percentage of total MD 1 Motor Vehicle Hours)	202(0.45%)	1700(2.41%)	1091(1.57%)	1133(1.64%)
	Vehicle Hours of Delay (VHD) is the time accrued above the travel time at v/c=0.9				
Freight Data - Average Weekday (AWD)					
1	AWD Total Truck Trips	31,323	45,769	45,769	45,769
2	AWD Truck Average Trip Length (miles)	13.14	13.48	13.46	13.45
4	Freight Network Miles	698	702	712	712
	Freight Network Miles added from 2005	-	4	13	14
3	Freight Network Lane Miles	1,507	1,532	1,644	1,649
	Freight Network Lane Miles added from 2005	-	25	137	142
Freight Data - PM 2 Hour Peak					
1	PM 2-HR Truck Average Travel Time (minutes)	28.85	36.10	34.77	34.69
2	PM 2-HR Truck Hours	1,355	2,478	2,386	2,381
3	PM 2-HR Truck Vehicle Hours of Delay (time accrued above v/c > 0.9)	252	1,543	1,197	1,227
4	PM 2-HR Congested Freight Network Miles (0.9 <= v/c < 1)	74	97	108	106
5	PM 2-HR Severely Congested Freight Network Miles (v/c >=1)	43	211	157	152
Freight Data - Midday 1 Hour					
1	MD 1-HR Truck Average Travel Time (minutes)	24.92	29.71	28.89	28.88
2	MD 1-HR Truck Hours	804	1,413	1,374	1,374
3	MD 1-HR Truck Vehicle Hours of Delay (time accrued above v/c > 0.9)	29	358	273	277

METRO

System Performance Measures for Intra-UGB Trips (within Metro UGB, excludes Clark County, Washington)
7/15/2010
(Numbers subject to change due to model refinement)

		2005	2035 No Build	2035 Federal Priorities	2035 State Investment Strategy 2.0
4	MD 1-HR Congested Freight Network Miles (0.9 <= v/c < 1)	22	100	87	84
5	MD 1-HR Severely Congested Freight Network Miles (v/c >=1)	4	52	28	27
Transit Data					
1	AWD Total Transit Trips (originating riders)	240,955	457,203	512,042	549,035
2	AWD Transit Revenue Hours	5,778	6,130	6,540	7,115
3	Transit Percent of Person Trips	4.03%	5.04%	5.65%	6.06%
4	AWD Originating Riders Per Revenue Hour *	42	75	78	77
5	Percent Covered Households - Peak(w/in 1/2 mile of LRT or 1/5 mile of bus stop)	66%	63%	63%	64%
6	Percent Covered Employment - Peak(w/in 1/2 mile of LRT or 1/5 mile of bus stop)	84%	81%	82%	83%
7	Percent Covered Households off peak(w/in 1/2 mile of LRT or 1/5 mile of bus stop)	63%	62%	62%	62%
8	Percent Covered Employment off peak(w/in 1/2 mile of LRT or 1/5 mile of bus stop)	77%	80%	79%	80%
* AWD Transit Revenue Hours were calculated using existing daily peak and off-peak expansion factors					
Pedestrian Data					
1	Total Walk Trips (does not include walk trips to transit)	392,926	667,199	684,127	679,138
2	Walk Percent of Person Trips	6.57%	7.36%	7.55%	7.50%
Bicycle Data					
1	Total Bike Trips	64,293	113,117	110,091	109,825
2	Bike Percent of Person Trips	1.08%	1.25%	1.22%	1.21%

METRO

Appendix 1.3 2035 Regional Transportation Plan
Modeling Assumptions

The following is an overview of the travel demand model and the assumptions used in the analysis conducted for the 2035 Regional Transportation Plan (RTP).The year 2005 was the baseline and travel volumes were forecasted out to the year 2035. Discussion is provided that details the assumptions for three different model runs. The 2035 No Build assumed a scenario in which no new projects are built that do not currently have funds to complete construction as identified in the 2010-2013 Metropolitan Transportation Improvement Program (MTIP) and 2010-2013 Oregon State Transportation Improvement Program (STIP). The Federal Priorities (also known as the Financially Constrained (FC) System) represents a network of projects based on revenue sources that can reasonably be expected to be available for transportation uses during the plan period and serves as the basis for complying with federal planning and air quality regulations. The state system represents the financially constrained system plus additional investments that would be considered for funding if new or expanded revenue sources are secured. This system will be the basis for findings of consistency with the Statewide Planning Goal 12, the Oregon Transportation Planning Rule and the Oregon Transportation Plan and its components.

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DESCRIPTION OF REGIONAL TRAVEL MODEL

The year 2005 and 2035 forecast travel volumes were estimated using the Metro regional travel demand model, with assignments executed in EMME/3. For travel forecasting purposes, land use assumptions are broken down into geographical areas called transportation analysis zones (TAZs). For the Portland metropolitan region, 2013 TAZs are identified (approximately five per U.S. census tract). Figure 1 (at end of this appendix) displays the boundaries of each TAZ. The TAZ is the “unit geography” for travel within the demand model. Households and employment are located within TAZs. All of the trips generated by the land use elements at the unit geography are aggregated and analyzed at the TAZ level.

Population and employment was assigned to each TAZ based on the MetroScope land use model’s mapback procedure, which was then reviewed by local jurisdictions. The cost of various forms of transportation, including parking and transit fare costs, and levels of street connectivity are also assigned to each TAZ or TAZ origin-destination zone pairs (as appropriate) based on regional transportation and land use policies. These are shown in Table 5.

The travel model estimates the number of trips that will be made, the distribution patterns of the trips throughout the region, the likely mode used for the trip, and the actual roadways and transit lines used for auto and transit trips. Traffic volume projections from these simulations help assess transportation system performance and identify future road and transit needs. Due to the macro-scopic nature of the regional model, the model does not effectively analyze walking, biking or local street traffic volumes at detailed analysis levels.

HOUSEHOLD AND EMPLOYMENT ASSUMPTIONS

In 2005, a household and employment growth forecast was prepared by Metro and reviewed by local governments to serve as the basis for the analysis conducted for the 2035 RTP. The forecast was prepared using MetroScope. The land use assumptions used in this forecast are based on the LCDC-acknowledged 2040 Growth Concept, estimating a modest expansion of the regional urban growth boundary over the planning period that follows the existing state hierarchy for priority lands. The forecast followed basic legal and policy direction that results in future urban growth boundary (UGB) expansions on exception lands located primarily along the southern and eastern portions of the urban area.

The Metroscope model uses information on accessibility from the regional travel demand model to help determine the relative attractiveness of areas within the region for growth in households and employment. The number of dwelling units and employees were calculated and assigned to TAZs for travel analysis. Table 1 summarizes household and employment information for 2005 and 2035 for the four-county region, which includes Clackamas, Clark, Multnomah and Washington counties.

TABLE 1

2005 - 2035 Modeled Land Use Allocation - April 2007			
Land Use	**# of TAZs**	**2005**	**2035**
Households	2013	767,000	1,208,700
Employees	2013	1,032,200	1,799,200
Population	2013	1,961,100	3,096,700

Prior to modeling for the 2035 RTP Metro adjusted the allocation of households and employees to reflect local planning efforts.[1] The City of Tigard requested a reallocation of households (within its city boundary) to reflect local planning work that occurred between 2007 and 2009,including its downtown plan and transportation system plan. Metro agreed to this request and reallocated households in Tigard TAZs to reflect greater population within its downtown.

Additionally, the City of Portland worked closely with Metro staff to redistribute household and employment projections within their jurisdiction to match more recent planning efforts, influenced by the Portland Plan. This work concentrated more jobs and households within the Central City. Households and employment were accordingly reduced within other TAZs throughout the City[2] The adjusted Metroscope outputs were initially used primarily for 2030 modeling efforts for the Portland-to-Milwaukie and Columbia River Crossing projects. These figures were then adjusted to 2035 for RTP modeling based on percentage growth factors for City districts based on outputs from MetroScope.

Lastly, there were some very minor land use adjustments made near the US 26 Springwater interchange in Gresham based on the Springwater planning efforts.

The region is in the process of designating urban and rural reserves and preparing a new analysis for residential and employment needs that will inform future urban growth boundary decisions. This work will lead to the development of an updated household and employment forecast that will be reviewed by local governments in 2011. The new forecast will be developed in consultation with the region's cities and counties, and once finalized, will be available for Metro and local governments to use for planning purposes, including the next RTP update in 2012.

ROADWAY NETWORK ASSUMPTIONS

It is important to note that projects that included preliminary engineering (PE) and right-of-way acquisition (ROW) were included as fully built in the travel demand model. The major projects are in various stages of project

[1] There were no changes to the total amount of growth projected for a specific jurisdiction, rather only adjustments made to rearrange growth to areas or districts within a jurisdiction where it is most likely to occur, given zoning, public investments and market considerations
[2] HH & EMP were not reduced within 2040 Target Areas, e.g. station areas, regional and town centers, main streets corridors, employment areas and industrial areas.

development and planning at this time. Locally preferred alternatives have yet been determined, therefore, the assumptions used only represent potential alignments or facility type determinations.

2005 Roadway Network

The 2005 roadway base case consists of a snapshot of the roadway network in the year 2005.

2035 No Build Roadway Network

The 2035 No Build Network includes the 2005 network plus any projects that have been completed (or committed funding) as of 2009. Table 2 highlights some of the larger scale completed projects that were used in the 2035 No-Build model. A complete list of completed roadway projects used in the 2035 No-Build is included as Table 3.

TABLE 2 – Larger Scale Completed Projects Included in 2035 No-Build

Agency	Project Name
City of Gresham	Powell Boulevard: 174th to Eastman Parkway
ODOT	OR 217: NB between TV and US 26
ODOT	US 26/Jackson School Interchange
ODOT	US 26: OR 217 to Murray
ODOT	US 26: Murray to Cornell
Washington County	Cornelius Pass Road Interchange Improvement
Washington County	Murray Boulevard Improvements - Cedar Mill
ODOT	I-5: Delta park to Lombard
Clackamas County	Sunnyside Road
City of Oregon City	Beavercreek Road Phase 1 – Molalla to Highway 213
ODOT	I-205 Aux. Lanes: I-5 to Stafford Road
City of Wilsonville	I-5/Wilsonville Road: PE and ROW
ODOT	I-5 @ OR 217: Kruse Way
Portland	Burnside-Couch Couplet

As part of the RTP project solicitation process, local jurisdictions and agencies were asked to identify projects with potential air quality impacts and submit appropriate assumptions for inclusion in the regional travel demand model and subsequent air quality conformity determination analysis. The following highlights major projects included in the State and FC model runs. The full list of RTP projects are recorded in Appendix 1.1.

Financially Constrained 2035 Roadway Network

Roadway projects included in the Financially Constrained network were derived from projects submitted by ODOT and local agencies as part of the 2035 RTP call for projects in the summer of 2009. This includes the following major capital investments:

- I-5 / Columbia River Crossing (CRC) Project
- I-205 / Airport Way interchange
- Sunrise Project from I-205 to 172nd Avenue – 6 lanes plus auxiliary lanes
- US 26 widening to three lanes in each direction from Cornell Rd to Cornelius Pass Rd
- US 26, OR 217, I-205, and I-84/I-5 interchange improvements
- I-5/99W Connector Recommendations – Alternative 7 (full 3-arterial – without southern arterial)

State 2035 Roadway Network

Major roadway projects included in the State network include all of the Financially Constrained projects plus the following major capital investments:

- I-5/OR 217 interchange reconfigured (Phase 2)

For CRC, the 2035 RTP networks assume alternative T9 from the CRC study. This alternative has five lanes in each direction on the I-5 Bridge and includes four lanes from Hayden Island to Delta Park, and three lanes in each direction south of Delta Park to I-405/Central City loop. Paying for the construction of the five lane I-5 bridge requires assumptions regarding tolling. Therefore, tolling on the I-5 Bridge was assumed as part of both the Financially Constrained and State 2035 RTP modeling.

TRANSIT NETWORK ASSUMPTIONS

In general, the 2035 transit network includes an extensive mix of high capacity, regional and community service transit service. Lists of all of the bus and MAX service/headways used in the 2005 base year, 2035 No Build, Financially Constrained and State 2035 transit network are listed in Table 4.

2005 Transit Base Network

The 2005 transit base case consists of current service and existing (2005) MAX lines and frequent service bus lines as well as existing service for other transit districts like C-TRAN, SMART, CAT, SAM and SCTD.

2035 No Build Transit Network

The 2035 No Build transit network includes:

- Current service similar to 2009 headways and TriMet bus routes and MAX lines.
- Existing service routes for CAT, SAM and SCTD. Service additions were added for SMART in accommodating WCCR and the route extension into downtown Portland.
- The assumed C-TRAN transit network for the 2035 is similar to current service I-205 light rail (MAX Green line including downtown Portland transit mall)
- Streetcar extension to Lowell
- MAX Red Line extension to Merlo (158th)
- Washington County Commuter Rail (WCCR).
- Slight bus route modifications were made to support the addition of the MAX Green Line and WCCR.
- The Sellwood Bridge project was not included in the 2035 No Build. As a result, the line 41-bus route was modeled as it is today crossing the Hawthorne Bridge.
- Eastside Street car - partial loop OMSI to Broadway Bridge to Lowell (no new southern river crossing))

Financially Constrained 2035 Transit Network

In addition to what was included in the 2035 No Build transit network, the Financially Constrained transit network includes the following:

- Bus assumptions updated to reflect Lake Oswego Streetcar, Milwaukie LRT, and Columbia River Crossing work:
- Milwaukie light rail
- Columbia River Crossing light rail from Milwaukie to Clark College via downtown Vancouver
- Portland to Lake Oswego streetcar
- Eastside streetcar loop completed (using Milwaukie LRT bridge)
- Burnside/Couch streetcar to Hollywood Transit Center

State 2035 Transit Network

In addition to what was included in the Financially Constrained transit network, the State transit network includes the following:

-
- Barbur LRT (interlined with LRT to Vancouver)
- WES service improvements (15 peak/15 off-peak headways)
- On-street BRT I-205 from Clackamas Town Center to Tualatin
- On-street BRT Division/Powell
- Broadway/Weidler Streetcar
- NE MLK Streetcar (PSU to OMSI to NE Killingsworth)
- NW 19th/20th Streetcar

ASSUMPTIONS FOR CLARK COUNTY AND THE CITY OF VANCOUVER

The 2035 No Build,Financially Constrainedand State road and transit networks used the Southwest Washington Regional Transportation Council's (RTC) financially constrained 2030 Metropolitan Transportation Plan network and corresponding assumptions as well asprojects funded in Clark County by the Washington State Department of Transportation's Nickel and Partnership projects.

TRAFFIC ANALYSIS ZONE (TAZ) ASSUMPTIONS

The cost of various forms of transportation and levels of street connectivity are key elements in Metro's travel demand model that affect mode choice. The recommended intersection density, parking cost and transit fare factors vary by land use type and reflect regional transportation and land use policies adopted in the Regional Transportation Plan.

The assumptions were not used for the purpose of allocating population and employment to individual traffic analysis zones (TAZ). Rather, they were developed to allow transportation variables, such as parking costs, transit subsidies and ease of pedestrian travel, to be adjusted to closely reflect the 2040 Growth Concept land uses at the TAZ level.[3] The net result is a model exercise that better predicts how mode share will respond to different land use types and mixes.

A summary of the transportation analysis zone (TAZ) assumptions for street connectivity, parking costs and transit fares as generally applied to the 2040 Growth Concept design types are included as Table 5.

INTERSECTION DENSITY

The intersection density (e.g., a measure of street connectivity) represents the expected number of street intersections per mile for each 2040 grouping. Intersection density affects mode choice and trip length for all modes. The 2005 intersection density was generated in ArcView using a cleaned TIGER file to establish intersections. The 2035 assumptions for FC and state systems were derived by applying minimum density values based on the TAZ's 2040 design type. The 2035 No Build uses 2005 intersection densities.

PARKING FACTORS

Future year parking factors for the Central City are based upon the 2006 City of Portland's research and recommendations proposing a 1.5 percent above inflation rate. Parking factors for the regional centers, station communities and town centers are scaled from these costs. No parking factors are assumed for main streets, corridors, neighborhoods, employment areas, industrial areas, greenspaces and rural reserves. The parking costs are intended to represent both direct, out-of-pocket expense as well as the difficulty in finding a parking space and walking to your destination. The costs throughout the region are proportionally indexed to the parking prices in downtown Portland. For example, the parking costs in regional centers are 10% that of the Portland CBD.

TRANSIT PASS FACTOR

The transit fare factors are reported as a proportion of the full transit fare that transit riders in each 2040 design type will pay. These factors are designed to reflect the presence of a Transportation Management Association (TMA) and/or the implementation of a program similar to the Transportation Demand Management Program, through which employers reduce the cost of transit available to their employees. Generally, TMA's are only assumed to be in place within major employment centers. Typically, industrial areas are not assumed to have reduced transit fares.

APPLICATION OF TAZ ASSUMPTIONS

To simplify the modeling assumptions, the 2040 design types have been grouped according to shared land use and transportation characteristics. Table 5 summarizes the 2040 land use assumptions for specified transportation modeling factors. The left column in Table 5 groups the 2040 design type by location, and the second column

[3] It is important to note TAZ boundaries do not directly correspond to the 2040 Growth Concept design type boundaries or locally adopted comprehensive plans designations.

provides a brief rationale for the groupings. These groupings will define a set of TAZs in the modeling process. TAZs were assigned to each grouping. Table 6 displays the household and employment assumptions and the 2040 design type assigned to every TAZ.

Table 3. 2035 No-Build Network Projects[4]

Agency	Project Name
City of Gresham	Powell Boulevard: 174th to Eastman Parkway
City of Oregon City	Main Street Extension bike lanes
City of Oregon City	7th Street Corridor Blvd improvements
City of Oregon City	Washington Street – Abernethy to 11th Street Blvd. Improvements
City of Oregon City	South End Road – bike lanes and sidewalks
City of Oregon City	Beavercreek Road Phase 1 – Molalla to Highway 213
City of Oregon City	Molalla Avenue Streetscape Improvements – have been constructed from Willamette to Holmes/Hilda and Gaffney Lane to Highway 213
City of Portland	East Burnside-Couch Couplet
City of Portland	Bybee Blvd Overcrossing
City of Portland	SW Moody St. at SW Waterfront (under construction)
City of Portland	St. Johns Bridge Restoration
City of Portland	NW Champlain Viaduct Reconstruction
City of Portland	Airtrans/Cornfoot Rd. Intersection Improvement
City of Portland	North Lombard Overcrossing
City of Portland	Grand/MLK Viaduct Reconstruct Project
City of Portland	SW 6th Ave. between Sheridan and Broadway
City of Wilsonville	Kinsman Road Extension - North Ph 1: Barber Street to Boeckman Road
City of Wilsonville	Boeckman Road Extension: Boeckman to Tooze
City of Wilsonville	Barber Street Extension: Kinsman to Grahams Ferry
City of Wilsonville	I-5/Wilsonville Road: PE and ROW
Clackamas County	Sunnyside Road
Clackamas County	W.Otty Road extension
Clackamas County	Summers Lane Extension – 122nd to 132nd only, 132nd to 142nd section will be dropped
Clackamas County	Fuller Road pedestrian improvements
Clackamas County	Stafford/Rosemont intersection
Forest Grove	Verboort Road Intersection
Multnomah County	Rehabilitation of WRBs—on-going
Multnomah County	WRB Preservation/Painting—on-going
Multnomah County	Broadway and Burnside Bridges—Broadway painting partially completed and deck replacement. Burnside Bridge deck replacement.
Multnomah County	Morrison Bridge Bike/Ped Facility—funded, construction delayed until 2008.
Multnomah County	Lovejoy sidewalk—presumably completed with Lovejoy Ramp replacement.
Multnomah County	Burnside Bridge, Esplanade Ramp
Multnomah County	257th/Palmquist/US 26 Intersection
Multnomah County	223rd Ave. RR Crossing (south of Sandy Blvd)
Multnomah County	MKC Collector: Arata to Glisan
Multnomah County	MKC Collector: Arata to Glisan

[4] The network was reviewed by local jurisdictions, and some minor projects (not shown in Table 3) that were complete as of 2009 were added to the network.

Multnomah County	207th Ave Connector
ODOT	OR 217: NB between TV and US 26
ODOT	US 26/Jackson School Interchange
ODOT	US 26: OR 217 to Murray
ODOT	US 26: Murray to Cornell
ODOT	I-5: Delta park to Lombard
ODOT	I-205 Aux. Lanes: I-5 to Stafford Road
ODOT	I-5 @ OR 217: Kruse Way
Washington County	Oleson Road Improvements: bike lanes and sidewalks
Washington County	185th Avenue Improvements
Washington County	170th Improvement
Washington County	Cornell Road Bikeway
Washington County	Baseline Road Improvements
Washington County	Tualatin Valley Highway/Brookwood Avenue Intersection Alignment
Washington County	Cornelius Pass Road Interchange Improvement
Washington County	Cornelius Pass Road Improvements
Washington County	Brookwood Avenue Improvements
Washington County	229th Avenue Extension
Washington County	170th/173rd Improvements
Washington County	Sunset Drive Improvements
Washington County	Martin Road/Cornelius-Schefflin Road Improvements
Washington County	Cornell Road Improvements
Washington County	Cornell Road Improvements - East Cedar Mill
Washington County	Barnes Road Improvement
Washington County	Murray Boulevard Improvements - Cedar Mill
Washington County	Saltzman Road Improvements
Washington County	Bethany Boulevard Improvements, Phase 1
Washington County	Bethany Boulevard Improvements, Phase 2
Washington County	185th Avenue Improvements
Washington County	Commuter Rail
Washington County	Greenburg Road Improvements, South
Washington County	Oak Street Improvements: bikeway and sidewalks
Washington County	Walnut Street Improvements, Phase 3
Washington County	Highway 99W/Hall Boulevard Intersection Signal Improvements
Washington County	Lower Boones Ferry Bikeway and Sidewalks
Washington County	Tualatin River Pedestrian Bridge
Washington County	Beef Bend/175th Avenue Realignment

Table 4. 2035 Transit Headway Assumptions

Transit Line Listing		2005 Base		2035 No Build		2035 Financially Constrained		2035 State	
LIGHT RAIL/HCT SERVICE		peak headway	off-peak headway	peak headway	off-peak headway	peak headway	off-peak headway	peak headway	off-peak headway
01HGAP - Blue Line	LRT - (Hillsboro-Gresham) via cross-mall	7.5	10	7.5	10	6	15	6	12
01COMR	Commuter Rail (BTC-Wilsonville)	N/A	N/A	30	N/A	30	N/A	15	15
01I205 - Green Line	LRT - (PCBD/PSU-CTC) via mall	N/A	N/A	7.5	15	7.5	15	7.5	12
01PDXX - Red Line	LRT - (PIA-185th) via cross-mall	N/A	N/A	15	15	15	15	12	12
01POEM - Yellow Line Mall	LRT - (PCBD/PSU-Expo) via mall	10	15	10	15	N/A	N/A	N/A	N/A
01PTCC	LRT - (Milwaukie (Park)- Vancouver (Clark College)	N/A	N/A	N/A	N/A	15	15	N/A	N/A
NEW	LRT MILW – PSU to Vancouver	N/A	N/A	N/A	N/A	15	N/A	N/A	N/A
NEW	LRT MILW – Union Station to Milwaukie	N/A	N/A	N/A	N/A	30	N/A	8	12
NEW	LRT Barbur (Tigard/King City to Clark College via downtown Vancouver	N/A	N/A	N/A	N/A	N/A	N/A	7.5	12
01SCBC	Streetcar Burnside Couch (Sandy to Hollywood)	N/A	N/A	N/A	N/A	12	12	N/A	N/A
NEW	Streetcar NW 19th/20th – Burnside Couch – Sandy to Hollywood	N/A	N/A	N/A	N/A	N/A	N/A	12	12
01SCLO	Streetcar Lake Oswego – Hybrid Alternative 1	N/A	N/A	N/A	N/A	10	12	10	12
01SCLP	Streetcar (Lowell – Broadway Bridge - OMSI Loop (no southern river crossing)	N/A	N/A	12	12	12	12	12	12
01SCNL	Streetcar (Northwest 23rd – Lake Oswego)	N/A	N/A	N/A	N/A	10	12	10	12
01 SCPL	Streetcar (PSU – Lake Oswego)	N/A	N/A	N/A	N/A	60	N/A	60	N/A
01 SCPW	Streetcar (PSU – Lowell)	N/A	N/A	N/A	N/A	60	N/A	60	N/A
NEW	Streetcar Broadway-Weidler to NW 23rd	N/A	N/A	N/A	N/A	N/A	N/A	12	12
NEW	On-street BRT I-205	N/A	N/A	N/A	N/A	N/A	N/A	15	15

Transit Line Listing		2005 Base		2035 No Build		2035 Financially Constrained		2035 State	
-		peak headway	off-peak headway	peak headway	off-peak headway	peak headway	off-peak headway	peak headway	off-peak headway
NEW	On-street BRT Division/Powell	N/A	N/A	N/A	N/A	N/A	N/A	7.5	15
BUS SERVICE									
02GREE	Greeley - (PCBD-UofP)	12	30	15	30	7.5	30	7.5	30
02VCBJ	Vermont - (PCBD-Vermont/Shattuck) Columbia/Jefferson	N/A	N/A	30	N/A	15	30	15	30
04DGTC	Division - (PCBD-Gresham TC) FB	12	12	8	15	10	15	60	60
NEW	Division – Portland CBD to 92nd	N/A	N/A	N/A	N/A	10	N/A	8.5	15
04F	Fessenden - (PCBD-St.Johns) FB	12	12	12	10	15	12	10	12
06MLKJ	Collins/Jef-Col/Hawth/MLK/Lomb/Den/Hayd Isld/Vanc (PCBD-Vancouver) FB	N/A	N/A	10	10	15	10	15	15
07THES-OGTC	Thiessen	N/A	N/A	N/A	N/A	15	30	15	30
08JVA	Jackson Park/VA Hospital - (PCBD-VA Hospital) - FB	12	15	6	15	6	15	6	15
08M15	NE 15th/MLK/Middlefield (PCBD-Middlefield) FB	7.5	15	10	15	7.5	15	6	15
09BWY	Broadway - (PCBD-27th/Saratoga) - via Rose Quarter TC	12	15	15	15	10	15	10	30
09PGTC	Powell/Gresham TC - (PCBD-GreshamTC)FB	20	30	15	15	10	15	7.5	20
10H	Harold - (PCBD-122nd/Foster)	12	20	15	20	7.5	20	7.5	15
73	NE 33rd - (PCBD-33rd/Sutherland)	15	20	15	15	12	20	12	20
12BKC	Barbur/King City - (PCBD-KC) FB	30	30	20	30	30	30	N/A	N/A

Transit Line Listing		2005 Base		2035 No Build		2035 Financially Constrained		2035 State	
-		peak headway	off-peak headway	peak headway	off-peak headway	peak headway	off-peak headway	peak headway	off-peak headway
12BSHR (PCBD-Sherwood)	Barbur/Sherwood - (PCBD-Sherwood) FB	30	30	30	30	30	30	N/A	N/A
NEW	Barbur (Sherwood to Tigard)	N/A	N/A	N/A	N/A	N/A	N/A	15	15
12SG	Sandy - (PCBD-Gresham) FB	20	20	30	30	15	30	15	30
12SP	Sandy - (PCBD-Parkrose) FB	15	20	20	30	30	30	30	30
14H	Hawthorne Short - (PCBD-94th/Foster) FB	5	12	5	12	5	10	5	10
154WLN	Willamette - (Willamette/W.Linn-Oregon City)	60	60	60	60	60	60	60	60
155S	Sunnyside Rd.	60	60	60	60	30	60	N/A	N/A
156MR	Mather Rd. - (147th/OregonTrail-CTC)	60	60	60	60	45	60	45	60
157HV	Happy Valley - (147th/OregonTrail-CTC)	6	60	6	60	6	60	60	60
15B60	Belmont/Mt.Tabor (PCBD-60th) FB	30	N/A	30	N/A	20	30	20	30
15B92	Belmont/Mt.Tabor/92nd (PCBD-92nd) FB	30	N/A	30	N/A	30	60	30	60
15BELP	Belmont/Mt.Tabor/Parkrose (PCBD-Parkrose) FB	7.5	12	10	15	7.5	12	7.5	12
15THUR	NW 23rd/Thurman-Gordon - (PCBD-27th) FB	20	20	30	30	20	30	20	30
15TMPK	NW 23rd/Montg. Park - (PCBD-27th/Mont.Park) FB	20	20	20	30	20	30	20	30
16FA	Front Ave./St. Johns/Marine Dr-(PCBD-Middlefield) via Fess/Col	30	N/A	30	N/A	15	N/A	15	N/A
17H136	Holgate - (PCBD-136th Powell)	10	15	10	15	6	15	6	15
17SLIN	NW21st/St Johns - (PCBD - St Johns - Linnton)	30	30	30	30	30	30	30	30

Transit Line Listing		2005 Base		2035 No Build		2035 Financially Constrained		2035 State	
-		peak headway	off-peak headway	peak headway	off-peak headway	peak headway	off-peak headway	peak headway	off-peak headway
17SMPK	NW21st/Montg. Park - (PCBD-Montgomery Park)	30	30	30	30	15	30	10	30
18HILL	Hillside - (PCBD-Maclay/Burnside) Off-Mall	60	60	60	N/A	60	N/A	1060	N/A
19G	Glisan - (PCBD-GatewayTC)	10	15	10	15	10	15	10	15
19W	Woodstock - (PCBD-Mt.Scott/112th)	15	30	20	30	10	30	10	30
19WR	Woodstock/Rex - (PCBD-Mt.Scott/112th)	20	30	20	30	20	30	20	30
201BAR	SMART/Barbur TC	N/A	60	N/A	60	N/A	60	N/A	60
201BTC	SMART/Barbur TC	30	N/A	30	N/A	30	60	30	60
202VIL	Villebois to Memorial Park	N/A	N/A	N/A	N/A	30	60	30	60
203COM	SMART/Commerce Circle	30	N/A	30	N/A	30	60	30	60
204CRS	SMART/Wilsonville Crosstown	30	60	30	60	30	60	30	60
205CAO	SMART/Canby	N/A	N/A	N/A	N/A	N/A	60	N/A	60
206CYO	Canyon Creek WIL OFF	N/A	N/A	N/A	N/A	N/A	60	N/A	60
205CAN		60	60	60	60	60	N/A	60	N/A
206CYN	Canyon Creek WIL	N/A	N/A	N/A	N/A	60	N/A	60	N/A
20BSTB	Burnside/Beaverton TC - (BTC-Gresham)	12	30	15	30	15	30	15	30
20BSTN	Burnside/23rd Beaverton TC - (BTC-Gresham)	N/A	30	N/A	30	N/A	30	N/A	30
22ROSE	Parkrose - (Parkrose-GatewayTC)	30	30	30	30	30	30	30	30
23SRAF	San Rafael - 148th (GatewayTC-GreshamTC)	30	30	60	60	60	60	60	60
24FRE	Fremont/Gateway	15	20	20	40	12	15	12	15
25G	Glisan/Rockwood - (GatewayTC-RockwoodTC)	60	60	60	60	60	60	60	60
27M	Market/Main - (GatewayTC-RockwoodTC)	60	60	60	60	60	60	60	60
2829LW	28 Linwood interlined 29 Lake/Webster	30	30	60	60	20	30	20	30

Transit Line Listing		2005 Base		2035 No Build		2035 Financially Constrained		2035 State	
-		peak headway	off-peak headway	peak headway	off-peak headway	peak headway	off-peak headway	peak headway	off-peak headway
300SES	SAM/Sandy-Estacada	60	60	60	60	60	60	60	60
300SGR	SAM/Sandy-Gresham TC	30	60	30	60	60	60	60	60
300SME	SAM/Sandy-Rhodedendron	60	60	60	60	60	60	20	30
301COC	Canby - Oregon City	20	30	20	30	20	30	20	30
302MCC	Molalla/CCC	60	60	60	60	60	60	60	60
302MCN	Molalla/Canby	60	60	60	60	60	60	60	60
31 CDAM-CCC	Damascus – (Dam/CTC/MTC/CCC) via 212/224/82nd/King Rd)	N/A	N/A	N/A	N/A	20	30	20	30
31CEST-CCC	Estacade – (EST/CTC/MTC/CCC) via 212/224/82nd/King Rd)	N/A	N/A	N/A	N/A	20	60	20	60
NEW	Milwaukie TC to 152nd (via king rd/CTC/Sunnyside)	N/A	N/A	N/A	N/A	N/A	N/A	60	30
31MNH	Milw TC - ClackTC - New Hope	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A
32CCOC	Oatfield - (OC-CCC)	N/A	60	N/A	60	N/A	N/A	N/A	N/A
32MOC	Oatfideld (Milwaukie - OC)	N/A	N/A	N/A	N/A	N/A	60	N/A	60
32OCCC	Oatfield - (PCBD-CCC)	15	N/A	15	N/A	N/A	N/A	N/A	N/A
32MCCC	Oatfield Milwaukie - CCC	N/A	N/A	N/A	N/A	20	30	20	30
32OMIL	Oatfield - (OC-MTC)	N/A	60	N/A	60	N/A	60	N/A	20
33BLDS	Mcloughlin (CBD-SOWA-Sgate)	N/A	N/A	N/A	N/A	20	30	20	30
33FRE	Fremont - (PCBD-GTC)	15	20	15	20	12	20	N/A	N/A
33MCCC	McLoughlin - (PCBD-CCC)	30	30	30	30	N/A	N/A	N/A	N/A
33MMCC	McLoughlin - (Milwaukie - CCC)	N/A	N/A	N/A	N/A	30	60	30	60
33MGLD	McLoughlin - (PCBD-OC)	N/A	30	30	30	N/A	N/A	N/A	N/A
34CH	Clackmas Heights	60	60	N/A	60	120	120	120	120
34RCBD	River Rd.	60	60	30	60	N/A	N/A	N/A	N/A
35MAC	Macadam - (PCBD-OC) FB (no service to Canby)	15	30	15	30	N/A	N/A	N/A	N/A
3578BO	HWY 43-Hall BLVD (OC-LO-BTC)	N/A	N/A	N/A	N/A	15	15	15	15

Transit Line Listing		2005 Base		2035 No Build		2035 Financially Constrained		2035 State	
-		peak headway	off-peak headway	peak headway	off-peak headway	peak headway	off-peak headway	peak headway	off-peak headway
36TCBD	South Shore - (PCBD-LakeO-Tual-LakeO)	30	N/A	30	N/A	N/A	N/A	N/A	N/A
36TULO	South Shore - (LakeO-Tual-LakeO)	N/A	60	N/A	60	N/A	N/A	N/A	N/A
36KCTLO	South Shore LO-Tual-Lo-King City)	N/A	N/A	N/A	N/A	30	60	30	60
37NSHR	North Shore - (LakeO-TualPNR) via Cclub/LowerBoones	60	60	60	60	60	60	30	60
38BKJC	Boones Ferry - (PCBD-Tigard TC) Via Kruse/72nd/Hunziker/Hall, Jefferson/Columbia	N/A	N/A	30	60	N/A	N/A	N/A	N/A
38 BKPC	Boones Ferry/PCC Jeff/COL	N/A	N/A	N/A	N/A	30	60	30	60
39LT	Lewis and Clark - (L&C College-BurlingameTC -Terwilliger)	N/A	N/A	30	60	45	45	45	45
40M	Mocks Crest - (PCBD-St.Johns)	20	30	15	30	15	15	15	60
41TACJ	Tacoma - (PCBD-MTC) via McLoughlin (No Sellwood Bridge) Jefferson/Columbia	N/A	N/A	30	60	N/A	N/A	N/A	N/A
41 CTBV	CTC-Slwd-Bringm-Hllsdl-BTC)	N/A	N/A	N/A	N/A	30	30	30	30
43TFNJ	Taylors Ferry Nimbus - (PCBD-WashSq./Nimbus) Jefferson/Columbia	N/A	N/A	30	N/A	60	N/A	60	N/A

Transit Line Listing		2005 Base		2035 No Build		2035 Financially Constrained		2035 State	
-		peak headway	off-peak headway	peak headway	off-peak headway	peak headway	off-peak headway	peak headway	off-peak headway
43TFWJ	Taylors Ferry - (PCBD-WashSq.) Jefferson/Columbia	N/A	N/A	N/A	60	60	60	60	60
44CHWY	Capital Hwy. - (PCBD-PCC Sylvania)	15	15	15	15	7.5	15	7.5	15
44M	Mocks Crest	N/A	N/A	N/A	N/A	15	15	15	15
45G	Garden Home - (PCBD-Tigard)	30	30	N/A	N/A	N/A	N/A	N/A	30
45GJ	Garden Home - (PCBD-Tigard)	N/A	N/A	20	30	20	30	20	30
46NH	North Hillsboro - (WashCo Fairgrounds-Hillsboro)	30	60	30	30	30	30	30	30
47BLEV	Baseline/Evergreen - (WillowCrk/185th-Hillsboro)	30	30	30	30	30	30	30	30
48CORN	Cornell Rd. - (WillowCrk./185th-Hillsboro)	30	30	30	30	30	30	30	30
NEW	50 Cedar Mill	N/A	N/A	30	N/A	30	N/A	30	N/A
51CCPL	Vista - (PCBD- Council Crest-Patrick Place)	60	60	60	60	60	60	60	60
51CDHS	Vista - (PCBD-Council Crest-Dosch)	N/A	60	N/A	60	60	N/A	60	N/A
51CDPD	Vista - (PCBD- Council Crest-Pat-Dosch)	60	N/A	60	N/A	N/A	60	N/A	60
52O	Farmington-185th (BTC-PCC Rock Crk.)	15	15	15	15	12	15	12	15
53ALLN	Artic/Allen - (BTC-Allen/Mercer Ind.)	30	N/A	30	N/A	30	N/A	30	N/A
NEW	Beaverton to Mercer Industries (NW Denny Rd)	N/A	N/A	N/A	N/A	120	N/A	120	N/A
54B	B-H Hwy. (PCBD-BTC)	20	30	15	30	20	30	15	15
55HAMJ	Hamilton - (PCBD-Scholls/Hamilton) Jefferson/Columbia	N/A	N/A	30	N/A	30	N/A	30	N/A

Transit Line Listing		2005 Base		2035 No Build		2035 Financially Constrained		2035 State	
-		peak headway	off-peak headway	peak headway	off-peak headway	peak headway	off-peak headway	peak headway	off-peak headway
55HAML	Hamilton - (PCBD-Scholls/Hamilton)	30	N/A	N/A	N/A	N/A	N/A	15	15
56S	Scholls Ferry - (PCBD-WashSq.) FB	15	30	15	15	20	30	20	30
57FFGV	Forest Grove - (BTC-Forest Gr.) FB	15	15	15	15	15	15	15	15
58CANJ	Canyon Rd. - (PCBD-BTC) Jefferson/Columbia	N/A	N/A	15	30	20	30	20	30
58CANY	Canyon Rd. - (PCBD-BTC)	15	30	N/A	N/A	N/A	N/A	30	30
59WP	Walker/Parkway/Cedar Hills - (Willow Crk./185th-SunsetTC)	30	30	30	30	30	60	30	60
60L	Leahy - (Cornell-SusetTC)	20	60	20	60	N/A	N/A	N/A	N/A
61X	BTC-B-H Hwy. - (Marquam Hill/OHSU-BTC)	30	N/A	30	N/A	30	N/A	30	N/A
62MURR	Murray Blvd - (WashSq.-Sunset TC)	15	20	20	30	15	30	15	30
63WSYL	Washington Park (PCBD-Zoo)	60	60	60	60	60	60	60	60
64MT	Tigard/Marquam Hill - (OHSU-Tigard)	30	N/A	30	N/A	30	N/A	30	N/A
65MBAR	Barbur/Marquam Hill - (OHSU-Tigard)	30	N/A	30	N/A	30	N/A	30	N/A
66MH	Hollywood/Marquam Hill - (OHSU-HollywoodTC)	30	N/A	30	N/A	30	N/A	30	N/A
67J158	Jenkins/158th - (BTC-PCC Rock Crk.)	30	30	30	30	15	45	15	45
NEW 67	Cornell Oaks – Merlo LRT (NW Greenbriar Parkway)	N/A	N/A	N/A	N/A	60	N/A	60	N/A
68CMH	Collins Circle - (PCBD-OHSU/VA Hospital)	15	N/A	15	N/A	10	N/A	10	N/A
70T13	12th Ave. - (RoseQtr.-MTC) via 13th	30	30	30	30	30	30	30	30

Transit Line Listing		2005 Base		2035 No Build		2035 Financially Constrained		2035 State	
-		peak headway	off-peak headway	peak headway	off-peak headway	peak headway	off-peak headway	peak headway	off-peak headway
70T17	12th Ave. - (RoseQtr.-MTC) via 17th	30	20	30	30	30	30	30	30
71T122	60th/122nd - (Woodstock/94th-CTC) via Parkrose LRT	15	15	15	15	15	15	15	15
72K82	82nd/Killingsworth - (Swan Is.-CTC) FB	10	10	10	10	10	12	10	12
74X	SE Portland/Lloyd - (LloydCntr/RoseQtr-Woodstock/52nd)	30	N/A	N/A	N/A	N/A	N/A	N/A	N/A
75TMTC	39th/Lombard - (St.Johns-MTC) FB	12	10	12	15	15	15	15	15
76BVTU	Beaverton/Tualatin - (BTC-Tualatin TC) FB	30	30	30	30	12	15	12	15
77BHTR	Broadway/Lovejoy - (Troutdale-Montgomery Park)	15	15	15	20	15	15	15	15
NEW	77-Broadway/Halsey (NW Portland to Hollywood TC)	N/A	N/A	N/A	N/A	12	N/A	N/A	N/A
78BVLO	Beaverton/LakeO - (TigardTC-Lake Oswego)	30	30	30	30	N/A	N/A	N/A	N/A
79CROC	CTC/OC - (CTC-Or.City) via Gladstone - South End Loop	30	30	30	30	30	30	15	15
80TTRT	Kane Rd. - (GreshamTC-Troutdale) via Troutdale Rd	60	60	60	60	60	60	60	60
81T257	Hogan/257th - (GreshamTC-Troutdale)	60	60	60	60	60	60	60	60
82E182	182nd/Eastman - (GreshamTC-RockwoodTC)	60	60	60	60	60	60	60	60
82L	182nd Limited	N/A	N/A	N/A	N/A	N/A	60	30	20
84BOR	Kelso-Boring	60	N/A	60	N/A	120	N/A	120	N/A
84KEL	Kelso-Boring	60	N/A	60	N/A	120	N/A	120	N/A
85SG	Swan Island - Greeley	20	20	20	20	20	20	20	20

Transit Line Listing		2005 Base		2035 No Build		2035 Financially Constrained		2035 State	
-		peak headway	off-peak headway	peak headway	off-peak headway	peak headway	off-peak headway	peak headway	off-peak headway
86ALD	Alderwood	30	60	30	60	N/A	N/A	N/A	N/A
87A181	181st Ave. - (Alderwood/Damascus) via Airport/181st/182nd - no Rockwood	30	30	30	30	30	30	30	30
8782I	8287 Interline	N/A	N/A	N/A	N/A	30	60	30	60
88H198	198th/Hart - (Willow Crk./185thTC-BTC)	30	30	30	30	30	30	30	30
89TANB	Tanasbourne/North - (Tanasbourne-SunsetTC via Bronson)	30	60	30	60	40	60	40	60
89TANC	Tanasbourne/South - (Tanasbourne-SunsetTC via Cornell)	30	60	30	60	30	60	30	60
92JX	South Beaverton Express - (Murray Hill-WCCR -PCBD) Columbia/Jefferson	N/A	N/A	30	N/A	30	N/A	30	N/A
92X	South Beaverton Express - (Murray Hill-PCBD)	30	N/A	N/A	N/A	N/A	N/A	N/A	N/A
94X	Sherwood Express - (PCBD - Sherwood)	10	N/A	10	N/A	10	N/A	10	N/A
95X	Tigard Express (PCBD - Tigard)	20	N/A	20	N/A	N/A	N/A	N/A	N/A
96TCOJ	Tualatin/I-5 - (PCBD-N Wilsonville Commerce Cir) via Jeff/Col	N/A	N/A	20	60	20	N/A	20	N/A
96TCOM	Tualatin/I-5 - (PCBD-N Wilsonville Commerce Cir)	20	60	N/A	N/A	N/A	N/A	N/A	N/A
96TMOH	Tualatin/I-5 - (PCBD-Mohawk P&R)	20	60	N/A	N/A	N/A	N/A	20	60

Transit Line Listing		2005 Base		2035 No Build		2035 Financially Constrained		2035 State	
-		peak headway	off-peak headway	peak headway	off-peak headway	peak headway	off-peak headway	peak headway	off-peak headway
96TMOJ	Tualatin/I-5 - (PCBD-Mohawk P&R) via Jefferson/Columbia	N/A	N/A	20	60	20	N/A	20	N/A
99PX	McLoughlin Express - (PCBD-OC/CCC)	12	N/A	15	N/A	N/A	N/A	N/A	N/A
99SMX	Mcloughlin Express – (Southgate – OC/CCC)	N/A	N/A	N/A	N/A	12	N/A	12	N/A
99SUNX	Clackamas Town Center to Damascus via 242nd Ave	N/A	N/A	N/A	N/A	N/A	N/A	15	N/A
99TRAM	Tram (North Macadam-OHSU)	N/A	N/A	5	5	5	5	5	5

Table 5. Transportation Analysis Zone Assumptions

2040 Grouping	Group Characteristics	Intersection Density (connections per mile)		Parking Factors (indexed to CBD in '94 dollars)		Transit Pass Factor (% of Full Fare)	
		2005	2035	2005	2035	2005	2035
Central City 1 Downtown Business District	Highest planned employment and housing density in the region, with highest level of access by all modes. LRT exists and current land uses reflect planned mix and densities.		20	5.71	8.93		60%
Central City 2 Lloyd District	Highest planned employment and housing density in the region, with highest level of access by all modes. LRT exists and current land uses reflect planned mix and densities.		20	2.81	5.98		60%
Central City 3 Central Eastside Industrial District	Planned high employment and housing density, with highest level of access by all modes. LRT exists. Current land uses do not reflect planned densities.		20	…..	5.98		65%
Central City 4 River District and Northwest	Planned high employment and housing density, with highest level of access by all modes. LRT exists and current land uses approach planned mix and densities.		20	4.36	7.9		65%
Central City 5 South Waterfront	Planned high employment and housing density, with highest level of access by all modes. LRT exists and current land uses approach planned mix and densities.		18	…..	7.14		65%
Regional Centers Gateway, Gresham, Beaverton, Hillsboro, Washington Square, Clackamas, Oregon City	Planned high employment and housing density, with highest level of access by all modes. LRT exists in some locations Current land uses do not reflect planned mix and densities.		16	…..	0.89		80%

Station Communities Banfield Corridor, Westside Corridor, Interstate Corridor, I-205 Corridor, Milwaukie Corridor	Existing and planned high housing density mixed with commercial services; highest level of access for transit, bike and walk; existing and planned LRT. Current land uses do not reflect planned mix and densities.		14	…..	0.89		80%
Town Centers – Tier 1 Milwaukie, St. Johns, Hollywood, Lents, Rockwood, Lake Oswego, Tualatin, Forest Grove, West Portland, Raleigh Hills, Hillsdale, Gladstone, West Linn, Sherwood, Sunset,Wilsonville, Cornelius, Orenco, Fairview/Wood Village, Troutdale, Happy Valley, Lake Grove, Farmington, Cedar Mill, Tannasbourne	Moderate housing and employment density planned, with high level of access by all modes. Currently has good mix of uses, well connected street system in most locations and good transit.		14	…..	0.62		85%
Town Centers - Tier 2 Pleasant Valley, Damascus, Bethany, Murrayhill	Moderate housing and employment density planned, with high level of access by all modes. Currently has some mix of uses, poorly connected street system and little or no transit. Existing topography or physical barriers may limit bike and pedestrian travel.		12	…..	0.27	100%	100%
Mainstreets, Corridors and Inner Neighborhoods Full Region	Moderate housing and employment density planned, with high level of access by all modes. Currently has good mix of uses, well connected street system and good transit.		>10	None	None	100%	100%
Outer Neighborhoods Current urban areas and potential urban reserve areas	Low density housing planned, with moderate level of access by all modes. Currently has poorly connected street system and little transit.		>8	None	None	100%	100%

Industrial and Employment Areas Full Region	Low density employment planned, with moderate level of access by all modes. Currently has poorly connected street system and some transit.		>8	None	None	100%	100%
Open spaces and rural reserves Full Region	Urban uses are not planned in the foreseeable future Recreational , farm or forestry uses are planned, with moderate level of access by all modes		>6	None	None	100%	100%
Special Area 1 Portland International Airport		A separate model is used to estimate airport traffic					
Special Area 2 Oregon Health Sciences University		*	*	5.71	8.93	60%	60%
Special Area 3 Oregon Zoo	(short-term only)	*	*	0.77	0.77	100%	100%

*Use parent zone values.

Table 6. Households, Employment and 2040 Design Type by TAZ

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
1	540	4,395	1,586	6,124	Central City 1
2	383	16,364	563	23,976	Central City 1
3	8	1,465	663	2,113	Central City 1
4	557	6,290	1,182	9,307	Central City 1
5	1	11,298	0	15,180	Central City 1
6	6	3,821	0	5,731	Central City 1
7	982	1,980	1,868	3,062	Central City 1
8	40	11,640	0	16,103	Central City 1
9	127	1,308	0	1,922	Central City 1
10	1,725	737	2,468	1,140	Central City 1
11	322	5,629	979	7,040	Central City 1
12	0	2,610	798	3,372	Central City 1
13	1,442	3,741	2,011	5,986	Central City 1
14	1,300	10,886	2,448	17,004	Central City 1
15	207	839	610	1,698	Central City 1
16	1,644	1,846	4,885	3,709	Central City 4
17	0	1,982	1,064	4,305	Central City 4
18	499	1,577	1,863	2,096	Central City 4
19	532	5,131	1,854	6,844	Central City 4
20	356	987	1,502	2,331	Central City 4
21	271	272	460	564	Central City 4
22	368	785	1,499	1,038	Central City 4
23	708	1,527	3,005	1,740	Central City 4
24	918	2,132	2,949	2,741	Central City 4
25	77	1,961	379	3,035	Central City 4
26	3,427	7,077	4,743	9,761	Goose Hollow
27	1,780	2,601	2,420	3,257	Main St., Corrid, Inner
28	3,500	5,616	4,028	7,832	Main St., Corrid, Inner
29	1,825	4,953	1,888	5,743	Main St., Corrid, Inner
30	594	5,603	753	6,846	Main St., Corrid, Inner
31	184	1,379	651	1,972	Industrial/Employment
32	165	2,532	603	3,325	Industrial/Employment
33	0	4,156	0	5,538	Industrial/Employment
34	0	5,346	0	6,923	Industrial/Employment
35	91	323	163	589	Open Space
36	41	3,718	72	6,852	Open Space
37	301	678	583	1,523	Open Space
38	451	270	613	467	Outside UGB
39	765	269	1,230	802	Outside UGB
40	72	55	108	83	Outside UGB
41	731	55	1,373	115	Outer Neighborhood
42	77	13	110	18	Open Space
43	92	33	584	74	Outer Neighborhood
44	146	8	324	13	Outer Neighborhood

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
45	702	56	1,702	67	Outer Neighborhood
46	803	66	1,523	152	Outer Neighborhood
47	180	13	402	30	Outer Neighborhood
48	432	99	1,246	163	Outer Neighborhood
49	59	31	184	88	Open Space
50	531	93	602	150	Main St., Corrid, Inner
51	863	236	963	442	Open Space
52	50	662	103	938	Zoo
53	576	1,681	782	2,915	Outer Neighborhood
54	48	909	107	1,514	Main St., Corrid, Inner
55	112	25	314	32	Main St., Corrid, Inner
56	562	61	655	84	Main St., Corrid, Inner
57	156	39	270	58	Main St., Corrid, Inner
58	266	38	375	59	Main St., Corrid, Inner
59	523	186	596	218	Main St., Corrid, Inner
60	1,072	315	1,277	455	Main St., Corrid, Inner
61	2,382	744	2,436	1,075	Main St., Corrid, Inner
62	692	14,644	1,066	20,657	OHSU
63	323	292	382	532	Main St., Corrid, Inner
64	709	1,226	950	1,806	Main St., Corrid, Inner
65	269	5,216	352	7,329	Station Community
66	7	2,068	663	4,733	Central City 5
67	246	2,285	3,926	5,913	Central City 5
68	13	2,008	1,992	3,887	Central City 5
69	305	1,652	500	2,645	Main St., Corrid, Inner
70	470	2,804	647	4,124	Main St., Corrid, Inner
71	357	1,620	549	2,314	Main St., Corrid, Inner
72	305	120	505	189	Main St., Corrid, Inner
73	621	294	636	447	Main St., Corrid, Inner
74	220	50	256	91	Main St., Corrid, Inner
75	38	7	54	13	Main St., Corrid, Inner
76	402	22	563	28	Main St., Corrid, Inner
77	573	401	662	594	Main St., Corrid, Inner
78	708	1,104	774	1,621	Main St., Corrid, Inner
79	1,758	1,160	2,042	1,928	Town Center 1
80	641	78	717	124	Main St., Corrid, Inner
81	1,064	292	1,125	468	Main St., Corrid, Inner
82	1,663	947	2,213	1,588	Main St., Corrid, Inner
83	807	204	934	227	Main St., Corrid, Inner
84	847	263	893	412	Main St., Corrid, Inner
85	890	93	929	140	Main St., Corrid, Inner
86	474	65	517	92	Main St., Corrid, Inner
87	490	2,299	748	3,435	Town Center 1
88	682	141	777	222	Main St., Corrid, Inner
89	1,778	833	1,880	1,211	Main St., Corrid, Inner
90	288	578	504	1,159	Main St., Corrid, Inner

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
91	247	817	480	1,586	Main St., Corrid, Inner
92	614	215	680	276	Main St., Corrid, Inner
93	731	58	737	76	Main St., Corrid, Inner
94	454	39	560	42	Main St., Corrid, Inner
95	694	36	732	46	Main St., Corrid, Inner
96	529	259	584	342	Main St., Corrid, Inner
97	654	1,632	705	2,823	Town Center 1
98	891	277	931	562	Main St., Corrid, Inner
99	146	13	178	17	Main St., Corrid, Inner
100	668	982	804	1,444	Main St., Corrid, Inner
101	511	138	674	306	Main St., Corrid, Inner
102	990	182	1,280	262	Main St., Corrid, Inner
103	363	1,207	439	1,885	Main St., Corrid, Inner
104	303	175	364	255	Main St., Corrid, Inner
105	537	505	613	952	Main St., Corrid, Inner
106	1,233	1,067	1,415	1,565	Main St., Corrid, Inner
107	907	421	1,021	784	Station Community
108	1,300	429	1,385	602	Station Community
109	587	643	616	937	Main St., Corrid, Inner
110	558	409	575	628	Main St., Corrid, Inner
111	312	4,244	328	4,654	Station Community
112	678	782	662	1,060	Main St., Corrid, Inner
113	351	1,711	443	2,350	Station Community
114	232	954	604	1,452	Station Community
115	0	532	0	989	Central City 3
116	426	1,715	685	2,075	PDOT East CEID
117	1,308	2,290	1,914	2,846	PDOT East CEID
118	21	1,625	261	2,077	Central City 3
119	0	1,914	43	3,059	Central City 3
120	255	2,126	597	2,625	Central City 3
121	253	3,314	864	4,503	Central City 3
122	309	2,561	716	3,591	PDOT East CEID
123	1,605	4,241	2,100	5,214	Main St., Corrid, Inner
124	2,356	2,158	2,519	2,690	Main St., Corrid, Inner
125	876	520	898	626	Main St., Corrid, Inner
126	717	186	717	213	Main St., Corrid, Inner
127	1,018	4,283	1,064	5,100	Main St., Corrid, Inner
128	734	510	774	664	Main St., Corrid, Inner
129	1,109	602	1,156	752	Main St., Corrid, Inner
130	1,398	923	1,534	1,375	Main St., Corrid, Inner
131	796	1,236	848	1,592	Main St., Corrid, Inner
132	1,160	595	1,199	843	Main St., Corrid, Inner
133	971	584	986	832	Main St., Corrid, Inner
134	1,223	1,202	1,293	1,489	Main St., Corrid, Inner
135	770	412	810	520	Main St., Corrid, Inner
136	1,111	509	1,246	644	Main St., Corrid, Inner

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
137	1,409	976	1,515	1,290	Main St., Corrid, Inner
138	1,137	952	1,202	1,082	Main St., Corrid, Inner
139	1,024	623	1,019	859	Main St., Corrid, Inner
140	198	3,026	188	4,364	Main St., Corrid, Inner
141	708	735	755	1,010	Main St., Corrid, Inner
142	1,490	748	1,685	1,067	Main St., Corrid, Inner
143	741	849	718	1,073	Main St., Corrid, Inner
144	905	82	973	143	Main St., Corrid, Inner
145	1,624	383	1,707	477	Main St., Corrid, Inner
146	1,100	1,465	1,149	1,642	Main St., Corrid, Inner
147	508	1,216	630	1,676	Main St., Corrid, Inner
148	587	50	654	61	Main St., Corrid, Inner
149	472	107	523	157	Main St., Corrid, Inner
150	968	523	1,109	820	Main St., Corrid, Inner
151	824	755	866	935	Main St., Corrid, Inner
152	430	1,039	465	1,327	Main St., Corrid, Inner
153	632	119	684	168	Main St., Corrid, Inner
154	68	312	104	408	Main St., Corrid, Inner
155	11	18	20	61	Main St., Corrid, Inner
156	711	88	743	132	Main St., Corrid, Inner
157	757	1,195	838	1,213	Main St., Corrid, Inner
158	846	65	950	91	Main St., Corrid, Inner
159	834	154	930	262	Main St., Corrid, Inner
160	858	299	1,167	499	Main St., Corrid, Inner
161	646	287	838	311	Station Community
162	668	220	1,074	589	Town Center 1
163	372	813	490	1,204	Main St., Corrid, Inner
164	764	220	1,091	456	Main St., Corrid, Inner
165	1,370	184	1,526	283	Main St., Corrid, Inner
166	865	162	976	258	Main St., Corrid, Inner
167	568	94	611	117	Main St., Corrid, Inner
168	544	176	577	368	Main St., Corrid, Inner
169	598	393	650	664	Main St., Corrid, Inner
170	787	535	835	688	Main St., Corrid, Inner
171	664	116	742	211	Main St., Corrid, Inner
172	338	1,076	362	1,529	Main St., Corrid, Inner
173	430	35	658	97	Station Community
174	90	772	592	1,210	Station Community
175	745	595	853	922	Main St., Corrid, Inner
176	825	426	948	586	Main St., Corrid, Inner
177	781	171	809	254	Main St., Corrid, Inner
178	505	16	534	30	Main St., Corrid, Inner
179	703	123	763	196	Main St., Corrid, Inner
180	323	250	391	441	Main St., Corrid, Inner
181	243	60	496	124	Station Community
182	931	646	1,090	1,119	Station Community

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
183	1,187	627	1,312	1,031	Main St., Corrid, Inner
184	3,031	1,065	3,227	1,533	Main St., Corrid, Inner
185	1,337	967	1,408	1,481	Main St., Corrid, Inner
186	1,631	1,860	1,709	2,997	Main St., Corrid, Inner
187	1,544	780	1,723	1,168	Main St., Corrid, Inner
188	817	1,543	879	2,218	Main St., Corrid, Inner
189	465	371	511	579	Station Community
190	658	225	697	343	Main St., Corrid, Inner
191	270	338	294	655	Main St., Corrid, Inner
192	789	361	1,050	706	Main St., Corrid, Inner
193	70	353	73	701	Main St., Corrid, Inner
194	1,700	704	1,811	1,106	Main St., Corrid, Inner
195	1,250	157	1,366	282	Main St., Corrid, Inner
196	325	1,865	350	2,078	Station Community
197	1,634	3,700	2,159	4,609	Town Center 1
198	646	779	741	839	Main St., Corrid, Inner
199	1,164	368	1,219	458	Main St., Corrid, Inner
200	1,342	554	1,359	615	Main St., Corrid, Inner
201	842	664	1,020	734	Main St., Corrid, Inner
202	348	996	787	1,361	Town Center 1
203	728	489	723	584	Main St., Corrid, Inner
204	650	26	658	36	Main St., Corrid, Inner
205	708	433	711	489	Main St., Corrid, Inner
206	704	128	706	156	Main St., Corrid, Inner
207	2,031	1,923	2,129	2,185	Main St., Corrid, Inner
208	1,956	2,004	2,245	3,369	Main St., Corrid, Inner
209	0	1,785	333	2,664	Central City 2
210	0	3,051	333	4,643	Central City 2
211	579	10,015	2,906	16,075	Central City 2
212	0	1,029	0	1,869	Central City 2
213	2	462	2	584	Lower Albina
214	80	2,062	85	2,785	Lower Albina
215	522	4,900	576	7,539	Main St., Corrid, Inner
216	328	1,280	711	1,897	Main St., Corrid, Inner
217	737	1,015	891	1,335	Main St., Corrid, Inner
218	574	224	572	332	Main St., Corrid, Inner
219	661	162	669	197	Main St., Corrid, Inner
220	599	322	795	582	Main St., Corrid, Inner
221	409	38	417	63	Main St., Corrid, Inner
222	220	331	222	412	Main St., Corrid, Inner
223	166	95	241	178	Main St., Corrid, Inner
224	228	1,358	290	1,573	Station Community
225	33	13,137	37	18,202	Industrial/Employment
226	934	147	952	193	Main St., Corrid, Inner
227	707	142	721	181	Main St., Corrid, Inner
228	255	12	344	146	Main St., Corrid, Inner

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
229	374	111	475	106	Station Community
230	405	133	494	172	Station Community
231	507	205	655	283	Station Community
232	178	250	781	331	Station Community
233	252	90	956	181	Station Community
234	255	325	998	510	Station Community
235	204	130	603	174	Main St., Corrid, Inner
236	337	89	701	117	Main St., Corrid, Inner
237	295	15	561	19	Main St., Corrid, Inner
238	165	5	214	4	Main St., Corrid, Inner
239	297	660	461	946	Main St., Corrid, Inner
240	359	81	393	134	Main St., Corrid, Inner
241	584	126	662	209	Main St., Corrid, Inner
242	690	553	787	676	Main St., Corrid, Inner
243	590	71	589	114	Main St., Corrid, Inner
244	627	88	666	132	Main St., Corrid, Inner
245	583	462	988	732	Main St., Corrid, Inner
246	631	588	869	861	Main St., Corrid, Inner
247	847	96	926	143	Main St., Corrid, Inner
248	1,017	123	1,061	165	Main St., Corrid, Inner
249	1,086	189	1,101	210	Main St., Corrid, Inner
250	663	594	696	832	Main St., Corrid, Inner
251	778	210	789	266	Main St., Corrid, Inner
252	889	51	910	67	Main St., Corrid, Inner
253	850	100	859	141	Main St., Corrid, Inner
254	785	326	810	409	Main St., Corrid, Inner
255	547	92	569	121	Main St., Corrid, Inner
256	423	86	461	130	Main St., Corrid, Inner
257	966	362	1,079	636	Main St., Corrid, Inner
258	1,078	193	1,117	244	Main St., Corrid, Inner
259	647	427	684	783	Main St., Corrid, Inner
260	547	58	575	107	Main St., Corrid, Inner
261	175	173	197	270	Main St., Corrid, Inner
262	791	305	864	758	Main St., Corrid, Inner
263	802	138	839	200	Main St., Corrid, Inner
264	901	680	948	1,118	Main St., Corrid, Inner
265	384	899	435	1,685	Main St., Corrid, Inner
266	2	1,646	2	1,954	Industrial/Employment
267	64	1,968	82	2,659	Industrial/Employment
268	10	1,369	12	1,629	Industrial/Employment
269	16	123	18	216	Industrial/Employment
270	39	1,362	45	1,966	Industrial/Employment
271	7	3,301	8	3,852	Industrial/Employment
272	1,000	1,348	1,040	1,724	Main St., Corrid, Inner
273	14	1,054	16	1,284	Industrial/Employment
274	527	152	639	213	Main St., Corrid, Inner

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
275	187	330	374	455	Station Community
276	366	385	423	568	Station Community
277	361	1,385	1,126	1,916	Station Community
278	751	479	768	601	Main St., Corrid, Inner
279	1,250	423	1,261	645	Main St., Corrid, Inner
280	883	150	902	194	Main St., Corrid, Inner
281	774	594	787	729	Main St., Corrid, Inner
282	1,686	422	2,222	637	Main St., Corrid, Inner
283	2,078	2,010	2,086	2,997	Main St., Corrid, Inner
284	2,184	2,971	2,913	4,180	Town Center 1
285	2,032	812	2,139	1,065	Main St., Corrid, Inner
286	56	1,433	124	1,801	Industrial/Employment
287	1,268	135	1,246	253	Main St., Corrid, Inner
288	1	1,332	1	1,645	Industrial/Employment
289	0	2,581	0	3,701	Industrial/Employment
290	0	1,634	0	2,041	Industrial/Employment
291	29	399	0	668	Industrial/Employment
292	0	1,042	0	1,510	Industrial/Employment
293	0	43	0	131	Open Space
294	0	1,360	0	1,630	Industrial/Employment
295	0	0	0	0	Industrial/Employment
296	269	663	313	1,086	Industrial/Employment
297	350	2,120	366	2,424	Station Community
298	588	1,019	601	1,315	Industrial/Employment
299	1	188	1	232	Main St., Corrid, Inner
300	6	51	7	72	Station Community
301	0	78	0	153	Station Community
302	199	2,378	228	3,018	Industrial/Employment
303	634	2,740	680	4,113	Industrial/Employment
304	1	1,093	1	2,386	Industrial/Employment
305	14	8,872	17	11,063	PDX
306	0	639	0	783	Industrial/Employment
307	0	1,096	0	2,067	Industrial/Employment
308	0	423	0	526	Industrial/Employment
309	0	478	0	866	Station Community
310	0	1,308	0	1,635	Industrial/Employment
311	0	0	0	212	Station Community
312	0	161	0	713	Station Community
313	0	205	0	815	Station Community
314	0	41	0	131	Industrial/Employment
315	0	0	0	415	Station Community
316	0	0	0	649	Station Community
317	0	0	0	468	Industrial/Employment
318	9	1,341	41	1,858	Industrial/Employment
319	3	3,241	3	3,840	Industrial/Employment
320	0	2,790	0	3,549	Industrial/Employment

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
321	56	1,081	65	1,447	Industrial/Employment
322	322	603	360	948	Station Community
323	788	224	860	381	Main St., Corrid, Inner
324	642	52	699	66	Main St., Corrid, Inner
325	313	571	392	790	Main St., Corrid, Inner
326	511	353	545	583	Main St., Corrid, Inner
327	113	35	133	74	Main St., Corrid, Inner
328	275	13	302	17	Main St., Corrid, Inner
329	396	66	399	90	Main St., Corrid, Inner
330	145	3	145	4	Main St., Corrid, Inner
331	134	772	158	995	Main St., Corrid, Inner
332	496	225	498	266	Main St., Corrid, Inner
333	918	111	979	139	Main St., Corrid, Inner
334	345	1,867	882	2,607	Regional Center
335	794	1,408	926	1,891	Main St., Corrid, Inner
336	253	495	250	636	Main St., Corrid, Inner
337	290	950	300	1,275	Main St., Corrid, Inner
338	844	695	922	867	Main St., Corrid, Inner
339	559	450	1,465	773	Regional Center
340	580	1,177	1,726	1,988	Regional Center
341	628	293	706	449	Station Community
342	223	374	254	521	Station Community
343	401	818	394	1,022	Main St., Corrid, Inner
344	627	1,009	705	1,409	Main St., Corrid, Inner
345	311	2,734	571	3,959	Regional Center
346	214	2,286	317	3,892	Main St., Corrid, Inner
347	651	517	764	791	Main St., Corrid, Inner
348	573	207	690	308	Main St., Corrid, Inner
349	1,067	608	1,235	859	Main St., Corrid, Inner
350	1,185	815	1,270	1,080	Main St., Corrid, Inner
351	360	1,079	381	1,815	Main St., Corrid, Inner
352	342	356	383	622	Main St., Corrid, Inner
353	1,151	232	1,492	283	Main St., Corrid, Inner
354	651	271	1,100	355	Main St., Corrid, Inner
355	81	146	370	212	Main St., Corrid, Inner
356	708	161	958	239	Main St., Corrid, Inner
357	652	158	732	271	Main St., Corrid, Inner
358	633	130	770	142	Main St., Corrid, Inner
359	450	340	674	408	Town Center 1
360	409	232	727	283	Main St., Corrid, Inner
361	257	33	426	56	Main St., Corrid, Inner
362	338	351	455	507	Main St., Corrid, Inner
363	344	282	349	269	Main St., Corrid, Inner
364	73	112	95	206	Industrial/Employment
365	214	174	369	327	Main St., Corrid, Inner
366	359	23	408	23	Main St., Corrid, Inner

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
367	330	41	352	59	Outer Neighborhood
368	248	22	332	26	Outer Neighborhood
369	269	29	384	38	Outer Neighborhood
370	207	11	358	12	Outer Neighborhood
371	167	22	363	391	Main St., Corrid, Inner
372	59	16	212	113	Main St., Corrid, Inner
373	301	35	412	42	Main St., Corrid, Inner
374	379	287	590	402	Main St., Corrid, Inner
375	294	42	679	43	Main St., Corrid, Inner
376	291	0	289	0	Open Space
377	470	84	586	110	Main St., Corrid, Inner
378	1,356	102	1,724	130	Main St., Corrid, Inner
379	808	250	940	289	Main St., Corrid, Inner
380	122	11	143	12	Main St., Corrid, Inner
381	54	386	76	527	Main St., Corrid, Inner
382	553	234	634	268	Main St., Corrid, Inner
383	724	49	845	65	Main St., Corrid, Inner
384	480	236	502	319	Main St., Corrid, Inner
385	244	3	267	3	Main St., Corrid, Inner
386	111	40	110	46	Main St., Corrid, Inner
387	182	508	211	671	Main St., Corrid, Inner
388	154	18	155	21	Main St., Corrid, Inner
389	180	11	205	9	Main St., Corrid, Inner
390	712	241	1,019	411	Main St., Corrid, Inner
391	680	303	846	428	Main St., Corrid, Inner
392	29	380	34	539	Main St., Corrid, Inner
393	465	19	671	25	Main St., Corrid, Inner
394	375	201	620	486	Station Community
395	299	105	334	127	Main St., Corrid, Inner
396	146	0	283	0	Main St., Corrid, Inner
397	283	174	356	250	Main St., Corrid, Inner
398	325	128	374	180	Main St., Corrid, Inner
399	410	172	457	202	Main St., Corrid, Inner
400	999	97	1,016	120	Main St., Corrid, Inner
401	313	335	314	447	Main St., Corrid, Inner
402	514	80	536	101	Main St., Corrid, Inner
403	565	55	682	79	Main St., Corrid, Inner
404	559	174	632	263	Main St., Corrid, Inner
405	550	170	664	228	Main St., Corrid, Inner
406	9	1,217	10	1,570	Industrial/Employment
407	15	1,403	17	1,770	Industrial/Employment
408	0	1,735	0	3,223	Industrial/Employment
409	0	333	0	755	Industrial/Employment
410	267	89	323	148	Main St., Corrid, Inner
411	534	21	630	29	Main St., Corrid, Inner
412	768	127	836	192	Main St., Corrid, Inner

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
413	564	227	728	552	Main St., Corrid, Inner
414	431	22	468	28	Main St., Corrid, Inner
415	678	354	809	785	Main St., Corrid, Inner
416	919	102	1,099	234	Station Community
417	762	273	763	444	Main St., Corrid, Inner
418	572	213	594	279	Main St., Corrid, Inner
419	768	310	906	614	Main St., Corrid, Inner
420	421	68	403	106	Main St., Corrid, Inner
421	173	108	188	182	Main St., Corrid, Inner
422	808	75	875	150	Main St., Corrid, Inner
423	51	15	104	22	Outer Neighborhood
424	414	389	727	617	Main St., Corrid, Inner
425	89	4	168	416	Main St., Corrid, Inner
426	215	30	1,291	1,331	Main St., Corrid, Inner
427	82	144	309	255	Town Center 2
428	232	35	2,407	351	Main St., Corrid, Inner
429	686	85	794	325	Main St., Corrid, Inner
430	936	483	1,053	883	Main St., Corrid, Inner
431	284	83	350	139	Main St., Corrid, Inner
432	421	598	509	904	Main St., Corrid, Inner
433	257	188	289	294	Main St., Corrid, Inner
434	395	101	423	212	Main St., Corrid, Inner
435	319	500	364	822	Main St., Corrid, Inner
436	431	117	541	276	Main St., Corrid, Inner
437	27	209	62	496	Main St., Corrid, Inner
438	22	26	27	450	Industrial/Employment
439	423	281	475	525	Main St., Corrid, Inner
440	254	102	336	205	Main St., Corrid, Inner
441	249	90	252	121	Main St., Corrid, Inner
442	90	16	107	30	Main St., Corrid, Inner
443	173	124	236	409	Main St., Corrid, Inner
444	105	634	178	1,351	Main St., Corrid, Inner
445	0	65	43	165	Station Community
446	542	768	745	1,223	Station Community
447	433	39	541	121	Town Center 1
448	372	364	561	689	Town Center 1
449	399	355	474	604	Main St., Corrid, Inner
450	572	225	647	381	Main St., Corrid, Inner
451	437	90	493	207	Station Community
452	395	218	472	422	Station Community
453	491	365	685	705	Station Community
454	392	101	454	166	Main St., Corrid, Inner
455	385	104	438	153	Main St., Corrid, Inner
456	528	718	614	1,427	Main St., Corrid, Inner
457	405	85	469	152	Main St., Corrid, Inner
458	483	938	642	1,335	Main St., Corrid, Inner

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
459	358	651	413	1,206	Main St., Corrid, Inner
460	435	37	553	65	Main St., Corrid, Inner
461	31	431	45	811	Industrial/Employment
462	0	1,108	0	1,862	Industrial/Employment
463	25	989	37	2,377	Industrial/Employment
464	0	221	0	654	Industrial/Employment
465	0	680	0	1,253	Industrial/Employment
466	16	691	18	1,621	Industrial/Employment
467	77	236	90	1,635	Industrial/Employment
468	29	1,986	46	3,751	Industrial/Employment
469	7	1,862	15	2,898	Industrial/Employment
470	25	701	31	1,782	Industrial/Employment
471	483	94	540	161	Open Space
472	953	199	904	772	Main St., Corrid, Inner
473	481	96	658	339	Main St., Corrid, Inner
474	319	108	348	242	Main St., Corrid, Inner
475	130	12	164	41	Main St., Corrid, Inner
476	124	35	160	78	Main St., Corrid, Inner
477	211	357	228	644	Main St., Corrid, Inner
478	94	517	166	780	Main St., Corrid, Inner
479	149	206	285	606	Town Center 1
480	67	20	79	51	Industrial/Employment
481	284	15	322	30	Main St., Corrid, Inner
482	244	16	308	24	Main St., Corrid, Inner
483	83	15	112	58	Main St., Corrid, Inner
484	6	288	32	1,085	Industrial/Employment
485	5	317	6	523	Industrial/Employment
486	230	190	271	364	Main St., Corrid, Inner
487	675	215	753	413	Main St., Corrid, Inner
488	221	27	261	82	Main St., Corrid, Inner
489	199	8	216	11	Main St., Corrid, Inner
490	105	26	135	46	Main St., Corrid, Inner
491	61	264	142	524	Main St., Corrid, Inner
492	1	149	33	287	Main St., Corrid, Inner
493	225	53	246	361	Main St., Corrid, Inner
494	472	29	551	253	Main St., Corrid, Inner
495	116	112	171	262	Main St., Corrid, Inner
496	107	43	453	284	Regional Center
497	26	534	251	1,087	Regional Center
498	10	105	11	320	Regional Center
499	474	143	541	270	Main St., Corrid, Inner
500	293	91	359	178	Main St., Corrid, Inner
501	128	22	207	35	Main St., Corrid, Inner
502	212	69	237	183	Main St., Corrid, Inner
503	198	155	223	271	Main St., Corrid, Inner
504	489	76	549	132	Main St., Corrid, Inner

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
505	467	96	466	153	Main St., Corrid, Inner
506	706	90	891	687	Industrial/Employment
507	858	52	894	60	Main St., Corrid, Inner
508	81	81	116	91	Main St., Corrid, Inner
509	358	52	458	60	Main St., Corrid, Inner
510	528	69	654	78	Main St., Corrid, Inner
511	403	0	505	0	Main St., Corrid, Inner
512	501	52	484	60	Main St., Corrid, Inner
513	568	51	547	60	Main St., Corrid, Inner
514	163	14	337	20	Main St., Corrid, Inner
515	657	157	964	183	Main St., Corrid, Inner
516	105	46	1,261	3,285	Main St., Corrid, Inner
517	74	14	327	4,198	Industrial/Employment
518	611	131	754	239	Main St., Corrid, Inner
519	80	242	155	1,114	Industrial/Employment
520	387	0	475	328	Industrial/Employment
521	190	290	226	729	Industrial/Employment
522	512	93	701	161	Main St., Corrid, Inner
523	297	181	379	235	Main St., Corrid, Inner
524	286	12	366	18	Main St., Corrid, Inner
525	13	544	37	784	Regional Center
526	26	664	71	890	Regional Center
527	10	967	33	1,075	Regional Center
528	159	894	288	1,063	Regional Center
529	48	269	165	402	Regional Center
530	11	174	34	341	Regional Center
531	22	271	50	540	Regional Center
532	81	93	201	256	Regional Center
533	196	285	319	557	Regional Center
534	119	164	266	305	Regional Center
535	2	884	14	1,406	Main St., Corrid, Inner
536	170	267	322	501	Regional Center
537	86	229	207	389	Regional Center
538	99	86	166	159	Regional Center
539	4	477	4	699	Regional Center
540	5	177	5	331	Regional Center
541	125	488	151	908	Main St., Corrid, Inner
542	20	428	42	754	Main St., Corrid, Inner
543	327	29	388	59	Main St., Corrid, Inner
544	108	106	167	234	Main St., Corrid, Inner
545	524	449	615	590	Main St., Corrid, Inner
546	460	37	559	108	Main St., Corrid, Inner
547	11	372	13	727	Main St., Corrid, Inner
548	1	1,268	1	3,072	Industrial/Employment
549	1	214	218	679	Town Center 1
550	367	37	422	92	Main St., Corrid, Inner

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
551	328	57	365	200	Main St., Corrid, Inner
552	478	246	520	769	Town Center 1
553	359	15	378	59	Main St., Corrid, Inner
554	48	467	65	1,087	Main St., Corrid, Inner
555	96	264	87	670	Industrial/Employment
556	86	1,492	105	2,317	Industrial/Employment
557	1	770	1	1,143	Industrial/Employment
558	0	438	0	1,029	Industrial/Employment
559	0	66	0	114	Industrial/Employment
560	0	264	0	988	Industrial/Employment
561	0	420	0	1,078	Industrial/Employment
562	0	83	0	241	Industrial/Employment
563	0	634	120	1,316	Town Center 1
564	0	603	63	1,404	Industrial/Employment
565	0	0	134	320	Town Center 1
566	258	26	545	184	Town Center 1
567	206	322	432	727	Town Center 1
568	151	8	227	96	Town Center 1
569	458	22	491	54	Main St., Corrid, Inner
570	527	76	698	286	Town Center 1
571	0	355	0	781	Main St., Corrid, Inner
572	531	348	574	709	Main St., Corrid, Inner
573	181	13	202	40	Main St., Corrid, Inner
574	0	5	0	527	Industrial/Employment
575	425	88	522	218	Main St., Corrid, Inner
576	49	0	54	56	Main St., Corrid, Inner
577	342	3	411	4	Main St., Corrid, Inner
578	519	50	602	121	Main St., Corrid, Inner
579	582	73	591	102	Main St., Corrid, Inner
580	270	30	286	41	Outer Neighborhood
581	42	29	59	51	Outer Neighborhood
582	447	10	552	15	Outer Neighborhood
583	525	227	777	427	Outer Neighborhood
584	380	427	626	713	Main St., Corrid, Inner
585	1	1,883	1	2,946	Main St., Corrid, Inner
586	380	117	438	191	Main St., Corrid, Inner
587	381	215	549	399	Main St., Corrid, Inner
588	4	724	21	1,109	Main St., Corrid, Inner
589	795	389	944	758	Main St., Corrid, Inner
590	149	48	193	99	Main St., Corrid, Inner
591	730	22	842	35	Main St., Corrid, Inner
592	649	270	800	442	Main St., Corrid, Inner
593	237	124	283	245	Main St., Corrid, Inner
594	564	68	644	126	Main St., Corrid, Inner
595	644	149	760	270	Main St., Corrid, Inner
596	18	419	23	621	Main St., Corrid, Inner

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
597	2	229	2	365	Main St., Corrid, Inner
598	19	673	40	972	Main St., Corrid, Inner
599	246	199	337	289	Main St., Corrid, Inner
600	206	907	240	1,250	Main St., Corrid, Inner
601	350	85	427	171	Main St., Corrid, Inner
602	250	121	298	192	Main St., Corrid, Inner
603	479	86	620	182	Main St., Corrid, Inner
604	328	104	495	226	Main St., Corrid, Inner
605	580	74	795	150	Main St., Corrid, Inner
606	128	52	157	3,668	Industrial/Employment
607	482	172	637	276	Main St., Corrid, Inner
608	526	55	687	73	Main St., Corrid, Inner
609	251	133	301	154	Main St., Corrid, Inner
610	230	34	265	43	Main St., Corrid, Inner
611	12	0	203	0	Outside UGB
612	14	10	134	20	Outside UGB
613	542	291	1,065	408	Main St., Corrid, Inner
614	234	9	438	11	Main St., Corrid, Inner
615	138	255	597	386	Outside UGB
616	81	243	460	392	Outside UGB
617	96	213	136	324	Outside UGB
618	235	74	860	111	Outside UGB
619	171	234	1,153	290	Outside UGB
620	111	49	303	60	Outside UGB
621	122	66	169	121	Outside UGB
622	776	276	887	392	Outside UGB
623	488	162	431	252	Outside UGB
624	585	153	670	258	Main St., Corrid, Inner
625	0	1,198	2	1,392	Station Community
626	132	905	813	1,295	Town Center 1
627	631	1,006	764	1,447	Town Center 1
628	700	195	784	790	Town Center 1
629	39	589	64	908	Town Center 1
630	512	505	684	874	Town Center 1
631	8	1,197	29	1,409	Station Community
632	727	180	824	308	Main St., Corrid, Inner
633	809	109	931	139	Main St., Corrid, Inner
634	526	54	609	78	Main St., Corrid, Inner
635	829	305	1,020	528	Main St., Corrid, Inner
636	374	299	461	327	Main St., Corrid, Inner
637	1	1,759	30	2,395	Industrial/Employment
638	192	67	184	78	Main St., Corrid, Inner
639	542	119	561	117	Main St., Corrid, Inner
640	432	27	501	90	Main St., Corrid, Inner
641	42	2,417	75	2,742	Industrial/Employment
642	440	221	510	331	Main St., Corrid, Inner

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
643	428	104	523	164	Main St., Corrid, Inner
644	135	138	152	187	Main St., Corrid, Inner
645	278	89	324	111	Main St., Corrid, Inner
646	284	120	317	144	Main St., Corrid, Inner
647	248	848	281	898	Main St., Corrid, Inner
648	480	1,001	544	1,412	Main St., Corrid, Inner
649	211	9	236	10	Main St., Corrid, Inner
650	427	621	533	935	Main St., Corrid, Inner
651	302	679	393	1,318	Main St., Corrid, Inner
652	361	1,088	531	2,756	Station Community
653	360	319	521	750	Main St., Corrid, Inner
654	413	748	492	1,133	Main St., Corrid, Inner
655	480	11	537	17	Main St., Corrid, Inner
656	341	59	387	102	Main St., Corrid, Inner
657	318	62	352	79	Main St., Corrid, Inner
658	240	93	265	124	Main St., Corrid, Inner
659	464	191	548	398	Main St., Corrid, Inner
660	574	38	692	49	Main St., Corrid, Inner
661	188	83	282	360	Open Space
662	43	337	150	621	Regional Center
663	1,780	1,018	2,914	3,163	Regional Center
664	0	3,914	33	8,159	Regional Center
665	0	2,478	488	3,491	Regional Center
666	14	1,663	316	2,169	Industrial/Employment
667	252	541	267	648	Main St., Corrid, Inner
668	0	645	0	970	Industrial/Employment
669	92	1,080	97	1,605	Industrial/Employment
670	711	1,297	817	1,869	Main St., Corrid, Inner
671	1,355	223	1,443	342	Main St., Corrid, Inner
672	954	116	1,019	179	Main St., Corrid, Inner
673	402	790	430	1,617	Main St., Corrid, Inner
674	775	613	805	897	Town Center 1
675	1,353	311	1,481	490	Main St., Corrid, Inner
676	394	139	472	194	Main St., Corrid, Inner
677	447	21	510	27	Main St., Corrid, Inner
678	305	93	324	129	Main St., Corrid, Inner
679	1,076	195	1,188	276	Main St., Corrid, Inner
680	575	324	647	423	Main St., Corrid, Inner
681	235	79	270	102	Main St., Corrid, Inner
682	347	84	361	107	Main St., Corrid, Inner
683	830	115	904	178	Main St., Corrid, Inner
684	1,140	800	1,319	1,326	Main St., Corrid, Inner
685	422	62	489	93	Main St., Corrid, Inner
686	1,361	750	1,466	981	Main St., Corrid, Inner
687	1,004	235	1,126	347	Main St., Corrid, Inner
688	924	200	1,012	263	Main St., Corrid, Inner

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
689	519	1,053	582	1,515	Main St., Corrid, Inner
690	776	1,216	895	1,914	Main St., Corrid, Inner
691	450	1,414	467	1,739	Main St., Corrid, Inner
692	432	456	505	723	Main St., Corrid, Inner
693	480	175	540	270	Main St., Corrid, Inner
694	718	428	811	618	Main St., Corrid, Inner
695	683	642	799	900	Main St., Corrid, Inner
696	1,182	1,350	1,498	1,906	Main St., Corrid, Inner
697	2	245	298	465	Regional Center
698	4	174	264	489	Regional Center
699	40	561	681	2,282	Regional Center
700	646	628	880	1,121	Outer Neighborhood
701	216	51	1,687	76	Outside UGB
702	54	166	69	268	Main St., Corrid, Inner
703	0	1,929	0	2,847	Industrial/Employment
704	427	69	483	153	Main St., Corrid, Inner
705	159	863	190	1,359	Main St., Corrid, Inner
706	2	609	2	740	Industrial/Employment
707	13	1,830	16	2,222	Industrial/Employment
708	197	1,651	235	2,662	Industrial/Employment
709	407	115	463	134	Industrial/Employment
710	116	755	145	1,438	Industrial/Employment
711	125	1,833	155	2,414	Main St., Corrid, Inner
712	125	1,172	296	1,816	Industrial/Employment
713	922	23	982	32	Outer Neighborhood
714	657	173	808	382	Outer Neighborhood
715	181	3,077	219	5,033	Regional Center
716	236	1,063	421	2,746	Regional Center
717	175	0	196	0	Outer Neighborhood
718	567	112	508	243	Outer Neighborhood
719	301	92	267	391	Main St., Corrid, Inner
720	456	33	540	80	Outer Neighborhood
721	354	41	445	82	Outer Neighborhood
722	385	83	534	238	Outer Neighborhood
723	158	65	309	75	Outer Neighborhood
724	440	76	640	107	Outer Neighborhood
725	630	276	680	682	Outer Neighborhood
726	544	621	608	855	Outer Neighborhood
727	493	40	539	70	Outer Neighborhood
728	479	912	589	1,359	Industrial/Employment
729	2	805	3	1,388	Industrial/Employment
730	52	598	128	1,311	Industrial/Employment
731	482	210	657	279	Outer Neighborhood
732	195	124	363	279	Main St., Corrid, Inner
733	304	119	580	171	Outer Neighborhood
734	314	142	463	201	Outer Neighborhood

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
735	437	72	525	141	Main St., Corrid, Inner
736	281	3	870	43	Outer Neighborhood
737	127	1	299	0	Outer Neighborhood
738	261	118	331	275	Town Center 1
739	174	37	259	54	Outer Neighborhood
740	114	0	384	0	Outer Neighborhood
741	22	0	1,020	0	Outer Neighborhood
742	56	16	161	19	Outer Neighborhood
743	84	38	1,049	170	Main St., Corrid, Inner
744	445	438	560	600	Main St., Corrid, Inner
745	50	21	907	37	Main St., Corrid, Inner
746	34	38	47	6,633	Industrial/Employment
747	277	54	345	109	Main St., Corrid, Inner
748	572	12	1,246	48	Outer Neighborhood
749	180	179	922	712	Outer Neighborhood
750	156	17	539	42	Outer Neighborhood
751	113	30	320	428	Industrial/Employment
752	124	32	758	151	Main St., Corrid, Inner
753	83	16	447	49	Industrial/Employment
754	15	3	111	34	Industrial/Employment
755	120	43	2,079	111	Main St., Corrid, Inner
756	53	20	633	64	Main St., Corrid, Inner
757	48	12	763	27	Main St., Corrid, Inner
758	44	8	540	13	Main St., Corrid, Inner
759	47	8	1,079	120	Outer Neighborhood
760	44	52	304	320	Main St., Corrid, Inner
761	126	5	440	25	Industrial/Employment
762	67	25	465	34	Outer Neighborhood
763	52	13	660	18	Outer Neighborhood
764	22	17	229	24	Outer Neighborhood
765	161	30	1,488	57	Outer Neighborhood
766	75	13	1,131	22	Outer Neighborhood
767	132	13	1,213	34	Outer Neighborhood
768	39	0	1,012	0	Outer Neighborhood
769	97	67	615	118	Outer Neighborhood
770	112	16	923	54	Outer Neighborhood
771	9	348	372	1,243	Main St., Corrid, Inner
772	29	40	489	150	Main St., Corrid, Inner
773	53	130	707	633	Industrial/Employment
774	49	27	780	119	Industrial/Employment
775	72	31	277	102	Outer Neighborhood
776	115	22	830	43	Outer Neighborhood
777	38	52	548	459	Outside UGB
778	168	23	1,407	365	Outer Neighborhood
779	163	64	431	91	Outer Neighborhood
780	176	29	860	109	Town Center 2

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
781	89	99	1,055	693	Town Center 2
782	61	229	158	364	Main St., Corrid, Inner
783	93	8	754	12	Main St., Corrid, Inner
784	34	44	522	73	Outer Neighborhood
785	166	47	1,570	523	Industrial/Employment
786	58	14	420	19	Main St., Corrid, Inner
787	142	25	691	100	Outer Neighborhood
788	46	5	818	7	Industrial/Employment
789	96	32	544	57	Outside UGB
790	47	5	339	6	Outside UGB
791	127	538	1,349	2,015	Outside UGB
792	95	39	1,847	65	Outside UGB
793	52	39	680	91	Outside UGB
794	97	56	1,058	149	Outside UGB
795	31	42	563	102	Outside UGB
796	33	14	242	19	Outside UGB
797	65	202	366	979	Outside UGB
798	13	166	107	810	Outside UGB
799	12	2	23	13	Outside UGB
800	46	8	127	12	Outside UGB
801	69	33	608	148	Outside UGB
802	165	56	666	438	Industrial/Employment
803	9	189	107	508	Outside UGB
804	258	175	632	453	Outside UGB
805	44	17	297	24	Outside UGB
806	356	635	237	727	Outside UGB
807	19	57	146	122	Outside UGB
808	46	1	348	1	Outside UGB
809	644	276	660	467	Outside UGB
810	260	278	372	548	Outside UGB
811	2,933	3,101	4,668	6,140	Outside UGB
812	926	800	2,079	1,035	Outside UGB
813	2,242	1,758	2,107	3,424	Outside UGB
814	1,790	435	1,895	722	Outside UGB
815	496	81	473	103	Outside UGB
816	1,008	333	1,049	529	Outside UGB
817	369	251	234	397	Outside UGB
818	400	69	313	91	Outside UGB
819	22	2	32	3	Outside UGB
820	157	42	204	49	Outside UGB
821	202	242	165	437	Outside UGB
822	287	70	205	80	Outside UGB
823	302	75	206	97	Outside UGB
824	256	36	719	36	Outside UGB
825	122	36	815	64	Outer Neighborhood
826	158	39	943	41	Outside UGB

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
827	224	28	663	35	Outside UGB
828	227	83	805	148	Outside UGB
829	157	84	580	182	Outside UGB
830	184	9	1,184	12	Outside UGB
831	303	89	728	109	Outer Neighborhood
832	304	7	643	11	Outer Neighborhood
833	90	134	437	166	Outer Neighborhood
834	1,244	1,714	1,544	3,321	Main St., Corrid, Inner
835	203	285	228	582	Regional Center
836	33	156	38	288	Regional Center
837	4	126	4	261	Regional Center
838	1	954	1	1,764	Regional Center
839	527	271	727	523	Main St., Corrid, Inner
840	1,304	322	1,741	528	Main St., Corrid, Inner
841	844	492	1,244	957	Main St., Corrid, Inner
842	958	432	1,646	983	Outer Neighborhood
843	62	8	149	16	Outer Neighborhood
844	595	26	558	50	Outer Neighborhood
845	164	7	293	13	Outside UGB
846	114	7	185	13	Outer Neighborhood
847	181	3,083	248	5,610	Main St., Corrid, Inner
848	1,017	3,083	1,533	6,167	Outer Neighborhood
849	1,794	140	2,985	221	Outer Neighborhood
850	403	129	1,335	183	Outer Neighborhood
851	3	13	987	18	Industrial/Employment
852	320	13	3,542	18	Outer Neighborhood
853	16	2	41	3	Outside UGB
854	34	3	42	7	Outside UGB
855	9	0	11	0	Outside UGB
856	715	423	1,248	783	Outer Neighborhood
857	633	74	1,061	159	Outer Neighborhood
858	350	549	494	1,207	Industrial/Employment
859	628	266	1,341	616	Industrial/Employment
860	75	18	592	55	Industrial/Employment
861	4	389	423	506	Outside UGB
862	218	7	283	9	Outside UGB
863	278	166	631	266	Outside UGB
864	278	109	1,272	167	Outer Neighborhood
865	244	78	955	89	Outside UGB
866	548	133	1,873	221	Outside UGB
867	253	35	290	43	Outside UGB
868	31	32	75	36	Outside UGB
869	654	523	769	629	Outside UGB
870	451	189	626	310	Outside UGB
871	20	13	60	19	Outside UGB
872	128	11	227	14	Outside UGB

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
873	1,266	530	1,379	758	Outside UGB
874	605	160	595	183	Outside UGB
875	772	132	828	175	Outside UGB
876	1,833	1,218	2,785	2,384	Outside UGB
877	224	15	189	26	Outside UGB
878	1,714	558	1,738	856	Outside UGB
879	423	99	521	111	Outside UGB
880	687	109	854	127	Outside UGB
881	2,903	2,244	4,272	4,353	Outside UGB
882	215	296	271	323	Outside UGB
883	756	641	912	732	Outside UGB
884	698	552	860	629	Outside UGB
885	567	570	699	1,128	Outside UGB
886	331	85	344	155	Outside UGB
887	5,507	4,595	10,628	7,262	Outside UGB
888	192	512	220	1,140	Outside UGB
889	65	322	90	421	Outside UGB
890	1,607	363	1,880	109	Outer Neighborhood
891	77	48	496	61	Outside UGB
892	60	30	78	39	Outside UGB
893	220	127	791	177	Outside UGB
894	1,634	2,398	2,397	5,035	Outer Neighborhood
895	91	421	2,917	897	Main St., Corrid, Inner
896	240	145	1,033	210	Outside UGB
897	45	12	369	17	Outer Neighborhood
898	15	28	584	38	Outside UGB
899	55	44	600	59	Outside UGB
900	125	576	856	463	Outside UGB
901	0	1,475	0	3,871	Industrial/Employment
902	63	2,264	60	5,333	Industrial/Employment
903	559	18	1,248	2,079	Main St., Corrid, Inner
904	508	3,491	671	8,310	Industrial/Employment
905	41	27	2,488	40	Outer Neighborhood
906	712	168	1,047	294	Outer Neighborhood
907	1,834	3,322	2,910	6,191	Town Center 1
908	159	172	213	175	Outside UGB
909	224	209	532	372	Outside UGB
910	76	0	999	0	Outside UGB
911	1,370	746	1,683	1,360	Outer Neighborhood
912	61	30	355	27	Outside UGB
913	125	627	489	765	Outside UGB
914	171	33	2,190	89	Outside UGB
915	267	147	3,696	626	Outside UGB
916	222	60	1,735	604	Outside UGB
917	1,048	1,811	1,298	2,608	Main St., Corrid, Inner
918	75	633	463	1,055	Outside UGB

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
919	25	57	241	205	Outside UGB
920	68	13	640	38	Outside UGB
921	101	30	341	38	Outside UGB
922	110	25	999	25	Outside UGB
923	1,712	755	3,043	1,504	Outer Neighborhood
924	1,342	243	2,061	476	Outer Neighborhood
925	627	1,142	776	1,613	Town Center 1
926	360	31	492	40	Outer Neighborhood
927	735	59	1,013	110	Outer Neighborhood
928	650	79	920	127	Outer Neighborhood
929	965	318	1,176	552	Outer Neighborhood
930	517	190	673	299	Main St., Corrid, Inner
931	362	306	487	594	Main St., Corrid, Inner
932	492	59	566	103	Main St., Corrid, Inner
933	53	58	793	67	Outside UGB
934	40	1	1,100	13	Outside UGB
935	118	24	815	69	Outside UGB
936	578	69	764	135	Main St., Corrid, Inner
937	653	304	805	615	Main St., Corrid, Inner
938	477	2,263	580	3,411	Main St., Corrid, Inner
939	1,000	250	1,178	277	Main St., Corrid, Inner
940	1,609	700	2,176	1,003	Main St., Corrid, Inner
941	518	117	661	250	Main St., Corrid, Inner
942	423	165	823	286	Main St., Corrid, Inner
943	927	574	1,442	1,305	Main St., Corrid, Inner
944	2,021	2,688	3,839	5,540	Town Center 1
945	165	13	209	20	Main St., Corrid, Inner
946	723	187	879	284	Main St., Corrid, Inner
947	444	167	557	348	Main St., Corrid, Inner
948	913	817	1,099	1,220	Main St., Corrid, Inner
949	1,479	229	1,720	370	Main St., Corrid, Inner
950	512	131	598	242	Main St., Corrid, Inner
951	1,035	3,337	1,353	5,902	Town Center 1
952	360	502	516	1,126	Main St., Corrid, Inner
953	730	926	941	1,766	Main St., Corrid, Inner
954	389	3,024	490	5,873	Industrial/Employment
955	995	2,023	1,179	3,245	Main St., Corrid, Inner
956	1,315	200	1,547	307	Main St., Corrid, Inner
957	257	1,677	475	3,710	Industrial/Employment
958	91	1,320	135	2,278	Industrial/Employment
959	664	1,482	1,046	2,566	Main St., Corrid, Inner
960	454	95	625	176	Main St., Corrid, Inner
961	255	60	398	514	Regional Center
962	987	857	1,137	1,599	Main St., Corrid, Inner
963	55	2,030	77	2,774	Main St., Corrid, Inner
964	965	117	1,079	144	Main St., Corrid, Inner

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
965	739	405	821	547	Main St., Corrid, Inner
966	1,788	241	2,327	324	Main St., Corrid, Inner
967	1,670	614	2,066	1,490	Town Center 2
968	88	44	1,606	41	Main St., Corrid, Inner
969	1,114	125	1,432	154	Main St., Corrid, Inner
970	495	70	956	80	Main St., Corrid, Inner
971	998	184	1,301	225	Main St., Corrid, Inner
972	425	69	642	91	Main St., Corrid, Inner
973	492	75	658	103	Main St., Corrid, Inner
974	770	52	1,072	59	Main St., Corrid, Inner
975	816	149	935	204	Main St., Corrid, Inner
976	198	300	256	353	Main St., Corrid, Inner
977	796	731	939	1,031	Main St., Corrid, Inner
978	891	2,030	2,116	4,656	Town Center 1
979	27	2,913	43	4,041	Industrial/Employment
980	223	4,160	251	6,378	Industrial/Employment
981	22	2,764	33	4,410	Industrial/Employment
982	140	397	184	497	Main St., Corrid, Inner
983	1,079	840	1,263	1,094	Main St., Corrid, Inner
984	769	241	1,057	330	Main St., Corrid, Inner
985	1,057	703	1,120	1,056	Main St., Corrid, Inner
986	2,563	583	3,199	797	Main St., Corrid, Inner
987	860	922	1,214	1,350	Main St., Corrid, Inner
988	0	7,366	0	8,925	Industrial/Employment
989	160	968	181	1,214	Industrial/Employment
990	288	1,381	326	6,214	Industrial/Employment
991	360	2,057	524	2,782	Main St., Corrid, Inner
992	394	2,182	461	1,657	Main St., Corrid, Inner
993	853	321	1,010	191	Main St., Corrid, Inner
994	800	372	1,113	500	Town Center 1
995	2,754	777	3,286	1,142	Main St., Corrid, Inner
996	103	5	384	5	Outer Neighborhood
997	565	67	866	79	Outer Neighborhood
998	384	10	872	12	Outer Neighborhood
999	52	59	1,421	62	Outer Neighborhood
1000	25	23	33	23	Outside UGB
1001	158	220	224	417	Industrial/Employment
1002	373	356	518	1,211	Industrial/Employment
1003	86	3,591	97	5,885	Industrial/Employment
1004	3	4,304	3	5,692	Industrial/Employment
1005	856	1,347	997	1,932	Town Center 1
1006	562	4,508	994	6,462	Town Center 1
1007	1,451	2,492	1,925	3,655	Main St., Corrid, Inner
1008	140	58	2,681	87	Outside UGB
1009	1,113	329	1,336	302	Outer Neighborhood
1010	1,082	445	1,338	436	Outer Neighborhood

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
1011	813	102	944	140	Outer Neighborhood
1012	435	1,669	815	4,693	Outer Neighborhood
1013	94	52	706	896	Outer Neighborhood
1014	54	16	645	938	Outer Neighborhood
1015	60	25	343	35	Outside UGB
1016	91	1,564	375	3,035	Industrial/Employment
1017	4	2,577	54	3,502	Industrial/Employment
1018	35	350	145	2,754	Industrial/Employment
1019	16	950	198	1,746	Industrial/Employment
1020	20	132	0	3,186	Industrial/Employment
1021	64	1,265	23	3,066	Industrial/Employment
1022	5	1,472	7	2,392	Industrial/Employment
1023	1,008	31	1,670	88	Outer Neighborhood
1024	1,100	160	1,653	228	Outer Neighborhood
1025	975	1,664	1,664	3,099	Town Center 1
1026	611	286	1,020	517	Outer Neighborhood
1027	351	26	824	157	Outer Neighborhood
1028	286	178	544	271	Main St., Corrid, Inner
1029	1,148	177	1,530	361	Outer Neighborhood
1030	120	10	155	57	Outer Neighborhood
1031	151	44	216	78	Outside UGB
1032	172	41	231	47	Outside UGB
1033	73	25	98	31	Outside UGB
1034	101	10	521	18	Outer Neighborhood
1035	11	0	21	0	Outside UGB
1036	194	170	261	190	Outside UGB
1037	108	207	158	237	Outside UGB
1038	75	283	985	313	Outside UGB
1039	328	48	1,290	63	Outer Neighborhood
1040	31	9	38	18	Outside UGB
1041	524	64	2,166	88	Outer Neighborhood
1042	994	1,401	1,283	2,046	Main St., Corrid, Inner
1043	935	238	1,050	365	Main St., Corrid, Inner
1044	970	99	1,331	180	Main St., Corrid, Inner
1045	701	165	875	300	Main St., Corrid, Inner
1046	744	22	877	23	Main St., Corrid, Inner
1047	549	15	598	17	Main St., Corrid, Inner
1048	1,334	168	1,434	190	Main St., Corrid, Inner
1049	1,277	41	1,364	41	Main St., Corrid, Inner
1050	1,785	1,705	2,140	2,006	Main St., Corrid, Inner
1051	1	6,275	1	7,601	Regional Center
1052	74	5,175	91	8,326	Regional Center
1053	39	3,617	57	6,447	Regional Center
1054	1,153	734	1,768	1,534	Main St., Corrid, Inner
1055	682	29	995	65	Main St., Corrid, Inner
1056	1,296	456	1,912	586	Main St., Corrid, Inner

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
1057	1,328	678	1,879	1,048	Main St., Corrid, Inner
1058	649	282	858	368	Main St., Corrid, Inner
1059	428	1,077	586	1,514	Town Center 1
1060	804	789	1,246	1,327	Main St., Corrid, Inner
1061	1,076	326	1,422	492	Main St., Corrid, Inner
1062	858	456	1,205	605	Main St., Corrid, Inner
1063	1,797	306	2,578	474	Outer Neighborhood
1064	485	189	668	384	Outer Neighborhood
1065	93	101	152	174	Outer Neighborhood
1066	15	4,358	94	7,451	Outer Neighborhood
1067	596	399	831	665	Main St., Corrid, Inner
1068	947	395	1,284	534	Main St., Corrid, Inner
1069	704	1,519	948	2,414	Main St., Corrid, Inner
1070	445	2,945	604	4,092	Main St., Corrid, Inner
1071	1,052	446	1,344	670	Main St., Corrid, Inner
1072	932	105	1,252	133	Main St., Corrid, Inner
1073	394	335	514	450	Regional Center
1074	1,030	1,025	1,057	1,569	Main St., Corrid, Inner
1075	514	2,143	648	2,515	Main St., Corrid, Inner
1076	890	1,346	1,016	1,555	Main St., Corrid, Inner
1077	26	3,990	94	4,953	Industrial/Employment
1078	364	3,554	484	5,125	Main St., Corrid, Inner
1079	903	3,090	1,479	3,799	Regional Center
1080	339	1,291	503	1,834	Regional Center
1081	174	3	220	4	Main St., Corrid, Inner
1082	561	475	832	731	Main St., Corrid, Inner
1083	208	822	262	1,295	Main St., Corrid, Inner
1084	190	601	1,889	1,512	Town Center 1
1085	630	56	862	83	Outer Neighborhood
1086	697	241	988	382	Outer Neighborhood
1087	456	140	968	248	Outer Neighborhood
1088	409	42	640	67	Outer Neighborhood
1089	243	24	308	41	Outer Neighborhood
1090	172	929	1,597	2,744	Town Center 1
1091	970	1,135	2,388	2,619	Town Center 1
1092	444	232	514	542	Main St., Corrid, Inner
1093	159	8	244	10	Outer Neighborhood
1094	666	51	1,097	129	Outer Neighborhood
1095	555	124	1,842	174	Outer Neighborhood
1096	369	24	519	47	Main St., Corrid, Inner
1097	1,040	1,548	1,139	2,723	Main St., Corrid, Inner
1098	353	2,502	412	4,090	Main St., Corrid, Inner
1099	818	97	954	151	Main St., Corrid, Inner
1100	1,499	326	1,758	503	Main St., Corrid, Inner
1101	853	115	1,029	154	Main St., Corrid, Inner
1102	249	738	309	1,153	Main St., Corrid, Inner

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
1103	933	2,651	1,630	4,408	Regional Center
1104	223	1,634	398	2,956	Main St., Corrid, Inner
1105	135	2,296	526	3,935	Regional Center
1106	90	138	247	175	Main St., Corrid, Inner
1107	469	56	641	56	Main St., Corrid, Inner
1108	2,191	845	2,690	1,075	Main St., Corrid, Inner
1109	874	292	944	348	Main St., Corrid, Inner
1110	994	227	1,202	385	Main St., Corrid, Inner
1111	192	357	1,091	550	Main St., Corrid, Inner
1112	749	84	983	159	Main St., Corrid, Inner
1113	1,431	1,163	1,671	1,489	Main St., Corrid, Inner
1114	610	88	767	119	Main St., Corrid, Inner
1115	1,069	42	1,277	63	Main St., Corrid, Inner
1116	738	117	877	155	Main St., Corrid, Inner
1117	388	45	501	48	Main St., Corrid, Inner
1118	167	702	178	989	Main St., Corrid, Inner
1119	517	681	589	1,146	Main St., Corrid, Inner
1120	0	2,960	0	4,482	Main St., Corrid, Inner
1121	36	1,761	96	2,413	Main St., Corrid, Inner
1122	413	423	554	772	Main St., Corrid, Inner
1123	0	3,749	0	4,686	Station Community
1124	477	765	3,268	1,263	Station Community
1125	0	3,233	0	4,035	Main St., Corrid, Inner
1126	908	884	1,084	1,005	Main St., Corrid, Inner
1127	560	4,224	747	7,711	Main St., Corrid, Inner
1128	562	4,451	810	7,758	Main St., Corrid, Inner
1129	759	262	998	832	Main St., Corrid, Inner
1130	672	148	665	321	Main St., Corrid, Inner
1131	242	21	348	40	Main St., Corrid, Inner
1132	1,270	386	1,391	692	Main St., Corrid, Inner
1133	582	11	608	16	Main St., Corrid, Inner
1134	32	25	2,338	45	Outer Neighborhood
1135	0	1	1,731	4	Outer Neighborhood
1136	42	6	51	12	Outside UGB
1137	27	0	1,515	0	Outer Neighborhood
1138	11	45	1,010	61	Main St., Corrid, Inner
1139	203	12	285	16	Main St., Corrid, Inner
1140	568	456	909	698	Main St., Corrid, Inner
1141	296	56	313	121	Main St., Corrid, Inner
1142	951	22	1,165	41	Main St., Corrid, Inner
1143	599	107	764	463	Town Center 2
1144	912	35	965	74	Main St., Corrid, Inner
1145	1,216	64	1,521	171	Main St., Corrid, Inner
1146	473	45	562	155	Main St., Corrid, Inner
1147	776	649	982	1,192	Main St., Corrid, Inner
1148	0	2,210	0	3,516	Town Center 1

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
1149	449	47	561	93	Main St., Corrid, Inner
1150	645	2,959	801	6,593	Main St., Corrid, Inner
1151	245	6	364	14	Main St., Corrid, Inner
1152	382	112	510	189	Main St., Corrid, Inner
1153	307	687	812	1,251	Main St., Corrid, Inner
1154	106	2	199	6	Main St., Corrid, Inner
1155	270	69	371	159	Main St., Corrid, Inner
1156	494	52	878	113	Main St., Corrid, Inner
1157	391	92	500	138	Main St., Corrid, Inner
1158	1,072	676	2,441	2,198	Station Community
1159	165	1,380	347	3,067	Station Community
1160	79	684	97	1,145	Station Community
1161	1	254	1	374	Open Space
1162	289	136	340	196	Industrial/Employment
1163	192	120	230	291	Main St., Corrid, Inner
1164	803	11	1,053	18	Main St., Corrid, Inner
1165	377	1	454	1	Main St., Corrid, Inner
1166	546	47	840	81	Main St., Corrid, Inner
1167	909	229	999	328	Main St., Corrid, Inner
1168	1,207	159	1,355	219	Main St., Corrid, Inner
1169	754	159	1,068	217	Outer Neighborhood
1170	897	89	1,106	172	Main St., Corrid, Inner
1171	1,069	318	1,296	554	Main St., Corrid, Inner
1172	866	827	1,046	1,376	Main St., Corrid, Inner
1173	317	317	363	550	Main St., Corrid, Inner
1174	209	113	263	236	Town Center 1
1175	317	102	430	135	Town Center 1
1176	385	233	501	470	Main St., Corrid, Inner
1177	558	155	694	322	Main St., Corrid, Inner
1178	289	18	482	31	Town Center 1
1179	546	53	768	111	Town Center 1
1180	24	495	30	999	Town Center 1
1181	493	218	690	406	Town Center 1
1182	993	62	1,612	135	Main St., Corrid, Inner
1183	376	139	477	257	Main St., Corrid, Inner
1184	196	37	241	104	Main St., Corrid, Inner
1185	307	40	356	120	Station Community
1186	260	3	324	3	Main St., Corrid, Inner
1187	400	5	1,098	783	Station Community
1188	181	875	248	1,536	Main St., Corrid, Inner
1189	1,658	3,163	1,917	6,684	Town Center 1
1190	1,597	1,105	1,611	2,819	Town Center 1
1191	878	146	956	278	Main St., Corrid, Inner
1192	291	15	302	24	Main St., Corrid, Inner
1193	23	5	2,842	14	Outside UGB
1194	179	393	321	661	Outside UGB

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
1195	448	135	661	677	Outer Neighborhood
1196	350	95	366	360	Outer Neighborhood
1197	552	1,145	534	1,316	Outer Neighborhood
1198	793	3,773	799	6,053	Industrial/Employment
1199	219	2,110	218	5,993	Industrial/Employment
1200	666	2,850	914	6,358	Main St., Corrid, Inner
1201	0	5	0	1,859	Station Community
1202	808	391	1,576	1,943	Station Community
1203	924	199	1,425	847	Station Community
1204	707	82	907	98	Main St., Corrid, Inner
1205	824	133	1,000	177	Main St., Corrid, Inner
1206	1,174	631	1,371	1,126	Main St., Corrid, Inner
1207	1,135	446	1,329	863	Main St., Corrid, Inner
1208	333	3,798	390	4,091	Main St., Corrid, Inner
1209	643	124	771	203	Main St., Corrid, Inner
1210	21	5	1,480	11	Main St., Corrid, Inner
1211	63	54	734	83	Main St., Corrid, Inner
1212	1,690	154	2,229	295	Main St., Corrid, Inner
1213	767	155	1,171	214	Outer Neighborhood
1214	11	36	35	41	Open Space
1215	78	10	2,020	12	Main St., Corrid, Inner
1216	53	9	72	14	Outside UGB
1217	0	2	1,524	2	Outside UGB
1218	27	189	35	325	Outside UGB
1219	6	0	1,724	0	Outside UGB
1220	132	605	489	1,332	Main St., Corrid, Inner
1221	172	18	632	349	Outer Neighborhood
1222	290	393	412	696	Outer Neighborhood
1223	1,307	299	1,619	553	Outer Neighborhood
1224	824	755	1,059	1,345	Main St., Corrid, Inner
1225	971	379	1,324	706	Main St., Corrid, Inner
1226	993	343	1,163	732	Main St., Corrid, Inner
1227	374	18	408	24	Outer Neighborhood
1228	762	147	995	529	Outer Neighborhood
1229	638	27	785	45	Main St., Corrid, Inner
1230	1,178	555	2,225	1,470	Station Community
1231	272	4,009	293	9,242	Station Community
1232	391	579	389	1,785	Outer Neighborhood
1233	1,097	280	1,252	1,171	Town Center 1
1234	0	5,424	0	8,666	Industrial/Employment
1235	0	3,154	0	8,246	Industrial/Employment
1236	397	2,936	478	6,884	Industrial/Employment
1237	0	9	0	1,744	Industrial/Employment
1238	0	2,309	0	6,454	Industrial/Employment
1239	0	1,090	0	8,841	Industrial/Employment
1240	74	134	85	1,074	Industrial/Employment

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
1241	380	206	512	265	Outside UGB
1242	64	82	86	217	Outside UGB
1243	19	256	397	1,704	Outside UGB
1244	43	26	57	190	Outside UGB
1245	54	20	72	83	Outside UGB
1246	58	7	79	65	Outer Neighborhood
1247	5	425	0	1,720	Industrial/Employment
1248	0	1,256	0	2,206	Industrial/Employment
1249	0	1	0	1	Outside UGB
1250	37	36	50	386	Outside UGB
1251	954	507	1,262	1,134	Outer Neighborhood
1252	873	163	1,021	462	Outer Neighborhood
1253	1,169	25	1,333	125	Outer Neighborhood
1254	3	3,747	7	5,974	Industrial/Employment
1255	390	210	403	466	Outer Neighborhood
1256	1,508	673	1,806	2,077	Outer Neighborhood
1257	644	648	770	1,596	Outer Neighborhood
1258	0	149	0	1,954	Station Community
1259	498	16	637	36	Station Community
1260	1,258	14	1,728	119	Outer Neighborhood
1261	661	74	933	120	Outer Neighborhood
1262	1,183	1,330	1,515	2,359	Outer Neighborhood
1263	675	5	942	17	Outer Neighborhood
1264	137	6	242	28	Outer Neighborhood
1265	442	75	607	303	Regional Center
1266	900	1,200	1,195	2,114	Regional Center
1267	388	2,428	565	4,389	Regional Center
1268	330	544	589	2,698	Regional Center
1269	230	113	300	256	Outer Neighborhood
1270	318	6	621	17	Main St., Corrid, Inner
1271	645	129	1,023	195	Outer Neighborhood
1272	102	55	173	354	Outer Neighborhood
1273	395	2,866	623	5,680	Regional Center
1274	306	1,430	390	2,509	Regional Center
1275	33	1,529	40	2,777	Main St., Corrid, Inner
1276	25	361	31	661	Industrial/Employment
1277	237	402	403	512	Open Space
1278	448	776	1,514	1,243	Outer Neighborhood
1279	1,221	911	1,641	1,408	Outer Neighborhood
1280	101	147	136	215	Outside UGB
1281	19	16	25	16	Outside UGB
1282	20	36	27	48	Outside UGB
1283	88	0	119	0	Outside UGB
1284	17	19	23	21	Outside UGB
1285	94	59	126	92	Industrial/Employment
1286	163	23	219	47	Outer Neighborhood

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
1287	38	1	51	1	Outside UGB
1288	52	8	63	18	Outside UGB
1289	47	47	59	71	Outside UGB
1290	857	697	849	1,382	Outside UGB
1291	514	213	1,699	2,348	Outside UGB
1292	11	56	15	101	Outside UGB
1293	17	150	22	241	Outside UGB
1294	29	39	39	44	Outside UGB
1295	70	305	89	418	Outside UGB
1296	765	261	796	349	Outside UGB
1297	779	565	910	1,188	Outside UGB
1298	469	431	639	675	Outside UGB
1299	77	47	104	60	Outside UGB
1300	68	415	91	475	Outside UGB
1301	78	58	105	106	Outside UGB
1302	72	0	88	0	Outside UGB
1303	16	40	22	47	Outside UGB
1304	47	24	68	44	Outside UGB
1305	0	0	0	0	Outside UGB
1306	547	673	1,008	1,054	Outer Neighborhood
1307	438	526	684	850	Main St., Corrid, Inner
1308	387	718	642	1,148	Industrial/Employment
1309	522	822	506	1,219	Industrial/Employment
1310	805	890	1,227	1,544	Main St., Corrid, Inner
1311	862	1,299	1,513	2,027	Town Center 1
1312	875	321	1,003	478	Main St., Corrid, Inner
1313	755	231	826	448	Outer Neighborhood
1314	322	10	776	76	Outer Neighborhood
1315	68	156	91	190	Outside UGB
1316	27	50	37	79	Outside UGB
1317	122	29	163	52	Outside UGB
1318	35	2	48	2	Outside UGB
1319	150	48	202	63	Outside UGB
1320	652	36	2,146	58	Outer Neighborhood
1321	560	229	970	368	Outer Neighborhood
1322	971	775	2,000	1,170	Main St., Corrid, Inner
1323	875	659	1,018	1,119	Main St., Corrid, Inner
1324	293	538	340	1,019	Outer Neighborhood
1325	1,485	338	1,708	539	Outer Neighborhood
1326	549	87	643	141	Outer Neighborhood
1327	76	163	103	220	Outside UGB
1328	29	31	41	37	Outside UGB
1329	4	3	5	9	Outside UGB
1330	31	1,426	40	1,848	Open Space
1331	8	209	11	725	Industrial/Employment
1332	58	0	79	0	Outside UGB

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
1333	107	428	144	534	Outside UGB
1334	796	1,218	842	1,609	Outside UGB
1335	301	174	380	336	Outside UGB
1336	39	21	53	29	Outside UGB
1337	17	2	23	2	Outside UGB
1338	107	72	144	79	Outside UGB
1339	198	211	266	234	Outside UGB
1340	190	73	256	123	Outside UGB
1341	397	138	535	162	Outside UGB
1342	177	50	239	78	Outside UGB
1343	158	29	213	37	Outside UGB
1344	128	135	173	162	Outside UGB
1345	112	326	151	421	Outside UGB
1346	119	178	160	252	Outside UGB
1347	361	92	486	133	Outside UGB
1348	272	31	366	38	Outside UGB
1349	160	483	436	2,217	Vanc CBD
1350	60	143	69	153	Vanc CBD
1351	35	44	41	50	Vanc CBD
1352	1	247	40	460	Vanc CBD
1353	136	132	259	206	Vanc CBD
1354	0	566	0	1,443	Vanc CBD
1355	0	551	0	619	Vanc CBD
1356	14	180	16	518	Vanc CBD
1357	0	923	58	1,291	Vanc CBD
1358	18	763	59	1,172	Vanc CBD
1359	99	482	172	807	Vanc CBD
1360	0	233	63	587	Vanc CBD
1361	1	857	64	1,232	Vanc CBD
1362	90	61	103	70	Vanc CBD
1363	4	189	20	255	Vanc CBD
1364	1	714	17	794	Vanc CBD
1365	15	172	372	507	Vanc CBD
1366	56	334	64	1,202	Vanc CBD
1367	61	213	214	288	Vanc CBD
1368	0	393	1,716	2,272	Vanc rest
1369	110	209	416	470	Vanc rest
1370	0	531	111	1,394	Vanc CBD
1371	11	1,246	13	1,635	Vanc CBD
1372	0	836	0	1,001	Vanc CBD
1373	123	5	142	5	Vanc CBD
1374	0	756	0	1,599	Vanc rest
1375	83	289	110	370	Vanc rest
1376	268	216	324	296	Vanc rest
1377	272	16	316	19	Vanc rest
1378	71	60	81	83	Vanc rest

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
1379	111	1	128	1	Vanc rest
1380	26	89	44	150	Vanc rest
1381	118	281	153	322	Vanc rest
1382	18	185	35	228	Vanc rest
1383	47	186	75	242	Vanc rest
1384	211	173	243	179	Vanc rest
1385	128	20	150	21	Vanc rest
1386	55	314	114	5,257	Vanc rest
1387	3	0	3	425	Vanc rest
1388	306	9	358	541	Vanc rest
1389	347	496	403	616	Vanc rest
1390	344	427	543	630	Vanc rest
1391	246	2	285	2	Vanc rest
1392	205	61	237	65	Vanc rest
1393	280	22	327	23	Vanc rest
1394	184	156	266	256	Vanc rest
1395	161	233	217	363	Vanc rest
1396	122	91	182	220	Vanc rest
1397	82	0	117	0	Vanc rest
1398	25	32	29	156	Vanc rest
1399	114	9	131	10	Vanc rest
1400	22	313	96	508	Vanc rest
1401	183	32	212	30	Vanc rest
1402	63	1,189	124	2,332	Vanc rest
1403	397	39	498	57	Vanc rest
1404	348	94	400	113	Vanc rest
1405	242	7	543	236	Vanc rest
1406	109	143	210	346	Vanc rest
1407	272	83	352	107	Vanc rest
1408	208	3	273	3	Vanc rest
1409	471	28	591	63	Vanc rest
1410	140	232	229	698	Vanc rest
1411	288	8	365	9	Vanc rest
1412	81	0	121	0	Vanc rest
1413	451	23	512	24	Vanc rest
1414	366	10	439	10	Vanc rest
1415	384	269	492	309	Vanc rest
1416	82	431	169	517	Vanc rest
1417	431	182	528	204	Vanc rest
1418	403	165	444	192	Vanc rest
1419	343	41	363	45	Vanc rest
1420	583	58	628	60	Vanc rest
1421	642	182	721	287	Vanc rest
1422	10	427	11	506	Vanc rest
1423	302	400	392	658	Vanc rest
1424	427	30	913	54	Vanc rest

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
1425	842	46	1,021	203	Vanc rest
1426	771	277	1,111	331	Vanc rest
1427	203	8	242	8	Vanc rest
1428	533	77	611	77	Vanc rest
1429	288	360	303	383	Vanc rest
1430	662	63	707	64	Vanc rest
1431	143	67	237	118	Vanc rest
1432	769	73	1,693	95	Vanc rest
1433	278	29	413	30	Vanc rest
1434	468	268	719	430	Vanc rest
1435	254	92	399	92	Vanc rest
1436	1,020	146	1,237	211	Vanc rest
1437	718	203	832	220	Vanc rest
1438	351	414	369	448	Vanc rest
1439	8	228	8	306	Vanc rest
1440	123	12	188	12	Vanc rest
1441	422	642	531	840	Vanc rest
1442	361	200	449	254	Vanc rest
1443	79	374	153	1,063	Vanc rest
1444	72	16	254	17	Vanc rest
1445	211	8	400	138	Vanc rest
1446	59	53	773	691	Vanc rest
1447	10	33	702	69	Vanc rest
1448	19	111	50	853	Vanc rest
1449	41	40	60	1,151	Vanc rest
1450	347	972	402	1,144	Vanc rest
1451	46	1,187	1,540	3,060	Vanc rest
1452	304	204	397	211	Vanc rest
1453	284	56	587	56	Vanc rest
1454	8	676	9	933	Vanc rest
1455	1	981	0	1,579	Vanc rest
1456	390	41	619	41	Vanc rest
1457	281	49	344	52	Vanc rest
1458	184	25	236	27	Vanc rest
1459	233	59	297	71	Vanc rest
1460	318	27	395	29	Vanc rest
1461	372	19	506	20	Vanc rest
1462	1,208	28	1,526	30	Vanc rest
1463	0	334	166	1,170	Vanc rest
1464	621	505	794	550	Vanc rest
1465	284	182	359	188	Vanc rest
1466	211	145	246	167	Vanc rest
1467	114	11	148	12	Vanc rest
1468	212	21	301	22	Vanc rest
1469	152	973	174	1,214	Vanc rest
1470	433	152	501	169	Vanc rest

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
1471	368	26	423	30	Vanc rest
1472	718	269	834	494	Vanc rest
1473	359	157	421	178	Vanc rest
1474	411	169	507	315	Vanc rest
1475	0	181	0	347	Vanc rest
1476	1	310	56	321	Vanc rest
1477	0	3	0	3	Vanc rest
1478	0	195	0	249	Vanc rest
1479	426	151	507	157	Vanc rest
1480	291	41	343	44	Vanc rest
1481	732	76	885	76	Vanc rest
1482	471	36	551	38	Vanc rest
1483	227	137	260	185	Vanc rest
1484	249	32	288	33	Vanc rest
1485	2	146	2	187	Vanc rest
1486	195	20	228	21	Vanc rest
1487	315	1,273	457	1,835	Vanc rest
1488	362	37	428	39	Vanc rest
1489	599	122	988	177	Vanc rest
1490	0	3,826	0	6,254	Vanc rest
1491	348	10	403	45	Vanc rest
1492	216	4	264	4	Vanc rest
1493	280	8	323	9	Vanc rest
1494	438	87	571	165	Vanc rest
1495	132	76	332	141	Vanc rest
1496	24	720	28	793	Vanc rest
1497	300	11	503	18	Vanc rest
1498	194	44	223	47	Vanc rest
1499	212	10	254	11	Vanc rest
1500	356	47	414	50	Vanc rest
1501	0	551	0	1,220	Vanc rest
1502	0	1,049	0	1,535	Vanc rest
1503	420	229	504	297	Vanc rest
1504	116	24	134	26	Vanc rest
1505	192	6	221	10	Vanc rest
1506	287	43	332	48	Vanc rest
1507	163	90	188	99	Vanc rest
1508	302	86	348	108	Vanc rest
1509	373	18	438	19	Vanc rest
1510	203	73	243	75	Vanc rest
1511	748	346	866	455	Vanc rest
1512	707	258	887	466	Vanc rest
1513	480	69	585	168	Vanc rest
1514	275	14	332	15	Vanc rest
1515	349	23	418	172	Vanc rest
1516	271	99	472	108	Vanc rest

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
1517	391	371	452	608	Vanc rest
1518	388	926	524	1,259	Vanc rest
1519	512	494	896	682	Vanc rest
1520	0	1,168	83	1,555	Vanc rest
1521	1	544	278	1,548	Vanc rest
1522	5	1,078	6	1,463	Vanc rest
1523	865	166	1,181	436	Vanc rest
1524	297	510	393	767	Vanc rest
1525	6	320	7	905	Vanc rest
1526	663	233	789	359	Vanc rest
1527	13	2,127	15	2,272	Vanc rest
1528	231	130	579	239	Vanc rest
1529	307	111	355	113	Vanc rest
1530	242	57	308	61	Vanc rest
1531	477	26	552	28	Vanc rest
1532	140	4	204	4	Vanc rest
1533	420	165	578	238	Vanc rest
1534	280	61	512	61	Vanc rest
1535	226	25	362	26	Vanc rest
1536	370	42	449	44	Vanc rest
1537	435	399	678	500	Vanc rest
1538	981	1,665	1,173	1,781	Vanc rest
1539	145	1,392	166	1,505	Vanc rest
1540	540	2,450	645	2,905	Vanc rest
1541	49	1,257	65	1,425	Vanc rest
1542	359	134	662	268	Vanc rest
1543	188	166	241	307	Vanc rest
1544	558	174	630	195	Vanc rest
1545	364	368	531	421	Vanc rest
1546	384	80	459	78	Vanc rest
1547	351	15	434	29	Vanc rest
1548	504	75	1,148	75	Vanc rest
1549	103	326	399	419	Vanc rest
1550	662	328	1,034	409	Vanc rest
1551	80	64	387	112	Vanc rest
1552	530	25	694	73	Vanc rest
1553	597	540	679	635	Vanc rest
1554	273	77	430	88	Vanc rest
1555	120	768	175	825	Vanc rest
1556	434	392	690	430	Vanc rest
1557	80	211	363	955	Vanc rest
1558	51	1,053	55	1,701	Vanc rest
1559	454	329	633	972	Vanc rest
1560	438	54	561	108	Vanc rest
1561	237	26	328	82	Vanc rest
1562	474	184	670	185	Vanc rest

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
1563	161	1,254	174	1,627	Vanc rest
1564	372	324	983	549	Vanc rest
1565	328	31	370	124	Vanc rest
1566	207	143	479	380	Vanc rest
1567	102	208	257	316	Vanc rest
1568	7	68	30	137	Vanc rest
1569	5	397	16	807	Vanc rest
1570	2	301	144	431	Vanc rest
1571	974	249	1,225	364	Vanc rest
1572	549	27	843	52	Vanc rest
1573	246	25	510	42	Vanc rest
1574	171	335	314	384	Vanc rest
1575	20	323	21	884	Vanc rest
1576	34	84	116	187	Vanc rest
1577	183	125	316	177	Vanc rest
1578	622	354	839	430	Vanc rest
1579	463	178	573	202	Vanc rest
1580	405	24	505	25	Vanc rest
1581	256	17	465	18	Vanc rest
1582	213	70	285	70	Vanc rest
1583	86	56	424	142	Vanc rest
1584	1	681	0	723	Vanc rest
1585	49	10	186	11	Vanc rest
1586	406	41	583	43	Vanc rest
1587	333	104	386	113	Vanc rest
1588	1,090	148	1,293	152	Vanc rest
1589	304	31	391	33	Vanc rest
1590	246	17	283	18	Vanc rest
1591	1,254	674	1,468	732	Vanc rest
1592	524	15	706	16	Vanc rest
1593	533	12	613	13	Vanc rest
1594	799	818	918	886	Vanc rest
1595	539	222	1,040	1,572	Vanc rest
1596	0	2,184	0	2,317	Vanc rest
1597	1,082	18	1,283	53	Vanc rest
1598	484	43	561	46	Vanc rest
1599	0	364	0	380	Vanc rest
1600	503	237	589	303	Vanc rest
1601	472	243	543	429	Vanc rest
1602	318	878	365	1,007	Vanc rest
1603	607	277	742	442	Vanc rest
1604	721	498	829	551	Vanc rest
1605	317	12	364	13	Vanc rest
1606	500	188	574	236	Vanc rest
1607	304	271	350	286	Vanc rest
1608	441	742	507	899	Vanc rest

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
1609	353	100	406	493	Vanc rest
1610	0	588	0	1,194	Vanc rest
1611	123	681	174	1,654	Vanc rest
1612	214	1	328	1,429	Vanc rest
1613	393	40	598	68	Vanc rest
1614	363	874	417	1,308	Vanc rest
1615	308	72	355	80	Vanc rest
1616	0	23	249	1,582	Vanc rest
1617	210	427	244	741	Vanc rest
1618	194	39	301	41	Vanc rest
1619	712	86	820	94	Vanc rest
1620	415	473	477	527	Vanc rest
1621	556	96	648	178	Vanc rest
1622	551	158	764	673	Vanc rest
1623	745	56	854	338	Vanc rest
1624	59	148	67	688	Vanc rest
1625	0	2	0	906	Vanc rest
1626	209	190	453	2,777	Vanc rest
1627	3	52	3	1,128	Vanc rest
1628	151	133	319	200	Vanc rest
1629	291	27	361	28	Vanc rest
1630	0	467	0	571	Vanc rest
1631	0	190	0	426	Vanc rest
1632	769	206	1,000	206	Vanc rest
1633	326	35	387	37	Vanc rest
1634	151	35	202	70	Vanc rest
1635	647	536	792	598	Vanc rest
1636	86	160	669	700	Vanc rest
1637	0	182	94	952	Vanc rest
1638	50	2	328	209	Vanc rest
1639	181	91	242	231	Vanc rest
1640	391	7	763	7	Vanc rest
1641	388	23	467	24	Vanc rest
1642	230	749	278	811	Vanc rest
1643	244	16	292	44	Vanc rest
1644	203	617	351	833	Vanc rest
1645	566	84	713	87	Vanc rest
1646	505	260	592	269	Vanc rest
1647	579	19	714	47	Vanc rest
1648	849	224	1,264	307	Vanc rest
1649	703	225	949	290	Vanc rest
1650	195	15	500	16	Vanc rest
1651	368	719	498	1,310	Vanc rest
1652	474	928	625	1,051	Vanc rest
1653	375	28	465	223	Vanc rest
1654	449	26	610	28	Vanc rest

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
1655	150	0	353	1	Vanc rest
1656	364	7	517	7	Vanc rest
1657	161	5	433	5	Vanc rest
1658	279	7	334	20	Vanc rest
1659	306	32	372	31	Vanc rest
1660	276	60	332	93	Vanc rest
1661	501	8	580	9	Vanc rest
1662	324	13	340	532	Vanc rest
1663	208	20	427	168	Vanc rest
1664	3	899	0	1,120	Vanc rest
1665	0	343	0	381	Vanc rest
1666	460	395	559	522	Vanc rest
1667	67	453	110	1,059	Vanc rest
1668	186	147	236	367	Vanc rest
1669	124	27	262	2,227	Vanc rest
1670	14	264	15	1,729	Vanc rest
1671	162	13	878	370	Vanc rest
1672	1	40	0	93	Vanc rest
1673	212	7	254	7	Vanc rest
1674	285	28	356	29	Vanc rest
1675	344	262	469	313	Vanc rest
1676	107	69	113	168	Vanc rest
1677	195	10	283	33	Vanc rest
1678	16	237	17	299	Vanc rest
1679	30	313	68	426	Vanc rest
1680	375	73	495	107	Vanc rest
1681	374	704	449	849	Vanc rest
1682	329	584	345	812	Vanc rest
1683	125	337	141	637	Vanc rest
1684	159	11	295	340	Vanc rest
1685	195	12	206	12	Vanc rest
1686	48	135	89	167	Vanc rest
1687	158	7	189	7	Vanc rest
1688	309	128	334	137	Vanc rest
1689	590	10	876	427	Vanc rest
1690	206	197	268	551	Vanc rest
1691	179	116	239	115	Vanc rest
1692	294	20	404	468	Vanc rest
1693	342	93	631	138	Vanc rest
1694	243	42	306	94	Vanc rest
1695	410	262	478	1,254	Vanc rest
1696	97	139	115	453	Vanc rest
1697	558	285	603	393	Vanc rest
1698	342	114	369	185	Vanc rest
1699	445	1,616	475	2,596	Vanc rest
1700	308	229	333	274	Vanc rest

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
1701	954	145	1,148	148	Vanc rest
1702	349	35	372	35	Vanc rest
1703	508	38	687	156	Vanc rest
1704	182	40	258	38	Vanc rest
1705	748	116	930	143	Vanc rest
1706	215	17	510	158	Vanc rest
1707	108	2	542	2	Vanc rest
1708	203	14	309	53	Vanc rest
1709	212	3	277	3	Vanc rest
1710	264	6	477	6	Vanc rest
1711	56	18	173	158	Vanc rest
1712	109	71	255	238	Vanc rest
1713	165	76	204	580	Vanc rest
1714	31	26	33	3,237	Vanc rest
1715	291	29	399	27	Vanc rest
1716	141	12	912	96	Vanc rest
1717	288	44	573	65	Vanc rest
1718	11	279	401	514	Vanc rest
1719	223	69	941	409	Vanc rest
1720	98	50	985	296	Vanc rest
1721	97	7	827	1,523	Vanc rest
1722	109	37	508	35	Vanc rest
1723	137	46	266	208	Vanc rest
1724	104	4	236	4	Vanc rest
1725	287	58	452	81	Vanc rest
1726	59	147	62	1,409	Vanc rest
1727	292	187	572	289	Vanc rest
1728	260	465	354	478	Vanc rest
1729	468	82	673	130	Vanc rest
1730	584	33	894	38	Vanc rest
1731	117	441	171	1,916	Vanc rest
1732	5	0	49	325	Vanc rest
1733	167	2	531	2	Vanc rest
1734	195	41	384	41	Vanc rest
1735	368	15	588	108	Vanc rest
1736	12	19	15	2,013	Vanc rest
1737	7	104	273	710	Vanc rest
1738	250	6	488	6	Vanc rest
1739	19	17	89	629	Vanc rest
1740	68	85	343	247	Vanc rest
1741	146	2	268	131	Vanc rest
1742	253	54	327	120	Vanc rest
1743	169	8	282	643	Vanc rest
1744	225	110	342	152	Vanc rest
1745	160	14	385	15	Vanc rest
1746	254	10	305	10	Vanc rest

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
1747	178	12	351	12	Vanc rest
1748	427	40	795	45	Vanc rest
1749	102	1,134	165	1,350	Vanc rest
1750	164	157	175	226	Vanc rest
1751	119	811	149	920	Vanc rest
1752	205	63	311	123	Vanc rest
1753	203	5	230	36	Vanc rest
1754	1	657	88	1,562	Vanc rest
1755	248	21	443	86	Vanc rest
1756	132	6	360	6	Vanc rest
1757	605	308	682	400	Vanc rest
1758	220	32	531	2,406	Vanc rest
1759	2	281	219	1,826	Vanc rest
1760	351	64	379	398	Vanc rest
1761	101	99	110	149	Vanc rest
1762	484	22	701	23	Vanc rest
1763	340	29	367	146	Vanc rest
1764	474	25	948	26	Vanc rest
1765	164	13	1,169	17	Vanc rest
1766	313	221	505	1,305	Vanc rest
1767	0	0	0	1,430	Vanc rest
1768	0	1,065	0	1,088	Vanc rest
1769	4	4	54	572	Vanc rest
1770	49	282	56	370	Vanc rest
1771	265	14	315	15	Vanc rest
1772	225	22	264	24	Vanc rest
1773	34	57	94	3,355	Vanc rest
1774	0	6	299	331	Vanc rest
1775	1	105	1	403	Vanc rest
1776	326	95	382	153	Vanc rest
1777	162	946	178	1,611	Vanc rest
1778	651	582	749	1,367	Vanc rest
1779	4	24	36	31	Vanc rest
1780	648	75	711	197	Vanc rest
1781	431	200	519	391	Vanc rest
1782	192	132	225	253	Vanc rest
1783	176	131	213	134	Vanc rest
1784	98	103	169	153	Vanc rest
1785	116	37	640	2,126	Vanc rest
1786	255	14	685	15	Vanc rest
1787	206	340	717	476	Vanc rest
1788	670	7	1,103	7	Vanc rest
1789	84	7	1,132	417	Vanc rest
1790	81	52	155	54	Vanc rest
1791	85	20	1,877	1,643	Vanc rest
1792	85	139	569	274	Vanc rest

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
1793	111	7	514	7	Vanc rest
1794	380	174	429	1,463	Vanc rest
1795	17	16	261	822	Vanc rest
1796	191	87	262	911	Vanc rest
1797	344	208	487	648	Vanc rest
1798	372	433	392	705	Vanc rest
1799	314	216	504	382	Vanc rest
1800	396	257	499	385	Vanc rest
1801	42	393	1,165	1,771	Vanc rest
1802	28	2	783	2	Vanc rest
1803	494	285	890	309	Vanc rest
1804	548	477	1,084	665	Vanc rest
1805	287	1,226	329	1,585	Vanc rest
1806	363	68	472	66	Vanc rest
1807	509	105	643	174	Vanc rest
1808	70	3	1,452	3	Vanc rest
1809	169	27	461	49	Vanc rest
1810	46	11	269	11	Vanc rest
1811	234	117	740	116	Vanc rest
1812	15	7	710	8	Vanc rest
1813	51	72	2,467	553	Vanc rest
1814	9	42	10	1,161	Vanc rest
1815	103	42	209	44	Vanc rest
1816	159	375	296	452	Vanc rest
1817	85	2	423	2	Vanc rest
1818	30	0	963	0	Vanc rest
1819	25	3	201	968	Vanc rest
1820	15	1	16	2,615	Vanc rest
1821	38	1	695	1	Vanc rest
1822	120	780	193	656	Vanc rest
1823	51	217	57	145	Vanc rest
1824	103	0	346	2	Vanc rest
1825	508	99	697	181	Vanc rest
1826	358	211	581	627	Vanc rest
1827	267	8	447	8	Vanc rest
1828	36	2	84	425	Vanc rest
1829	108	13	205	103	Vanc rest
1830	85	15	292	16	Vanc rest
1831	94	162	994	3,543	Vanc rest
1832	172	19	229	19	Vanc rest
1833	112	273	329	350	Vanc rest
1834	259	32	331	32	Vanc rest
1835	26	7	107	0	Vanc rest
1836	224	10	332	10	Vanc rest
1837	29	154	298	661	Vanc rest
1838	55	8	835	55	Vanc rest

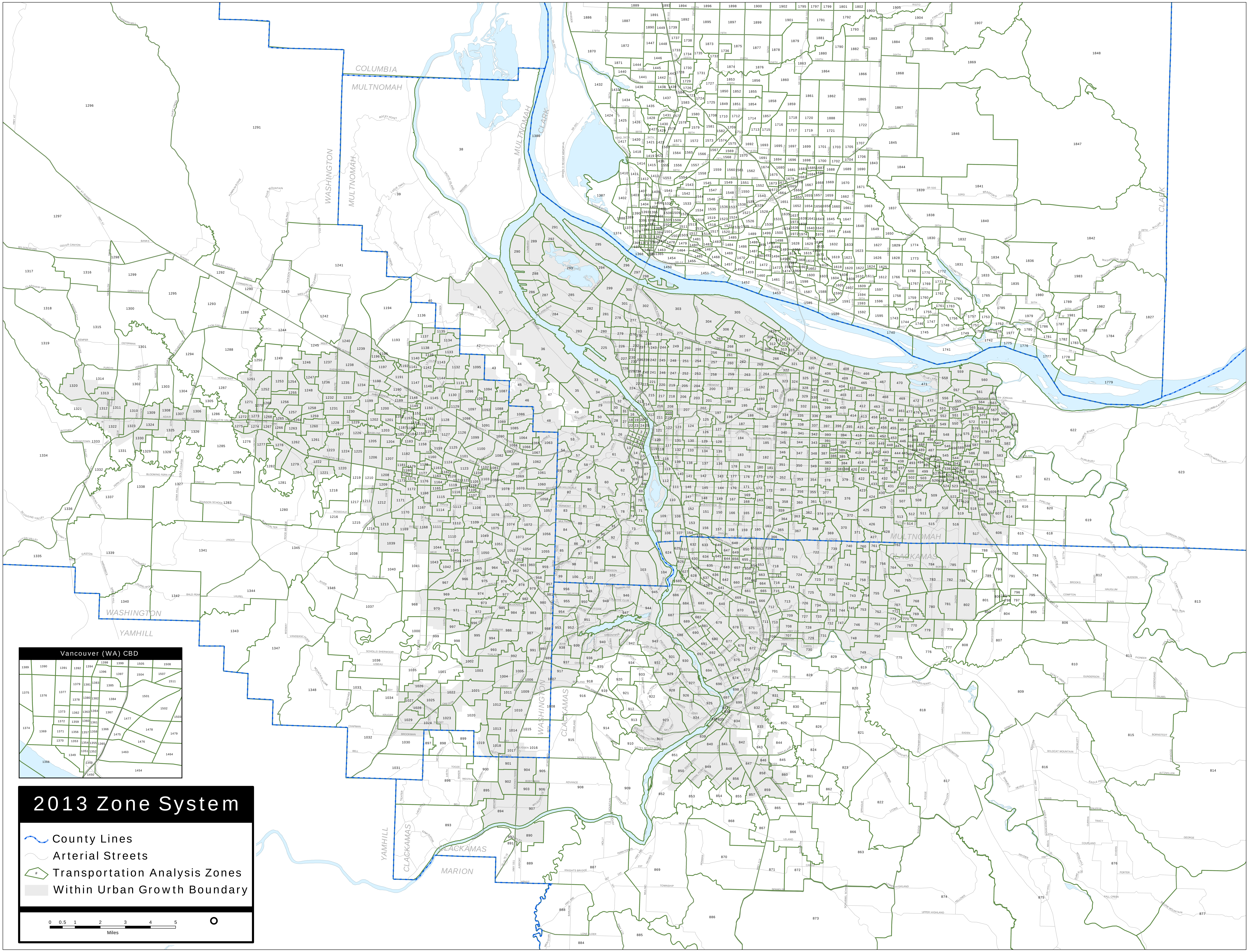
TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
1839	263	97	385	97	Vanc rest
1840	304	68	393	94	Vanc rest
1841	334	53	503	52	Vanc rest
1842	512	50	911	48	Vanc rest
1843	42	4	556	4	Vanc rest
1844	114	100	384	98	Vanc rest
1845	148	24	332	25	Vanc rest
1846	576	123	757	122	Vanc rest
1847	383	33	634	34	Vanc rest
1848	136	126	383	127	Vanc rest
1849	63	7	456	7	Vanc rest
1850	9	0	373	632	Vanc rest
1851	68	37	599	188	Vanc rest
1852	81	11	694	11	Vanc rest
1853	83	9	568	9	Vanc rest
1854	10	22	14	1,205	Vanc rest
1855	54	9	66	9	Vanc rest
1856	50	12	68	12	Vanc rest
1857	37	6	345	6	Vanc rest
1858	75	25	165	345	Vanc rest
1859	99	16	220	909	Vanc rest
1860	86	434	117	2,775	Vanc rest
1861	53	22	56	2,607	Vanc rest
1862	69	9	99	9	Vanc rest
1863	87	116	102	372	Vanc rest
1864	238	212	269	804	Vanc rest
1865	48	34	76	32	Vanc rest
1866	116	116	151	257	Vanc rest
1867	258	43	335	41	Vanc rest
1868	246	154	320	218	Vanc rest
1869	278	65	392	63	Vanc rest
1870	151	17	263	18	Vanc rest
1871	64	3	77	3	Vanc rest
1872	80	29	197	29	Vanc rest
1873	60	1	627	312	Vanc rest
1874	78	9	547	9	Vanc rest
1875	94	70	506	69	Vanc rest
1876	45	15	75	16	Vanc rest
1877	81	39	108	37	Vanc rest
1878	95	12	118	12	Vanc rest
1879	227	38	677	359	Vanc rest
1880	110	16	130	17	Vanc rest
1881	93	26	719	27	Vanc rest
1882	63	11	101	11	Vanc rest
1883	72	63	96	117	Vanc rest
1884	203	174	246	223	Vanc rest

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
1885	174	63	209	61	Vanc rest
1886	175	23	259	24	Vanc rest
1887	130	102	186	103	Vanc rest
1888	45	22	606	889	Vanc rest
1889	115	113	165	169	Vanc rest
1890	45	0	387	0	Vanc rest
1891	97	10	636	417	Vanc rest
1892	151	105	1,479	953	Vanc rest
1893	22	3	30	912	Vanc rest
1894	134	31	164	1,107	Vanc rest
1895	110	21	1,143	22	Vanc rest
1896	92	11	120	11	Vanc rest
1897	34	10	204	10	Vanc rest
1898	71	40	97	173	Vanc rest
1899	115	24	152	336	Vanc rest
1900	106	112	128	413	Vanc rest
1901	276	91	1,559	1,441	Vanc rest
1902	104	12	1,175	2,222	Vanc rest
1903	77	32	104	32	Vanc rest
1904	218	29	286	30	Vanc rest
1905	473	90	620	89	Vanc rest
1906	258	59	317	58	Vanc rest
1907	344	48	558	47	Vanc rest
1908	138	17	270	18	Vanc rest
1909	64	16	551	34	Vanc rest
1910	18	0	28	0	Vanc rest
1911	22	7	136	882	Vanc rest
1912	48	15	89	521	Vanc rest
1913	77	28	108	420	Vanc rest
1914	64	40	82	41	Vanc rest
1915	81	26	104	24	Vanc rest
1916	91	10	111	10	Vanc rest
1917	106	35	133	396	Vanc rest
1918	115	30	149	31	Vanc rest
1919	90	88	126	466	Vanc rest
1920	91	45	136	44	Vanc rest
1921	42	27	2,296	1,282	Vanc rest
1922	71	21	151	1,867	Vanc rest
1923	208	14	485	395	Vanc rest
1924	83	17	207	18	Vanc rest
1925	70	11	92	11	Vanc rest
1926	136	20	173	20	Vanc rest
1927	148	3	218	3	Vanc rest
1928	116	18	158	19	Vanc rest
1929	539	54	811	68	Vanc rest
1930	172	7	257	7	Vanc rest

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
1931	177	5	278	2,427	Vanc rest
1932	70	111	894	2,343	Vanc rest
1933	34	5	659	571	Vanc rest
1934	81	22	522	182	Vanc rest
1935	201	75	888	1,022	Vanc rest
1936	89	1	221	1	Vanc rest
1937	50	6	104	6	Vanc rest
1938	91	26	158	26	Vanc rest
1939	26	1	639	48	Vanc rest
1940	392	32	597	33	Vanc rest
1941	189	32	249	33	Vanc rest
1942	235	29	327	30	Vanc rest
1943	518	113	708	135	Vanc rest
1944	127	46	186	45	Vanc rest
1945	181	39	295	37	Vanc rest
1946	343	177	742	176	Vanc rest
1947	112	57	546	58	Vanc rest
1948	391	72	1,141	18	Vanc rest
1949	237	17	615	187	Vanc rest
1950	326	65	532	64	Vanc rest
1951	224	34	355	35	Vanc rest
1952	249	45	389	103	Vanc rest
1953	162	28	247	111	Vanc rest
1954	220	58	329	105	Vanc rest
1955	212	44	321	42	Vanc rest
1956	148	55	225	142	Vanc rest
1957	627	135	936	136	Vanc rest
1958	253	49	433	51	Vanc rest
1959	212	43	374	44	Vanc rest
1960	183	21	381	107	Vanc rest
1961	60	4	167	29	Vanc rest
1962	277	195	424	232	Vanc rest
1963	328	164	728	294	Vanc rest
1964	19	414	21	432	Vanc rest
1965	66	582	72	706	Vanc rest
1966	77	0	89	0	Vanc rest
1967	5	741	6	846	Vanc rest
1968	167	794	184	855	Vanc rest
1969	0	0	43	136	Vanc rest
1970	0	428	0	453	Vanc rest
1971	0	313	0	714	Vanc rest
1972	14	45	461	45	Vanc rest
1973	270	8	316	73	Vanc rest
1974	103	5	531	5	Vanc rest
1975	114	4	126	4	Vanc rest
1976	231	50	265	53	Vanc rest

TAZ	2005 Households	2005 Employment	2035 Households	2035 Employment	2040 Design Type
1977	257	427	357	608	Vanc rest
1978	1	185	4	265	Vanc rest
1979	260	7	1,227	60	Vanc rest
1980	108	39	927	632	Vanc rest
1981	227	6	547	7	Vanc rest
1982	72	7	342	3,870	Vanc rest
1983	220	33	316	34	Vanc rest
1984	95	56	697	515	Vanc rest
1985	15	8	16	3,286	Vanc rest
1986	6	684	6	1,604	Vanc rest
1987	2	0	20	0	Vanc rest
1988	29	7	44	7	Vanc rest
1989	1	114	1	727	Vanc rest
1990	194	60	331	143	Vanc rest
1991	126	53	141	54	Vanc rest
1992	28	9	81	9	Vanc rest
1993	49	15	736	16	Vanc rest
1994	17	20	1,097	28	Vanc rest
1995	10	0	18	449	Vanc rest
1996	13	39	14	2,478	Vanc rest
1997	6	0	363	0	Vanc rest
1998	16	0	567	0	Vanc rest
1999	0	0	0	0	External Zone
2000	0	0	0	0	External Zone
2001	0	0	0	0	External Zone
2002	0	0	0	0	External Zone
2003	0	0	0	0	External Zone
2004	0	0	0	0	External Zone
2005	0	0	0	0	External Zone
2006	0	0	0	0	External Zone
2007	0	0	0	0	External Zone
2008	0	0	0	0	External Zone
2009	0	0	0	0	External Zone
2010	0	0	0	0	External Zone
2011	0	0	0	0	External Zone
2012	0	0	0	0	External Zone

Figure 1. 2013 Zone System



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Appendix 1.4 2035 RTP
Land Use Assumptions

2005 - RTP Update (IVAN)

	totemp	tothh	pop		totemp	tothh	pop
Multnomah County	**493,700**	**289,900**	**Pop 682,800**	Portland	**440,800**	**235,200**	**538,000**
% of total 3-County	54%	47%	44%		48%	37.98%	34.55%
Clackamas County	145,600	140,400	373,400	E Mult Co	52,800	53,700	144,700
% of total 3-County	16%	23%	24%		6%	9%	9%
Washington County	269,700	189,900	501,400				
% of total 3-County	30%	31%	32%				
3-County Total	908,900	619,300	1,557,600				
Clark County	123,400	147,700	403,500				
Region Total	1,032,300	767,000	1,961,100				

2035 RTP Update (IVAN)

	totemp	tothh	pop		totemp	Tothh	Pop
				Portland	637,000	312,400	679,800
Multnomah County	751,232	390,690	879,700		42%	33%	29%
% of total 3-County	50%	41%	37%				
Clackamas County	268,300	262,100	743,000	E Mult Co	114,200	78,200	199,900
% of total 3-County	18%	28%	31%		8%	8%	8%
Washington County	485,600	293,800	755,600				
% of total 3-County	32%	31%	32%				
3-County Total	1,505,100	946,600	2,378,300				
Clark County	294,100	262,000	718,400				
Region Total	1,799,200	1,208,700	3,097,400				

Note – All population, household and employment figures have been rounded to the nearest hundred

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Appendix 1.5 2035 RTP

Highway Capacity Manual Level of Service Table

Level-of-Service (LOS) Definitions for Freeways, Arterials and Signalized Intersections

LOS	**Freeways** (average travel speed assuming 70 mph design speed)	**Arterials** (average travel speed assuming a typical free flow speed of 40 mph)	**Signalized Intersections** (stopped delay per vehicle)	**Traffic Flow Characteristics**
A	Greater than 60 mph Average spacing: 22 car-lengths	Greater than 35 mph	Less than 5 seconds; most vehicles do not stop at all	Virtually free flow; completely unimpeded Volume/capacity ratio less than or equal to .60
B	57 to 60 mph Average spacing: 13 car-lengths	28 to 35 mph	5.1 to 15 seconds; more vehicles stop than for LOS A	Stable flow with slight delays; reasonably unimpeded Volume/capacity ratio .61 to .70
C	54 to 57 mph Average spacing: 9 car-lengths	22 to 28 mph	15.1 to 25 seconds; individual cycle failures may begin to appear	Stable flow with delays; less freedom to maneuver Volume/capacity ratio of .71 to .80
D	46 to 54 mph Average spacing: 6 car-lengths	17 to 22 mph	25.1 to 40 seconds; individual cycle failures are noticeable	High density, but stable flow Volume/capacity ratio of .81 to .90
E	30 to 46 mph Average spacing: 4 car-lengths	13 to 17 mph	40.1 to 60 seconds; individual cycle failures are frequent; poor progression	Operating conditions at or near capacity; unstable flow Volume/capacity ratio of .91 to 1.00
F	Less than 30 mph	Less than 13 mph	Greater than 60 seconds; not acceptable for most	Forced flow, breakdown conditions

	Average spacing: bumper-to-bumper		drivers	Volume/capacity ratio of greater than 1.00
>F	Demand exceeds roadway capacity, limiting volume that can be carried and forcing excess demand onto parallel routes and extending the peak period			Demand/capacity ratios of greater than 1.10

Source: 1985 Highway Capacity Manual (A through F descriptions) Metro (>F description)

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Appendix 1.6 2035 Regional Transportation Plan
Non-Drive Alone Mode Share by Mobility Corridor

Non Drive-Alone Mode Share*	2005	2035 Federal	% Change over 2005	2035 State	2035 % Change over Federal
MC 1	52.27%	53.64%	2%	54.06%	1%
MC 2	48.86%	52.76%	8%	53.53%	2%
MC 3	45.85%	48.30%	5%	48.49%	0%
MC 4	58.24%	67.25%	15%	67.80%	1%
MC 5	58.87%	66.00%	12%	66.49%	0%
MC 6	53.89%	51.42%	-5%	51.74%	0%
MC 7	50.84%	53.91%	6%	53.91%	0%
MC 8	53.62%	53.75%	0%	54.27%	1%
MC 9	51.19%	50.08%	-2%	50.50%	1%
MC 10	59.29%	68.33%	15%	68.71%	1%
MC 11	51.89%	52.88%	2%	53.29%	1%
MC 12	50.57%	52.38%	4%	52.81%	1%
MC 13	50.21%	53.16%	6%	53.25%	0%
MC 14	51.50%	51.70%	1%	51.88%	0%
MC 15	52.60%	50.74%	-4%	50.91%	0%
MC 16	51.39%	49.72%	-3%	50.08%	1%
MC 17	49.34%	48.02%	3%	48.38%	1%
MC 18	49.84%	56.48%	13%	56.86%	1%
MC 19	48.49%	50.73%	5%	51.68%	2%
MC 20	47.02%	49.62%	6%	49.84%	0%
MC 21	57.71%	65.53%	14%	66.06%	1%
MC 22	51.60%	51.43%	0%	51.64%	0%
MC 23	53.42%	50.73%	-5%	50.73%	0%
MC 24	52.21%	52.52%	1%	52.75%	0%

***Non drive-alone mode share includes bicycle, pedestrian and shared ride trips.**

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Appendix 1.7 2035 Regional Transportation Plan Performance Targets Outputs

Safety

Data source: ODOT – Data for Metro cities only

All data in 3-year averages	Existing 2005 Benchmark (2003-2005)			Target 2035 50% reduction in absolute (2033 – 2035)		
	Absolute	**Per Capita per 100K residents**	**Per VMT per Billion VMT**	**Absolute**	**Per Capita per 100K residents**	**Per VMT per Billion VMT**
Pedestrian						
Fatals	16.0					
Injury A	39.3					
TOTAL	55	4.93	7.16	28	1.70	2.52
Pedal cyclist						
Fatals	3.7					
Injury A	23.0					
TOTAL	27	2.38	3.45	13	0.82	1.21
Motor Vehicle						
Fatals	35.7					
Injury A	356.3					
TOTAL	392	35.0	50.7	196	12.1	17.8
Total all modes						
Fatals	55.3					
Injury A	418.7					
TOTAL	474	42.3	61.3	237	14.6	21.6

	2005	2035	Change	Comments
(Region) Population	1,408,207	2,039,195	+45%	Not used in calculations for interim city-only data
(Metro Cities) Population	1,121,275	1,623,695	+45%	Metro cities % of regional population is 79.6%
(Region) VMT	9,711,597,818	13,799,600,170	+42%	Not used in calculations for interim city-only data
(Metro Cities) VMT	7,732,792,014	10,987,835,368	+42%	Estimated based on cities' population proportion

Congestion

Data source: Metro travel forecast model - Total Region includes Clackamas, Clark, Multnomah, and Washington counties

	2005	2035 NB	2035 Federal	2035 State
Population	1,961,453	3,096,746	3,096,746	3,096,746
VHD 2-hour PM peak	9,755	56,062	45,419	45,184
VHD in 1-hour mid-day	594	4,551	3,359	3,328
VHD/capita in 2-hour PM peak	0.0050	0.0181	0.0147	0.01459
VHD/capita in 1-hour mid-day	0.0003	0.0015	0.0011	0.00107
Percent change between 2005 and 2035 State				
2-hour PM peak	193%			
1-hour mid-day	255%			

VHD – vehicle hours of delay

Freight Reliability

Data source: Metro travel forecast model - Total Region includes Clackamas, Clark, Multnomah, and Washington counties

	2005	2035 NB	2035 Federal	2035 State
Truck trips 2-hour PM peak	6,754	11,172	11,172	11,172
Truck trips 1-hour mid-day	4,906	8,214	8,214	8,214
VHD 2-hour PM peak	9,755	56,062	45,419	45,184
VHD 1-hour mid-day	594	4,551	3,359	3,328
VHD/truck trip 2-hour PM peak	1.44	5.02	4.07	4.04
VHD/truck trip 1-hour mid-day	0.12	0.55	0.41	0.41
Percent change between 2005 and 2035 State				
PM peak	180%			
Mid-day	235%			

VHD – vehicle hours of delay

Climate Change

Data source: EPA MOBILE6 and Metro Travel Forecast Model

GHG (CO^2)	2005	2035 NB	2035 Federal	2035 State
Summer (in tons)	16,655	23,563	24,809	24,926

Percent change between 2005 and 2035 State	
Summer	50%

Active Transportation

Data source: Metro travel forecast model - Total Region includes Clackamas, Clark, Multnomah, and Washington counties

	2005	2035 NB	2035 Federal	2035 State
Transit	3.26%	3.67%	4.19%	4.47%
Walk	6.45%	7.01%	7.14%	7.10%
Bike	1.01%	1.13%	1.11%	1.10%
Total	10.72%	11.81%	12.44%	12.67%

Difference between 2035 target and actual

	Target	Actual
Transit	10%	4.47%
Walk	19%	7.10%
Bike	3%	1.10%
Total	32%	12.68%

Basic Infrastructure

(Under development)

Clean Air

Data source: EPA MOBILE6 and Metro Travel Forecast Model

Year	CO lbs/day in winter	Hydrocarbons tons/day in summer	NOx tons/day in summer
2010	1,003,578	40	52
2015	n/a	40	55
2017	n/a	n/a	n/a
2020	n/a	40	59
2025	1,181,341	40	59
2035	1,181,341	40	59

	2,005	2035 NB	2035 Federal	2035 State
CO lbs/day (winter)	1,103,381	792,913	834,891	836,097
VOC (hydrocarbons - summer) tons/day	73,824	31,762	33,149	33,269
NOX tons/day (summer)	127,642	29,886	31,391	31,531

Travel

Data source: Metro travel forecast model - Total Region includes Clackamas, Clark, Multnomah, and Washington counties

	2005	2035 NB	2035 Federal	2035 State
Population	1,961,453	3,096,746	3,096,746	3,096,746
VMT (AWD)	32,657,381	48,730,602	49,231,806	49,443,162
VMT/person	16.65	15.74	15.90	15.97

Percent change between 2005 and 2035 State	
VMT (AWD)	-4%

VMT – vehicle miles traveled

Affordability

(Under development)

Access to Daily Needs

(Under development)

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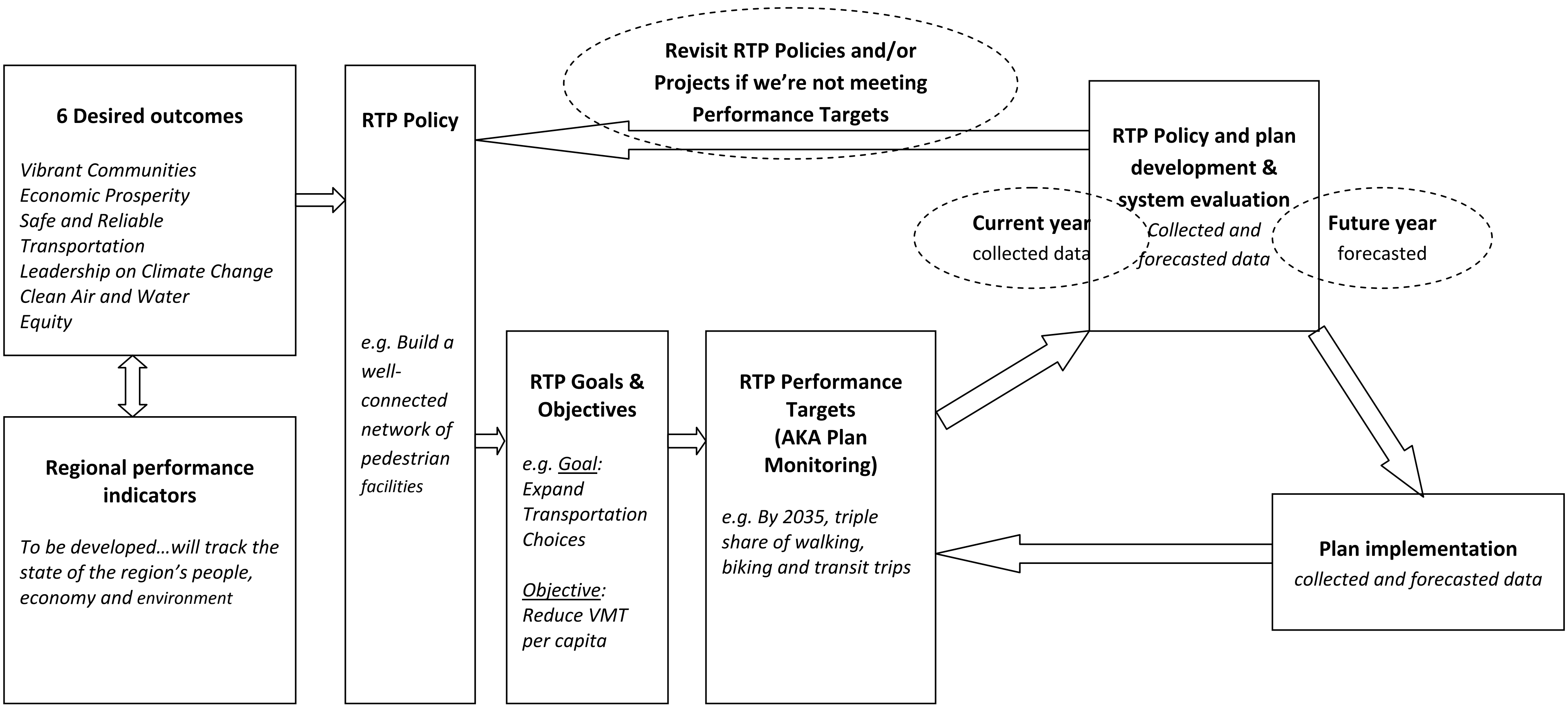
Appendix 2.1 2035 Regional Transportation Plan
Outcomes based RTP policy development and evaluation framework



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Appendix 2.2 2035 Regional Transportation Plan

2040 Modal Targets Background

2040 Modal Targets

The 2040 Growth Concept serves as the integrated land use and transportation plan for the Portland metropolitan region, pursuant to Section 660-12-0035(5)(c) of the Oregon Transportation Planning Rule (TPR). A basic construct of the 2040 Growth Concept is to reduce the region's reliance on the automobile by focusing growth in centers and along major transportation corridors where transportation infrastructure is concentrated. This concept was fundamental to the development of the Regional Transportation Plan (RTP).

For the purpose of TPR compliance, the Regional Transportation Plan (RTP) includes 2040 modal targets as the primary "alternative" standard for evaluating the region's progress in reducing reliance on the automobile. Table 2.5 in Chapter 2 summarizes the modal targets and represents an aggressive long-term goal for the Portland metropolitan region to reduce non-single occupancy vehicle (non-SOV) travel in the region. The 2040 modal targets are also based on observed travel behavior collected as part of Metro's 1994-1995 survey of more than 7,500 households in the Portland metropolitan region. Metro will be leading (in collaboration with ODOT and TriMet) the next travel behavior survey in 2011.

1994 Travel Behavior/Activity Survey

In 1994, Metro also conducted a travel behavior survey within the four-county boundary of Clackamas, Multnomah and Washington Counties in Oregon and Clark County, Washington. As part of this survey, more than 7,500 households kept a diary of activities performed during a two-day period, including identification of how individuals traveled to those activities. The study was designed to focus on the relationship between an activity type and the need for travel and highlighted the importance of all activities, whether "big" or "small." Results from the study are summarized in Table 1.

Table 1. Summary of 1994 Metro Travel Behavior/Activity Survey Results (for all trip purposes)

	Mode Share					Vehicle Miles per Capita	Auto Ownership per Household
Land Use Type	**% Auto**	**% Walk**	**% Transit**	**% Bike**	**% Other**		
Areas with Good Transit/ Mixed Use In Multnomah County	58.1%	27.0%	11.5%	1.9%	1.5%	9.80	0.93
Areas With Good Transit Only In Multnomah County	74.4%	15.2%	7.9%	1.4%	1.1%	13.28	1.50
Remainder of Multnomah County	81.5%	9.7%	3.5%	1.6%	3.7%	17.34	1.74
Remainder of Region	87.3%	6.1%	1.2%	0.8%	4.6%	21.79	1.93

Source: Metro Travel Research and Modeling Services

Areas with good transit service and a good mix of land uses showed the highest percentage of alternative mode use (41.9 percent combined). Conversely, the remainder of the region showed the highest percentage of auto use (87.3 percent). This indicates that individuals are likely to use the automobile when no other choices exist, but may choose other alternatives when they are available. The results of this study support this region's effort to link land use and transportation planning as a means to provide a balanced, multi-modal transportation system.

Relationship of 2040 Modal Targets to RTP Modeling Assumptions

Appendix 1.3 identifies specific modeling assumptions by transportation analysis zone (TAZ) that are intended to mirror the expected improvements proposed in the RTP and their impact on mode choice. The following section summarizes how the modeling assumptions relate to transit, walking, bicycling and shared ride.

Transit

Transit ridership is highly dependent on convenient, affordable, frequent service. For transit, the RTP modeling assumes a substantial increase in transit service levels, and varying levels of parking cost in most centers. The RTP also assumes reduced fare programs for all trips destined for the central city, regional centers and other areas that are currently targeted for transportation demand management (TDM) programs. Finally, the RTP identifies improvements to enhance bicycle and pedestrian access to transit.

Walking

For pedestrian improvements, the RTP uses a modeling surrogate of intersection density (e.g., street connectivity) that the travel survey has demonstrated to be a reliable predictor of pedestrian travel. Using this surrogate, the RTP modeling has assumed a broad range of pedestrian improvements, including full-street "boulevard" retrofits, and improved street connectivity in the central city, regional and town centers, station communities and main streets. Work is underway to enhance the regional model's capability of forecasting pedestrian travel.

Bicycling

For bicycle travel, the RTP focuses on providing improved bicycle facilities with the recognition that additional information is needed to better quantify the factors that affect the propensity to choose bicycling as a mode of travel, including accessibility to type of land use, presence of bikeway facilities and topography (see RTP Section 6.7.8 for more information on upcoming bicycle model enhancements).

Shared ride

The travel behavior survey data suggest that the shared ride alternative to driving alone is less responsive to integrated land use and transportation planning than transit, walking and bicycling. For shared ride travel, this is largely due to the complexity of trip-making and social factors that limit the potential for non-family shared ride arrangements. As a result, modeling assumptions were not developed to specifically to reflect this mode choice.

Implementation of the 2040 Modal Targets

Section 3.08.230 of the Regional Transportation Functional Plan (RTFP) requires local governments to demonstrate progress toward the 2040 modal targets and to identify actions that will result in progress toward achieving the targets. The targets are for the year 2040. The "progress toward" language is critical in this regard. Some jurisdictions have already met the targets in the most developed areas of the region, while emerging centers are many years from approaching the targets, and development in these areas will likely occur unevenly. Though the modeling assumptions in Appendix 1.3 are tailored to such differences by establishing varying tiers among land use types based on degree of urbanization, there are still significant differences within tiers.

Metro's primary goal is to ensure that land use and transportation actions be adopted to achieve the targets, and that on-the-ground progress be demonstrated over time. However, progress toward the non-SOV modal targets is an output of the regional travel demand model, but cannot be generated by each local jurisdiction. Therefore, Section 3.08.230E of the RTFP places a number of very specific requirements on the local TSPs and implementing regulations that, if implemented, serve as the basis for a local government to demonstrate that the local government is making progress toward meeting the modal targets. Progress would be periodically evaluated as part of RTP updates.

At a minimum, local transportation system plans are expected to include the following elements to demonstrate compliance with the RTFP and RTP:

1. Adoption of 2040 modal targets in TSP policies (Table 3.08-1 of RTFP)

2. Adoption of street connectivity plans and implementing ordinances (consistent with RTFP Section 3.08.110) as a surrogate for "intersection density."

3. Adoption of maximum parking ratios (consistent with RTFP Section 3.08.410) as a surrogate for the "parking factors."

4. Adoption of bicycle, pedestrian, transit and transportation system management and operations strategies consistent with (RTFP Sections 3.08.110, 3.08.120, 3.08.130, 3.08.140 and 3.08.160).

5. Adoption of land use actions pursuant to OAR 660-012-0035(2)

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Appendix 3.1 2035 Regional Transportation Plan

Corridor Planning Priorities

This appendix prioritizes completion of Corridor Refinement Plans called for in the 2035 Regional Transportation Plan. Due to the number of corridor planning needs and the lack of available resources, Metro initiated a process in the Fall 2009 to prioritize the completion of these plans.

Five Corridors Recommended for Future Corridor Refinement Plans

Using the results of Metro's mobility corridor work, the 2035 Regional Transportation identifies five corridors that do not meet the outcomes performance standards of the RTP and do not fully answer the questions of mode, function and general location. Thus, as required by the State, these corridors need more analysis through a future corridor refinement plan. Refinement plans generally involve a combination of transportation and land use analysis, multiple local jurisdictions and facilities operated by multiple transportation providers. Metro or ODOT will initiate and lead necessary refinement planning in coordination with other affected local, regional and state agencies.

Although each of the five corridors (listed below) needs a refinement plan, neither Metro, ODOT nor local agency staff or funding resources can accommodate five plans at the same time. In order to move forward, staff worked with Metro partners (counties, cities, ODOT and TriMet) and Metro committees (TPAC, JPACT, MTAC and MPAC) and the RTP Work Group (composed of TPAC & MTAC members) to develop and finalize factors to compare and prioritize the relative urgency of planning for future transportation solutions across the region's mobility corridors.

Relationship of Mobility Corridors to Five Corridors Recommended

- Mobility Corridors #2, #3 and #20 - Portland Central City to Wilsonville, which includes I-5 South
- Mobility Corridor #4 - Portland Central City Loop, which includes I-5/I-405 Loop
- Mobility Corridors #7, #8 & #9 -Clark County to I-5 via Gateway, Oregon City and Tualatin, which includes I-205
- Mobility Corridor #15 - Gresham/Fairview/Wood Village/Troutdale to Damascus
- Mobility Corridor #24 - Beaverton to Forest Grove, which includes Tualatin Valley Highway

Evaluation Factor

Metro staff ranked the corridors according to technical considerations (e.g. environment, equity, economy, consistency with State/Regional Policies) as well as readiness and ripeness for corridor planning. For additional detail, see Staff Report Resolution No.10-4119, Attachments 1: Technical Ranking Methodology (11/3/09) and Attachment 2: Guidance for Demonstration of Local Support for Corridor Refinement Plan (10/14/0-9).

Corridor Refinement Plan Phasing and Sequencing

The phasing shown in Figure 1 (also shown as Exhibit "C" to Resolution #10-4119) is based in part on the understanding that in order to accomplish as much corridor refinement planning work as possible with likely funding and staff resources, and, in some cases, segmenting, of the five remaining corridor plans. The order presented considers not only the accepted technical rankings, but also takes into account the current levels of local support, addition to other issues, as listed below:

- Technical rankings
- Demonstrated local support
- Respective levels of effort of the five corridors
- Ability of local jurisdictions to take more responsibility for one or more pieces of work that are likely to be required in a given corridor
- Ability to logically segment work (e.g., to postpone refinement planning
- Potential for project development to proceed on a separate track
- Ramp-up time needed for more complex corridors (to be included in a preparatory phase described below)—allowing staggered plan initiation points
- A proposed scenario for linking High Capacity Transit (HCT) system expansion process and priorities to the refinement planning process, where appropriate

Preparatory Phase: In some cases, a preparatory stage is recommended, prior to the formal commencement of the refinement plans. In more complex, longer corridors with numerous jurisdictions, this includes the following efforts:

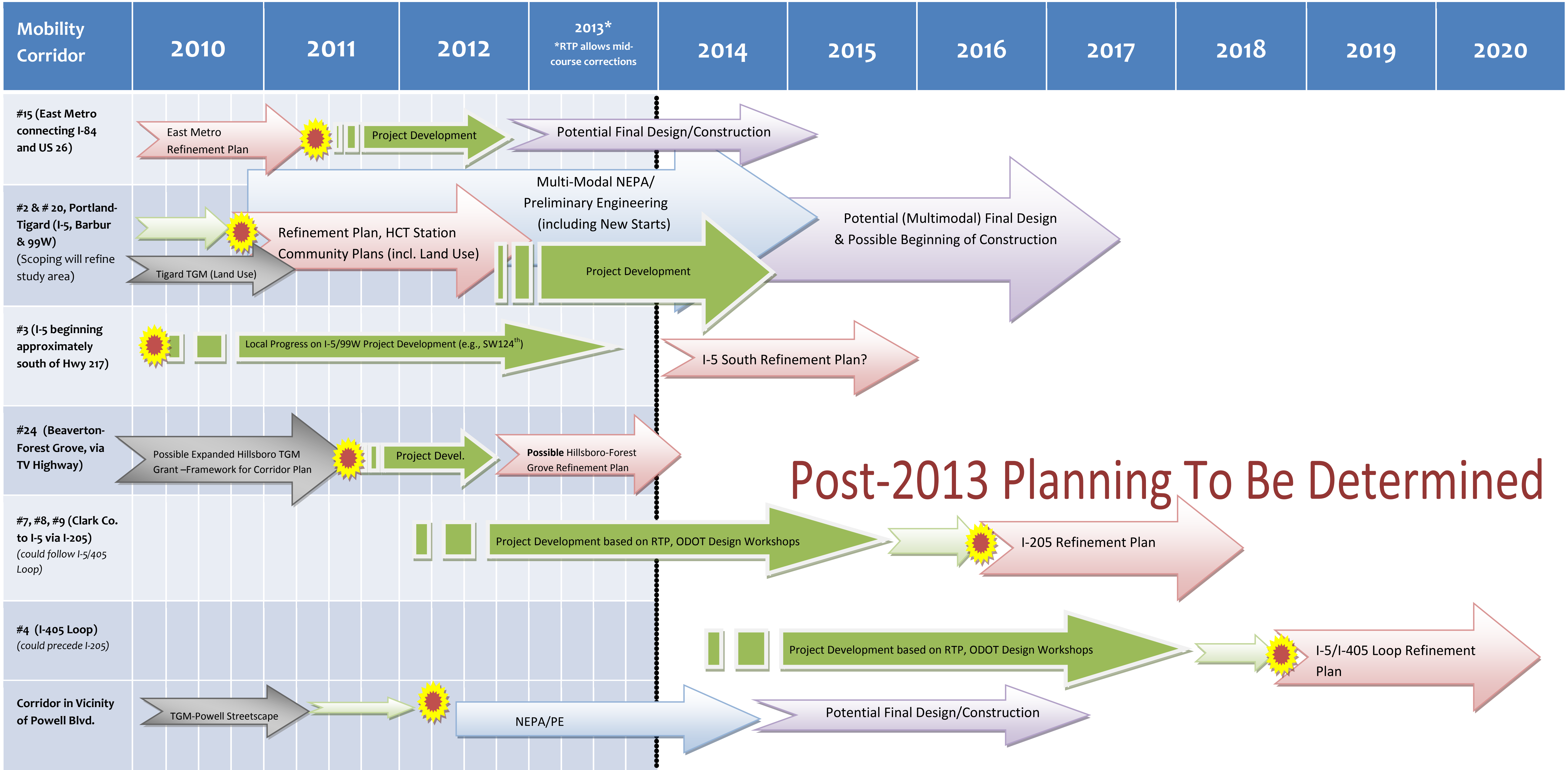
- Stakeholder identification
- Chartering for the refinement plan work
- Scoping and segmentation issues
- Negotiation of the necessary study MOUs between agencies to establish roles and commitments.

It will be time well spent, to develop levels of agreement on study elements that will further interagency relationships. Note that the transitions between preparatory work and formal corridor refinement planning efforts are marked by a stakeholder decision point in Figure 1.

Figure 1

Corridor Refinement Plan Sequencing, including Top Near-Term High-Capacity Transit Plans, through 2020 (2/8/10)

Exhibit C Resolution No. 10-4119



Critical Plan Elements or Goals:

#15: Refine problem statement; identify urgent actions and solutions leading to system project development. ***Moderate Effort from Metro Staff***

#2 & 20: Phase A: Scoping and chartering to support long-term commitments. ***Moderate Effort;*** Phase B: **Portland Central City to Tigard Triangle:** I-5, Barbur & 99W Refinement Plan, HCT Station Communities Plan, ***Major Effort;*** Phase C: Multimodal NEPA, PE. ***Major Effort***

#24: Phase A: Beaverton-Hillsboro (TV Highway) TGM grant, plus possible expansion. **Moderate Effort; Phase** B could require refinement planning from Hillsboro to Forest Grove. **Moderate Effort**

#3: I-5/South to Boone Bridge Refinement Plan (unresolved elements). (Potentially) ***Major Effort***

7, 8, 9: Multimodal refinement plan. Could be phased. ***Major Effort***

#4: I-405 Loop multimodal refinement plan. Could be phased. ***Major Effort***

Powell Vicinity: (High Capacity Transit Corridor, Alternatives Analysis, NEPA, PE). ***Moderate Effort***

Starburst denotes KEY points of required stakeholder agreement.

Color Key: (**Arrow thickness indicates relative level of effort across the region. Local agency efforts would differ.**)

Planning Tasks:

- Preparatory Scoping/Chartering
- Corridor Refinement Plan
- Other Planning Work (e.g., TGM, Land Use Planning)

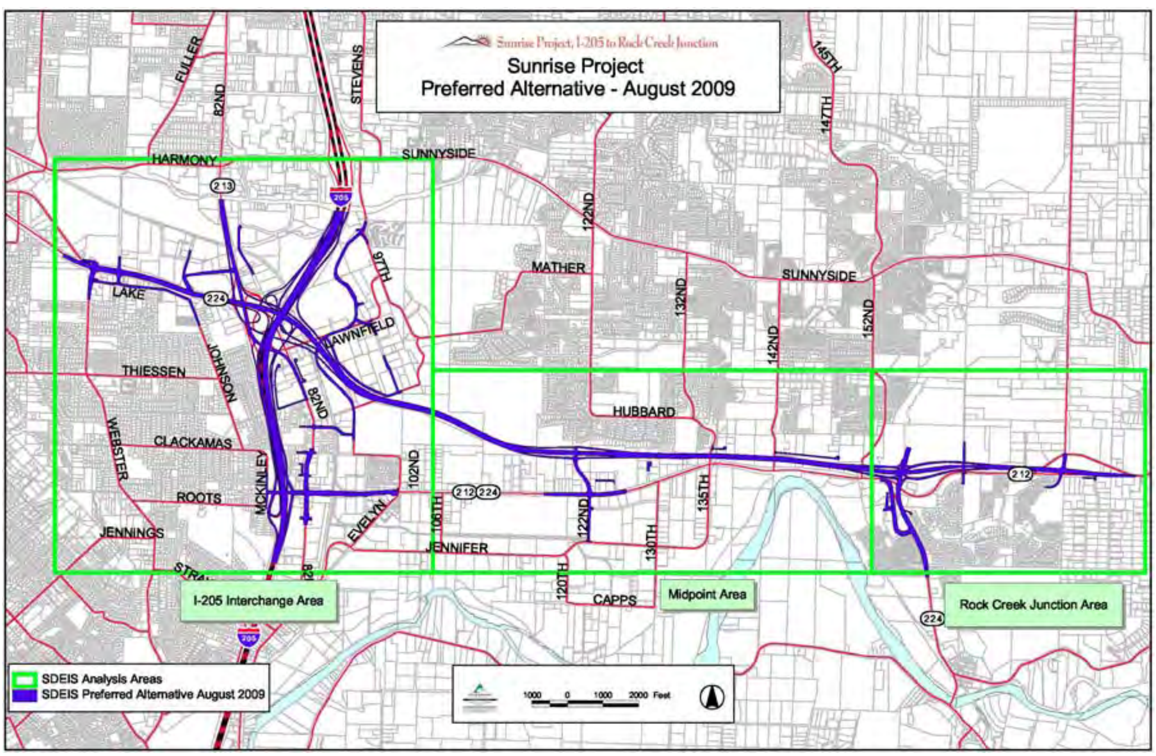
Project Development Tasks:

- Near-Term Road/Bike/Ped Project Development
- NEPA/Preliminary Engineering (All Modes)
- Final Design/Construction (All Modes)

Appendix 3.2 2035 Regional Transportation Plan
Sunrise Preferred Alternative

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 SDEIS with Design Options C-2 and D-3 and a portion of Design Option A-2 (Tolbert Overcrossing). Additionally, the Preferred Alternative includes several refinements to the individual portions of the SDEIS alternatives and a limited number of refinement alternatives that were not studied as part of the SDEIS alternatives. These refinement alternatives are based on stakeholder input and additional design refinement related to assessment of environmental resource avoidance and analysis of traffic performance.



The following more completely describes the Preferred Alternative from west to east:

In the **I-205 Interchange Area,** the Preferred Alternative consists of:

- Alternative 2 with the addition of the Tolbert Crossing from Design Option A-2

- The Sunrise Project western transition to the Milwaukie Expressway is widened within the existing right-of-way for OR 224 and extended farther to the west past Webster Road.
- The Lake Road intersection with Webster Road is closed and traffic re-routed eastward to the revised OR 224 / Pheasant Court intersection;
- Access from Johnson Road (south of OR 224) to OR 224 is re-routed westward along Lake Road to a new connection at the existing OR 224 / Pheasant Court intersection.
- The southern leg of the existing OR 224 / Johnson Road intersection is closed.
- The Deer Creek Lane / Johnson Road connection is relocated to the west at the existing intersection.
- The Lawnfield North extension alignment is shifted to avoid impacts to the KEX site historic resource (copper ground wire mat) and other cultural and natural resources in the area between the existing Lawnfield Road and 97th Avenue.
- The additional of the Tolbert Overcrossing (Design Option A-2) to Alternative 2.
- 3rd Westbound Lane on OR 212 / 224 from I-205 to 102nd Avenue with the dedicated right turn lane at 82nd Drive.
- 82nd Drive and its intersection with OR 212/224 are expanded to improve overall mobility by:
    - Restricting all left-turns at this intersection and adding a raised median both north and south of the existing intersection.
    - 82nd Drive is widened and a new signalized intersection at 82nd Drive and Clackamas Road is created to accommodate U turns including trucks.
    - 82nd Drive is widened and the existing signalized intersection at 82nd Drive and the northern Fred Meyer access point is reconfigured to accommodate U turns including trucks.

In the ***Midpoint Area***, the Preferred Alternative consists of:

- Alternative 2, the narrow diamond interchange at 122nd Avenue with a connection to OR 212/224 at 122nd Avenue.
- Design Option C-2, the southern-most alignment between the mid-point and Rock Creek interchanges -.
- The multi-use path that was planned between I-205 and the Midpoint Area will be extended along OR 212/224 to the Rock Creek interchange based on stakeholder and agency input.

In the **Rock Creek Junction Area**, the Preferred Alternative consists of:

- Design Option D-3, a Single Point Urban Interchange (SPUI)
- The eastern leg of the Goosehollow Drive / OR 224 intersection would be closed.
- A right-out-only access end of Orchard View Lane to northbound OR 224 will be created from the as an access mitigation measure.
- A 162nd Avenue connection to OR 212 will be created at the NE corner of the Orchard Lake neighborhood as an access mitigation measure.
- Existing OR 212 will become a cul-de-sac just east of 162nd Avenue.

- The Sunrise Project eastern transition reconnects with OR 212 east of the 172nd Intersection with OR 212.
- The Sunrise Project southern transition reconnects with OR 224 at Eckert Lane

METRO

Appendix 3.3 2035 Regional Transportation Plan
I-5 / 99W Connector Study Recommendations

WASHINGTON COUNTY
OREGON

MAY 6 2009

May 1, 2009

COPY

Carlotta Collette, JPACT Chair
Metro
600 NE. Grand Ave.
Portland, OR 97232-2736

Dear Councilor Collette:

As you may recall, the I-5/99W Connector Project Steering Committee met for the last time on February 25, 2009. At that meeting, the committee members voted on a package of improvements for the study area along with some important conditions regarding future improvements. While the final vote was not unanimous (6-2), there seems to be a general agreement that the package of arterial improvements, referred to as "Alternative 7", is preferred to a single freeway like facility through the study area. The attached materials summarize the Committee's decision.

Since some of the projects proposed for the study area are different than what is in the current Regional Transportation Plan (RTP), we believe the next step in the process is to amend the RTP to reflect the work of the Committee. We understand that work is currently underway to amend the RTP later this year with final adoption scheduled for 2010. On behalf of the Project Steering Committee, I am requesting that the RTP be amended to incorporate the Committee's decision. We look forward to cooperatively working with Metro on the RTP update. If the Metro staff needs additional information, please have them contact Mark Brown at 503-846-3406.

Sincerely,

Tom Brian

Tom Brian, Chairman
Washington County Board of Commissioners

Attachments

1. Recommendation memorandum
2. Alternative 7 Cost Estimate
3. Alternative 7 Map
4. Table summarizing environmental impacts
5. Feb. 25, 2009 PSC meeting summary
6. Recommended Conditions

Board of County Commissioners
155 North First Avenue, Suite 300, MS 22, Hillsboro, OR 97124-3072
phone: (503) 846-8681 • fax: (503) 846-4545

MEMORANDUM

DATE: February 17, 2009

TO: Project Steering Committee (PSC)

FROM: **Executive Management Team (EMT)**

SUBJECT: I-5 to 99W Connector, Recommended Alternative for RTP Amendment

---

Alternative 7 Recommendation for RTP Amendment

The majority of the EMT recommends that on February 25, 2009 the PSC select Alternative 7, the Three Arterial Corridors Alternative, as the Portland metropolitan region's southwest quadrant transportation solution-concept for Metro's consideration and adoption into the Regional Transportation Plan (RTP). A conceptual representation of Alternative 7 is shown in Figure 1 and the project's elements are described in Table 1.

This recommendation is based on the following advantages of Alternative 7:

1. Alternative 7 would address the project's purpose by providing an enhanced transportation network of multi-modal improvements that can effectively serve regional and intrastate access to the area's highways while also enhancing local access and circulation in the southwest quadrant of the Metro region.

2. Alternative 7 draws from the best elements of the build alternatives studied in the Alternatives Analysis (AA) and incorporates additional actions to enhance mobility. In general, Alternative 7's performance would be most similar to Alternative 6 and generally better than Alternatives 3, 4, and 5 while having fewer adverse effects on the human and natural environment and lower overall cost than Alternatives 3, 4, 5, and 6.

3. A significant advantage of Alternative 7 over the connector Alternatives 4, 5, and 6, is it could be more easily implemented in phases over time. This would provide jurisdictions flexibility to strategically adapt to funding availability, and to protect livability and economic viability of communities as increased system capacity commensurate with development in this part of the Metro region is warranted. Smaller, more affordable individual projects may be advanced with independent utility under the integrated multi-modal framework of Alternative 7. Strategic measures to protect the affordability of right-of-way for future construction elements of Alternative 7 could also occur.

Conditions of Recommendation

As with any large-scale system of transportation improvements, a number of issues will need to be dealt with in the course of advancing a planning level transportation concept to construction projects and other implementation actions. While the corridor level alternative selected on February 25th is the final decision milestone for the PSC, additional work will continue in collaboration with stakeholder entities in advancing Alternative 7. The conditions listed below serve as a roadmap for this work.

For Alternative 7, the EMT recommends the following conditions accompany the RTP recommendation of Alternative 7:

1. **Future phasing plans for implementing Alternative 7 projects must take into consideration the transportation, environmental, and economic impacts of advancing some improvements sooner than others.** The sequencing of affordable improvements should be done in a manner that does not create new transportation problems or liabilities for the vitality of affected jurisdictions.
2. **The timing and priority of an I-5 corridor study must be considered in the RTP adoption process for Alternative 7.** The connector project development process emphasized the need for a corridor study along I-5 from Portland to the Willamette River. The results of this study may affect the timing and designs of some improvements within Alternative 7.
3. **Access between I-5 and the southern arterial must be resolved.** The alternatives development and analysis process determined the general corridor location for the new southern arterial. However, additional preliminary engineering work is needed to determine the optimal access option and configuration for connecting the southern arterial to I-5. Construction of the southern arterial should be conditioned on defining the I-5 improvements needed to accommodate it. Options to be explored include modifying the I-5/North Wilsonville Interchange into a tight split-diamond interchange, or extending a new arterial over I-5 and connecting to Elligsen Road on the east side of I-5.
4. **Completion and construction of major project elements is subject to compliance with the National Environmental Policy Act (NEPA) and design refinement.** The Alternative 7 concept provides only the general locations and functional characteristics of new transportation facilities. A fully collaborative public/agency involvement and environmental analysis process must be conducted in developing the design details of any major construction element of Alternative 7. Subsequent project development work will need to define the actual alignments and designs of each of these facilities within the framework of these general parameters. On-going coordination with the Tualatin River National Wildlife Refuge must also occur to ensure optimum compatibility of Alternative 7 elements with refuge objectives.
5. **Land Use Concept Planning will have to be completed by local governments to conform to the Alternative 7 decision.** Local governments need to complete concept plans that incorporate Alternative 7 elements for lands that are: a) within the Metro UGB, and b) within the project area and are not incorporated, and c) in areas where concept planning has not yet commenced.
6. **The design of the southern arterial; must incorporate any conditions that may come out of land use goal exceptions processes (if required) by Metro, Washington County, and Clackamas County.** Portions of Alternative 7 may require exceptions under state land use goals in order to be adopted in the RTP and to achieve needed federal and jurisdictional approvals. The extent of this issue may be affected by Metro's coming decisions on rural/urban land use reserves. Portions of proposed new transportation facilities are outside Metro's jurisdictional boundaries and will require coordination of actions between Metro and other affected jurisdictions. Possible design requirements may include forms of access management and land use control measures.
7. **State highway system routing and ODOT mobility standards must be key considerations in the design and future ownership of improvements within Alternative 7.** Current RTP assumptions are that a new limited-access connector would be built between I-5 and 99W, and that this roadway would become the new state route, possibly replacing OR 99W through Tigard. Alternative 7 does not result in a limited-access connector, which may result in OR 99W remaining the designated state highway route through Sherwood, King City and Tigard.

8. **Strategic protection of right-of-way should be considered by agencies for the Alternative 7 elements within the UGB and along potential alignments where land development could conflict with the future implementation of corridor improvements.** Protective measures could include property setbacks, dedication of right-of-way, specific acquisition(s), and/or right-of-way purchases consistent with NEPA process.

The Development of Alternative 7

The June 2008 I-5 to 99W Connector Project Alternatives Analysis (AA) evaluated a range of six alternatives including a No-Build. A series of public hearings were held following the AA document's release. Based on consideration of input from the public hearings and subsequent direction from the PSC, a seventh alternative was identified for study. This alternative (Alternative 7) is a combination of key features represented in the original five build alternatives.

The PSC direction to the project team was, in a broad sense, to look for a hybrid solution drawing from elements of the Build Alternatives considered in the AA but creating a transportation network rather than relying on a single expressway corridor to address the project purpose and need. The PSC was also concerned about the magnitude and cost of collector/distributor improvements along I-5 to support an expressway connection. The project team's response to this direction led to a strategy of creating three arterial-level corridors that would disperse regional travel between I-5 and OR 99W rather than concentrating it in one connector corridor. The distribution of traffic between these east-west arterial corridors was further enhanced by adding a new north-south arterial (124th Extension). By dispersing the east-west traffic to the three existing interchanges on I-5, the need for an extensive collector/distributor system on I-5 is no longer essential to the performance of this project.

Alternative 7 draws from the five build alternatives studied in the AA and incorporates many projects already identified in the RTP and local Transportation System Plans (TSPs). All of the Transportation Demand Management/Transportation System Management (TDM/TSM) measures contained in Alternative 2 are incorporated in Alternative 7. Many of the roadway improvements as well as the commuter rail extension between Tualatin and Sherwood in Alternative 3 and in adopted plans are also included. Although the expressway-type approaches of Alternatives 4, 5, and 6 were not included, the respective alignments of these facilities and some of their functional characteristics were adapted for use in Alternative 7.

Analysis of Alternative 7

At the direction of the PSC, Alternative 7 was analyzed to compare its transportation performance and effects on the natural and built environments with the other build alternatives studied in the AA. The results of these evaluations are summarized in the attached matrix (Table 2).

Alternatives 1 (No Build) and 2 (TDM/TSM) would not effectively address the project purpose. In general, Alternative 7 addresses the project's purpose as well or better than Alternatives 3, 4, 5, and 6 while having less adverse effects on the human and natural environment. The reduced environmental effects are generally attributed to Alternative 7's smaller area of potential impact (API) or spatial footprint. The main reasons for the reduced footprint are:

- Additional roadways and structures along I-5 would be minimized compared to Alternatives 4, 5, and 6 (the connector alternatives). Alternative 7 would include auxiliary lanes, built within the existing ODOT right-of-way (as modeled for Alternative 3). In contrast, the connector alternatives included an extensive collector-distributor system along I-5 as well as improvements to existing interchanges.
- The southern arterial modeled for Alternative 7 was developed under the assumption that there would be signalized, surface intersections rather than more spatially-intensive grade-separated interchanges.
- The connector alternatives were modeled under the assumption that they would be compatible with expressway design requirements. By changing to an arterial, narrower design widths may be possible.
- Alternative 7 would have a smaller total footprint than Alternative 3, which may seem counter-intuitive since it includes a southern arterial alignment. However, a majority of the 15 road extension and/or widening projects assumed for Alternative 3 are not included in Alternative 7 (e.g., Avery Street, Adams Street, Sagert Street, and OR 99W improvements) and the collective impact area of these elements would exceed that of the southern arterial.

Attachments (3)

Table 1. Alternative 7 Project Elements with Planning-Level Cost Estimates

Road	Location and General Description of Action	Conceptual Costs in $ millions (2008 dollars)
Northern Arterial Project Elements		
Tualatin Road/Lower Boones Ferry Road	Extend Tualatin Rd. as 5-lane arterial east across the Tualatin River from Herman Rd. to Lower Boones Ferry Rd. (LBFR). Widen LBFR to 5 lanes from extension to 72nd Ave.	$95
SW Herman Road	Construct 3-lane extension of Herman Rd. between Tualatin Rd. and OR 99W	$30
SW Bradbury Court	Construct new east-west connection across I-5 to 72nd Ave. on Bradbury Ct. alignment	$20
Central Arterial Project Elements		
Tualatin–Sherwood and Roy Rogers Road	• Widen Tualatin-Sherwood Rd. (TSR) to 5 lanes from OR 99W to SW 124th Ave.	$25
	• Widen Roy Rogers Rd. between Borchers Rd. and OR 99W to 5-lanes	$5
Tualatin–Sherwood Road	Widen TSR to 5 lanes from SW 124th Ave. to Teton Ave.	$20
Southern Arterial		
Southern Arterial/Interstate 5 interface	Complete either a tight split diamond N. Wilsonville Interchange or a new I-5 over-crossing with 2-lane road connecting southern arterial to Elligsen Rd. east of I-5 and associated connection improvements	$50
Boones Ferry Road	• Widen Boones Ferry Rd. to 5-lanes between new southern arterial and Day Rd.	$5
Southern Arterial	• Purchase ROW for 5-lane arterial (OR 99W to I-5) • Construct a new 2-3 lane arterial (OR 99W to I-5) • Widen arterial to 5-lanes (OR 99W to I-5)	$100 $120 $70
	• Improve Commerce Circle/95th Ave. and Boones Ferry Rd. intersection	$5
Other Alternative 7 Elements		
TSM / TDM	Regional Trail System, Bike Lanes, Sidewalks & Bus Stops	$30
Commuter Rail	Commuter rail extension to Sherwood	$40
Interstate 5	Add auxilliary lanes to I-5 between I-205 and Elligsen Interchange (assumes Norwood over-crossing replacement)	$30
SW 124th Avenue	• Purchase ROW for 5-lane arterial (TSR to southern arterial) • Extend 124th Avenue as a 2-3 lane roadway between TSR and Tonquin Road • Widen and extend 124th Avenue as a 4-5 lane roadway between TSR and the southern arterial	$5 $45 $20
	Total Costs	**$715**

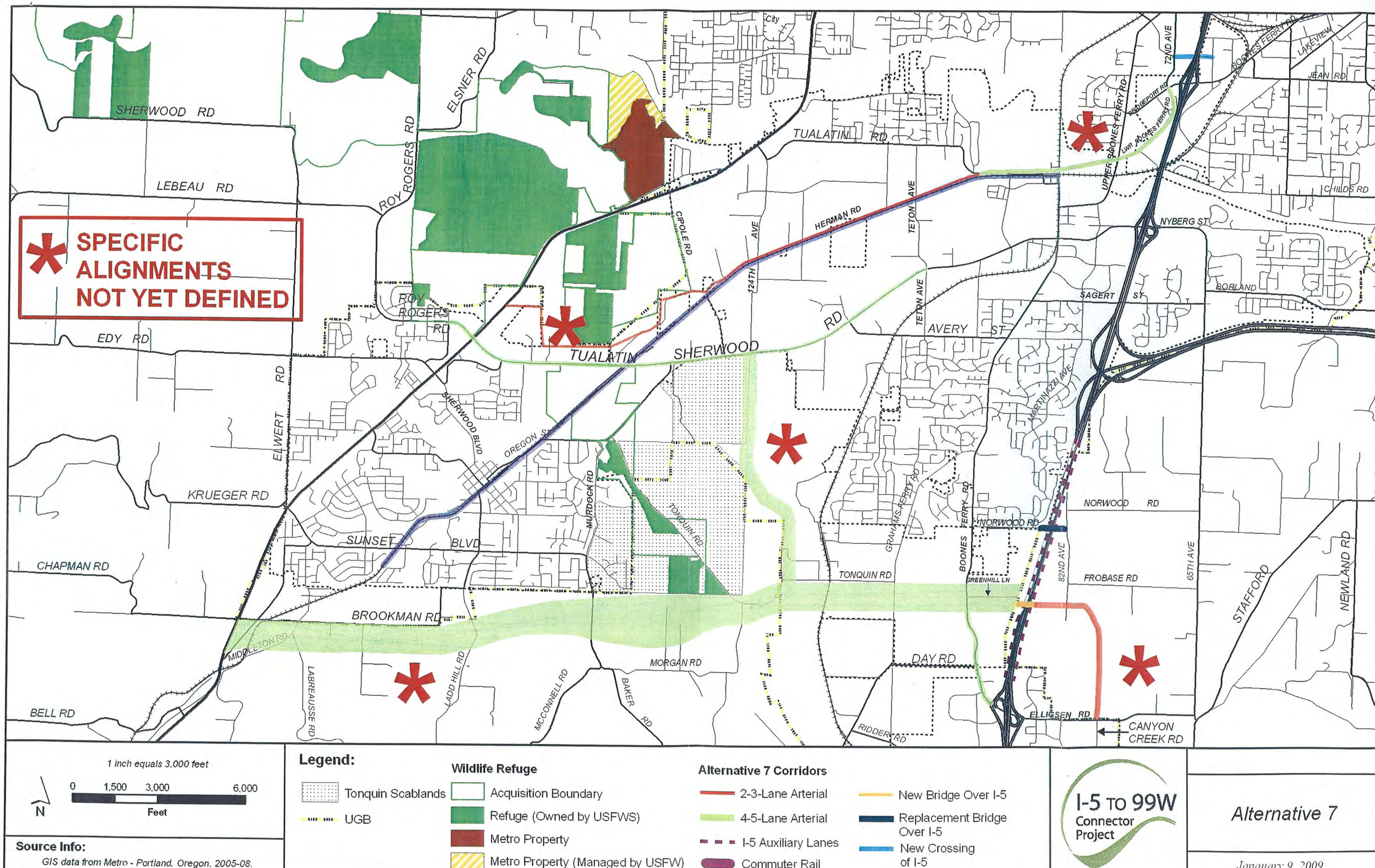
At their meeting on February 25, 2009, the PSC agreed on the following conditions as amended from those presented to them in the Alternative 7 Recommendation Memorandum dated February 17, 2009 to accompany the RTP recommendation of Alternative 7:

1. **Future phasing plans for implementing Alternative 7 projects must take into consideration the transportation, environmental, and economic impacts of advancing some improvements sooner than others.** The sequencing of affordable improvements should be done in a manner that does not create new transportation problems or liabilities for the vitality of affected jurisdictions.
2. **The timing and priority of an I-5 corridor study must be considered in the RTP adoption process for Alternative 7.** The connector project development process emphasized the need for a corridor study along I-5 from Portland to the Willamette River. The results of this study may affect the timing and designs of some improvements within Alternative 7.
3. **Access between I-5 and the southern arterial mnst be resolved.** Additional study is required to fully understand the impacts and trade offs between transportation solutions and land use, economic and environmental consequences of a new southern arterial. The impacts on rural lands are of particular importance and must be further evaluated before pursuing an exceptions process. The study area may need to be expanded to include connections to Stafford Road and additional areas along the OR 99W corridor that were not included in the alternatives analysis. The alternatives analysis process determined the general corridor location for the new southern arterial. However, additional preliminary engineering and planning work is needed to determine the optimal access option and configuration for connecting the southern arterial to I-5, OR 99W, and other arterials in the expanded study area. Construction of the southern arterial should be conditioned on defining the I-5 improvements needed to accommodate it and ensuring no negative impacts to I-5 and I-205 occur beyond the forecast No-Build condition as a result of Alternative 7. Options to be explored include modifying the I-5/North Wilsonville Interchange into a tight split-diamond interchange, or extending a new arterial connection crossing over I-5 and connecting to Stafford Road and/or Elligsen Road on the east side of I-5 for regional traffic benefits.
4. **Completion and construction of major project elements is subject to compliance with the National Environmental Policy Act (NEPA) and design refinement.** The Alternative 7 concept provides only the general locations and functional characteristics of new transportation facilities. A fully collaborative public/agency involvement and environmental analysis process must be conducted in developing the design details of any major construction element of Alternative 7. Subsequent project development work will need to define the actual alignments and designs of each of these facilities within the framework of these general parameters. On-going coordination with the Tualatin River National Wildlife Refuge must also occur to ensure optimum compatibility of Alternative 7 elements with refuge objectives.
5. **Land Use Concept Planning for UGB expansion areas should be coordinated with the refinement of these transportation recommendations.**
6. **The design of the southern arterial; must incorporate any conditions that may come out of land use goal exceptions processes (if required) by Metro, Washington County, and Clackamas County.** Portions of Alternative 7 may require exceptions under state land use goals that have not yet been studied or approved in order to be adopted in the RTP and to achieve needed federal and jurisdictional approvals. The extent of this issue may be affected by Metro's coming decisions on rural/urban land use reserves. Portions of proposed new transportation facilities are outside Metro's jurisdictional boundaries and will require coordination of actions between Metro and other affected jurisdictions. Possible design requirements may include forms of access management and land use control measures.
7. **State highway system routing and ODOT mobility standards must be key considerations in the design and future ownership of improvements within Alternative 7.** Current RTP assumptions are that a new limited-access connector would be built between I-5 and 99W, and that this roadway would become the new state route, possibly replacing OR 99W through Tigard. Alternative 7 does not result in

a limited-access connector, which may result in OR 99W remaining the designated state highway route through Sherwood, King City and Tigard.

8. **Strategic protection of right-of-way should be considered by agencies for the Alternative 7 elements within the UGB and along potential alignments where land development could conflict with the futnre implementation of corridor improvements.** Protective measures could include property setbacks, dedication of right-of-way, specific acquisition(s), and/or right-of-way purchases within the UGB consistent with NEPA process.

Following agreement on the above conditions, PSC representatives of Washington County, ODOT, Metro, and the cities of Tualatin and Sherwood voted in favor of recommending Alternative 7 with the conditions as amended above. PSC representatives of the City of Wilsonville and Clackamas County voted against this recommendation.



SPECIFIC ALIGNMENTS NOT YET DEFINED
SHERWOOD RD
LEBEAU RD
EDY RD
ELWERT RD
KRUEGER RD
CHAPMAN RD
BELL RD
BROOKMAN RD
MIDDLETON RD
LABREAUSSE RD
LADD HILL RD
MCCONNELL RD
BAKER RD
MORGAN RD
ELSNER RD
ROY ROGERS RD
CIPOLE RD
124TH AVE
TUALATIN RD
HERMAN RD
TETON AVE
TUALATIN SHERWOOD RD
SHERWOOD BLVD
OREGON ST
SUNSET BLVD
MURDOCK RD
TONQUIN RD
AVERY ST
GRAHAMS FERRY RD
BOONES FERRY RD
MARTINAZZI AVE
SAGERT ST
NORWOOD RD
GREENHILL LN
DAY RD
RIDDER RD
ELLIGSEN RD
CANYON CREEK RD
82ND AVE
FROBASE RD
65TH AVE
STAFFORD
NEWLAND RD
72ND AVE
UPPER BOONES FERRY RD
LWR BOONES FERRY RD
BRIDGEPORT RD
LAKEVIEW
JEAN RD
CHILDS RD
NYBERG ST
BORLAND
City
1 inch equals 3,000 feet
0 1,500 3,000 6,000
Feet
N
Source Info:
GIS data from Metro - Portland, Oregon. 2005-08.
Legend:
Tonquin Scablands
UGB
Wildlife Refuge
Acquisition Boundary
Refuge (Owned by USFWS)
Metro Property
Metro Property (Managed by USFW)
Alternative 7 Corridors
2-3-Lane Arterial
4-5-Lane Arterial
I-5 Auxiliary Lanes
Commuter Rail
New Bridge Over I-5
Replacement Bridge Over I-5
New Crossing of I-5
I-5 TO 99W Connector Project
Alternative 7
January 9, 2009

6136

METRO

Appendix 3.4 2035 Regional Transportation Plan
Columbia River Crossing Locally Preferred Alternative

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF ENDORSING THE LOCALLY PREFERRED ALTERNATIVE FOR THE COLUMBIA RIVER CROSSING PROJECT AND AMENDING THE METRO 2035 REGIONAL TRANSPORTATION PLAN WITH CONDITIONS	))))))	RESOLUTION NO. 08- 3960B Introduced by Councilor Burkholder

WHEREAS, the Oregon and Washington sides of the metropolitan region are linked by critical transportation infrastructure vital to each community along the Columbia River; and,

WHEREAS, the I-5 Interstate bridge is a key transportation link that has national and international importance for freight and auto movement; and,

WHEREAS, the I-5 Interstate bridge carries approximately 130,000 people daily by car, truck, bus, bicycle and on foot; and,

WHEREAS, the CRC Draft Environmental Impact Statement (DEIS) analysis found that the segment of I-5 in the vicinity of the Columbia River has extended peak-hour travel demand that exceeds capacity, includes bridge spans that are over 50 and 90 years old and that do not meet current traffic safety or seismic standards, and,

WHEREAS, techniques to improve peak truck freight movement times along with bridge and highway improvements would help support and improve the economy of the region and beyond; and,

WHEREAS, the greatest inhibition to the predictable flow of truck freight is single-occupancy automobile commuting, and according to the CRC analysis, in the absence of tolling, other demand management, and good public transit service the growth of such automobile commuting will contribute to the costs of truck delay; and,

WHEREAS, travel by transit between Portland and Vancouver currently must share a right-of-way with autos and trucks; and,

WHEREAS, the bicycle and pedestrian facilities for crossing the Columbia River along I-5 do not meet current standards, that demand for such facilities is expected to increase, and that experience on Portland bridges has proven that when safe bicycle facilities are provided, ridership grows dramatically; and,

WHEREAS, the CRC DEIS states that in the absence of tolls, absence of effective high-capacity transit service, and absence of safe bicycle and pedestrian facilities, automobile traffic and its resulting emissions and impact on climate change would continue to grow faster with the “no build” option than such automobile traffic and emissions would grow with the replacement bridge option that does include tolls, effective transit, and safe bicycle and pedestrian facilities; and,

WHEREAS, because of high demand and because only two road crossings of the Columbia River exist in the metropolitan region, the I-5 and I-205 corridor is very well situated for tolling, a revenue source and management tool currently not feasible for many other projects vying for public funds; and, WHEREAS, consideration should be given to potential diversion of traffic from tolling I-5 alone to I-205 and should consider tolling I-5 and I-205 with use of the revenue for both I-5 and I-205 in the Portland-Vancouver metropolitan area; and,

WHEREAS, the states of Oregon and Washington have both established aggressive climate change strategies that include significant reductions in vehicle miles traveled and/or greenhouse gas emissions during the expected life of a CRC project; and,

WHEREAS, in Washington State the goal is to reduce vehicle miles traveled by 50 percent by 2050 and in Oregon the goal is to reduce greenhouse gas emissions by 75 percent below 1990 levels by 2050; and,

WHEREAS, the Oregon Governor's Climate Change Integration Group in its final report dated January 2008 state that "reducing vehicle miles traveled is the single most effective way to reduce greenhouse gas emissions", and,

WHEREAS, the reduction of greenhouse gas emissions is a regional goal that the Metro Council has directed that methods of decreasing such emissions be identified and pursued; and,

WHEREAS the Metro Council has concurred with the Governor's Climate Change Integration Group that reducing vehicle miles traveled is the single most effective means of reducing greenhouse gas emissions; and,

WHEREAS, high capacity transit, as well as walking and biking reduce vehicle miles travelled and reduce greenhouse gas emissions; and,

WHEREAS, the Metro region and the Federal Transit Administration have made extensive investments in high capacity transit, especially light rail transit, as the preferred high capacity transit mode in most corridors in the region, including the Interstate MAX LRT line to the Expo Center, about 1 mile from Vancouver, Washington and adjacent to Interstate 5; and,

WHEREAS, on November 14, 2002 the Metro Council approved Resolution 02-3237A, For the Purpose of Endorsing the I-5 Transportation and Trade Study Recommendations, that supported a multimodal project including light rail transit (LRT) and either a new supplemental or replacement I-5 bridge; and,

WHEREAS, the I-5 Transportation and Trade Study also included recommendations to widen I-5 to three lanes between Delta Park and Lombard, address finance issues, use travel demand tools including pricing (tolls), address environmental justice through use of a community enhancement fund, coordinate land use to avoid adverse impacts to transportation investments and improve heavy rail; and,

WHEREAS, in its October 19, 2006 letter to the CRC Task Force, the Council stated that "all transportation alternatives be evaluated for their land use implications…[because] added lanes of traffic …will have an influence on settlement patterns and development"; and,

WHEREAS, the CRC Task Force's endorsement of a locally preferred alternative is one "narrowing" step in a multi-step process and is an important opportunity for the Metro Council to articulate its concerns which will be weighed at this and subsequent steps; and, WHEREAS, in its October 19, 2006 letter to the CRC Task Force, the Council stated that Metro "will need to work closely with you as your project proceeds and as the RTP policies are developed to ensure that your proposals are consistent with our new policies."; and,

WHEREAS, the CRC Task Force, a 39 member advisory committee, has met regularly for over two years creating a project purpose and need, evaluation criteria and alternatives; and,

WHEREAS, a draft environmental impact statement has been completed that assesses the potential impacts of the project alternatives including a No Build, replacement and supplemental bridge options and bus rapid transit and light rail transit as well as bicycle and pedestrian facilities; and,

WHEREAS, a Replacement Bridge, unlike a Supplemental Bridge and/or rehabilitating and keeping the existing bridges, could improve safety by providing travel lane designs that meet safety standards including improved sight distance, greater lane widths, improved road shoulders and would eliminate bridge lifts which are indirectly a major cause of rear end accidents on and near the bridge; and,

WHEREAS, a Replacement Bridge, unlike a Supplemental Bridge, would reduce auto and truck delays that result from bridge openings; and,

WHEREAS, a Replacement Bridge, unlike a Supplemental Bridge, could improve the seismic safety of those crossing the river by auto and truck, reducing the potential for economic disruption as a result of restricted truck freight movement from seismic damage as well as reduce the potential for river navigation hazards created by seismic events; and,

WHEREAS, high capacity transit in an exclusive right-of-way would provide greatly improved transit service with much better schedule reliability and service than mixed-use traffic operation; and,

WHEREAS, LRT would produce higher total transit ridership in the corridor than BRT; and,

WHEREAS, LRT is more cost effective than Bus Rapid Transit (BRT), and is about one-half as expensive to operate per transit rider crossing the river; and,

WHEREAS, the Metro Council held a public hearing about the CRC project alternatives on June 5, 2008 and,

WHEREAS, on June 5, 2008, the Metro Council approved Resolution No. 08-3938B For the Purpose of Providing Metro Council Direction to its Delegate Concerning Key Preliminary Decisions Leading to a Future Locally Preferred Alternative Decision for the Proposed Columbia River Crossing Project and that the Metro Council concluded in this resolution its support for a Columbia River Crossing (CRC) Project with light rail, a replacement bridge with three through lanes and tolls for travel demand management and ongoing funding but also included substantial conditions; and,

WHEREAS, the CRC Task Force has recommended a locally preferred alternative that includes light rail transit and a replacement bridge; and,

WHEREAS, on December 13, 2007, the Metro Council approved Resolution No. 07-3831B, For the Purpose of Approving the Federal Component of the 2035 Regional Transportation Plan (RTP) Update, Pending Air Quality Conformity Analysis, and the adopted 2035 Regional Transportation Plan (RTP), Financially Constrained System Project list includes Metro project number 10866, "Improve I-5/Columbia River bridge (Oregon share)" with $74 million year of expenditure reserved for preliminary engineering and right-of-way acquisition, but does not include funds for project construction; and, WHEREAS, on February 28, 2008, the Metro Council adopted Resolution No. 08-3911, For the Purpose of Approving the Air Quality Conformity Determination for the Federal Component of the 2035 Regional Transportation Plan and Reconforming the 2008-2011 Metropolitan Transportation Improvement Program, and this air quality conformity included the CRC project, highway and light rail transit; and,

WHEREAS, the CRC Project is projected to cost between $3.5 and 3.7 billion dollars; and,

WHEREAS, a revenue forecast has been completed using best available information that shows revenue sources that could fund the project; and,

WHEREAS, the Metro 2035 RTP does not currently include a description of the proposed locally preferred alternative for the CRC Project as supported by the Metro Council; and,

WHEREAS, state law provides for land use final order to address meeting the potential land use impacts of light rail and related highway improvements in the South/North corridor of which the I-5 bridge is a part; and,

WHEREAS, at its meeting on July 10, 2008, the Joint Policy Advisory Committee on Transportation recommended approval of the following; now therefore,

BE IT RESOLVED that the Metro Council:

1. Continues to support a balanced multi-modal approach of highway, high capacity transit, freight movement, transportation demand management and bicycle and pedestrian improvements in the Columbia River Crossing corridor, as well as compact land use development patterns with a mixture of uses and types of housing which minimize long commutes and reduce our citizen’s automobile dependence.
2. Supports a Columbia River Crossing locally preferred alternative:
    a. a replacement bridge with three northbound and three southbound through lanes, with tolls used both for finance and for demand management, as the preferred river crossing option,

    b. light rail as the preferred high capacity transit option, extending light rail from the Expo Center in Portland, Oregon across Hayden Island adjacent to I-5 to Vancouver, Washington,

    c. a light rail terminus in Vancouver, Washington.
3. Finds that the following concerns and considerations will need to be addressed as described in Exhibit A, attached. Metro will invite public review and discussion on the issues raised in Exhibit A.
4. Amends the Metro 2035 Regional Transportation Plan, Appendix 1.1, Financially Constrained System, Project Number 10866 to read: “Improve I-5/Columbia River bridge in cooperation with

ODOT and WSDOT with light rail transit, reconstructed interchanges and a replacement bridge with three through lanes in each direction and tolls designed to manage travel demand as well as provide an ongoing funding source for project construction, operations and maintenance." Further, amends the Project amount to read: "A range of between \$3.5 and \$3.7 billion."

5. Amends the Metro Appendix 1.2, "2035 RTP Other Projects Not Included in the Financially Constrained System", deleting Project number 10893, "Improve I-5/Columbia River bridge (Oregon Share)" and deleting Project number 10902, "CRC – Expo to Vancouver, north on Main to Lincoln", as these projects are now included in the Financially Constrained System.
6. Amends the Metro 2035 RTP, Chapter 5, Financial Plan, by adding Section 5.3.4, CRC Funding Assumptions, attached as Exhibit B.
7. Amends the Metro 2035 RTP, Chapter 7, Implementation, amending Section 7.7.5, Type I- Major Corridor Refinements, Interstate-5 North (I-84 to Clark County) as described in Exhibit C, attached.
8. Defers the determination of the number of auxiliary lanes to a subsequent amendment of the 2035 RTP, based on additional analysis.
9. Acknowledges that a land use final order for addressing land use consistency for the Oregon side of the Project is being prepared and will be submitted to the Council for approval in Fall 2008.

ADOPTED by the Metro Council this 17th day of July, 2008.

David Bragdon, Council President

Approved as to Form:

Daniel B. Cooper, Metro Attorney

Officially Approved
Approvato Ufficialmente
METRO COUNCIL
Consiglio Metropolitano
Metro Council

RESOLUTION O8-3960B
Exhibit A

Metro Council Concerns and Considerations
Columbia River Crossing "Locally Preferred Alternative"

The Metro Council recognizes that endorsement of a "Locally Preferred Alternative" is one important narrowing step that enables the project management team to proceed with further analysis of a reduced range of alternatives. The Council is cognizant that many important issues are generally still unresolved at the time of endorsement of an LPA, but that clear articulation of concerns is required to make sure that such unresolved issues are appropriately resolved during the next phase of design, engineering, and financial planning, with proper participation by the local community and its elected representatives. If those sorts of outstanding issues are not satisfactorily resolved during that post-LPA selection phase, then the project risks failing to win the approval of necessary governing bodies at subsequent steps of the process.

While the Metro Council endorses the LPA, Replacement Bridge with Light Rail and Tolls, as described in Resolution 08-3960A, the Metro Council simultaneously finds that the following issues will need to be satisfactorily addressed in the upcoming refinement of design, engineering and financial planning:

FORMATION OF A LOCAL OVERSIGHT COMMITTEE TO SUCCEED THE TASK FORCE

The Metro Council concluded on June 5, 2008 through Resolution 08-3938B that further oversight of the project is needed once the Task Force's work is concluded. The Council suggested that the Governors of Oregon and Washington convene such a local oversight group. On June 19, 2008, the Governors issued a joint letter that concluded there is a need to reconvene the CRC Project Sponsor's Council as the oversight committee to succeed the Task Force, including representatives from Washington State Department of Transportation, the Oregon Department of Transportation, cities of Portland and Vancouver, Metro, the Southwest Washington RTC, TriMet and CTRAN. The Governors charged the committee with advising the two departments of transportation and two transit agencies on a consensus basis to the greatest extent possible regarding the major issues requiring further oversight and resolution.

PROJECT ISSUES REQUIRING LOCAL OVERSIGHT DURING PLANNING, DESIGN, ENGINEERING, FINANCE AND CONSTRUCTION

The Governors have charged the Project Sponsors Council with project oversight on the following issues, milestones and decision points:

1) Completion of the Environmental Impact Statement (EIS),
2) Project design, including, but not limited to: examining ways to provide an efficient solution that meets safety, transportation and environmental goals,
3) Timelines associated with project development,
4) Development and use of sustainable construction methods,
5) Ensuring the project is consistent with Oregon and Washington's statutory reduction goals for green house gas emissions, and
6) A finance plan that balances revenue generation and demand management, including the project capital and operating costs, the sources of revenue, impact to the funds required for other potential expenditures in the region.

The Metro Council has identified additional areas of concern that need to be addressed by the Project Sponsors Council as the project moves forward:

A. TOLLING

Implementation of tolls on the existing I-5 Bridge should be undertaken as soon as legally and practically permissible. Consideration should be given to potential diversion of traffic to I-205 and potential tolling I-5 and I-205 with those revenues potentially used for projects on these two facilities in the Portland-Vancouver metropolitan area.

B. NUMBER OF AUXILIARY LANES

Determine the number of auxiliary lanes in addition to the three through lanes in each direction on the replacement bridge across the Columbia River and throughout the bridge influence area.

C. IMPACT MITIGATION AND COMMUNITY ENHANCEMENT

Identify proposed mitigation for any potential adverse human health impacts related to the project and existing human health impacts in the project area, including community enhancement projects that address environmental justice.

D. DEMAND MANAGEMENT

Develop of state-of-the-art demand management techniques in addition to tolls that would influence travel behavior and reduce greenhouse gas emissions.

E. FINANCING PLAN

A detailed financing plan showing costs and sources of revenue must be proposed and presented to the partner agencies and to the public. The proposed financing plan should indicate how the federal, state and local (if any) sources of revenue proposed to be dedicated to this project would impact, or could be compared to, the funds required for other potential expenditures in the region.

F. CAPACITY CONSIDERATIONS, INDUCED DEMAND AND GREENHOUSE GASES

Further analysis is required of the greenhouse gas and induced automobile demand forecasts for this project. The results of the analysis must be prominently displayed in the Final Environmental Impact Statement. The analysis should include comparisons related to the purpose and function of the so-called "'auxiliary" lanes. A reduction in vehicle miles traveled should be pursued to support stated greenhouse gas reduction targets as expressed by legislation in Oregon and Washington and by the Governors.

G. PRESERVATION OF FREIGHT ACCESS

The design and finance phase of the CRC project will need to describe specifically what physical and fiscal (tolling) methods will be employed to ensure that trucks are granted a priority which is commensurate with their contributions to the project and their important role in the economy relative to single-occupancy automobile commuting. Ensure that freight capacity at interchanges is not diminished by industrial land use conversion.

H. LIGHT RAIL

As indicated in the Item 2 "resolved" in the body of the resolution, the Metro Council's endorsement of the LPA categorically stipulates that light rail must be included in any phasing package that may move forward for construction.

I. DESIGN OF BICYCLE AND PEDESTRIAN FACILITIES
More detailed design of bicycle and pedestrian facilities is required to inform the decisions of the local oversight panel described above. The project should design "world class" bicycle and pedestrian facilities on the replacement bridge, bridge approaches and throughout the bridge influence area that meet or exceed standards and are adequate to meet the demand generated by tolls or other demand management techniques.

J. URBAN DEVELOPMENT IMPACTS AT RE-DESIGNED INTERCHANGES
More design of the interchanges related to the CRC is required to fully evaluate their community impact. The design of interchanges within the bridge influence area must take into account their impact on urban development potential. The Metro Council is also concerned that the Marine Drive access points preserve and improve the functionality of the Expo Center.

K. BRIDGE DESIGN
The bridge type and aesthetics of the final design should be an important consideration in the phase of study that follows approval of the LPA and precedes consideration of the final decision.

Chapter 5, Financial Plan of the Metro 2035 RTP, Federal Component is amended by adding the following new section:

5.3.4 Columbia River Crossing Funding Assumptions

The Columbia River Crossing (CRC) Project is a collaboration of Oregon Department of Transportation, Washington State Department of Transportation, Metro, the Southwest Washington Regional Transportation Council, TriMet and CTRAN as well as the cities of Portland and Vancouver.

The CRC Project is a national transportation priority as it has been designated a "Corridor of the Future" by the Federal Highway Administration (FHWA). The Project will seek FHWA funding from this program category and other appropriate sources. Accordingly, the FHWA has indicated that it is a high priority to address the safety and congestion issues related to the segment of Interstate 5 between Columbia Boulevard north to State Route 500 in Vancouver, Washington.

The Federal Transit Administration (FTA) awards transit capital construction grants on a competitive basis. The CRC project will be submitting an application to the FTA for entry into Preliminary Engineering and eventually for a full funding grant agreement. The Metro region has been highly successful in securing FTA funds and it is considered reasonable, based on early cost-effectiveness rating analyses, that the high capacity transit component of the CRC Project will secure the $750 million in federal transit funding shown in the table below.

In addition, the Governors of Oregon and Washington have stated their commitment to work with their respective state legislatures to provide state funds to add to federal funding.

Also, tolling is another unique source of funding for the project. It would be a substantial transportation demand management tool as well as providing a significant revenue source. The DEIS states that tolls may supply 36 – 49% of the capital revenues for the highway elements of the project.

Finally, the state of Washington has accumulated credits from tolls imposed on other projects in the state that can be used as local match for federal funds. The state has indicated support for using a portion of these credits for the transit component of this project.

These funding sources for the total project may be summarized as follows (all figures in millions of dollars):

Columbia River Crossing – Total Project Costs
(both Oregon and Washington sides)

Costs		Low	High
Highway		$2,773	$2,920
Transit		750	750
	Total	$3,523	$3,670

Revenues		Low	High
Toll Bond Proceeds		$1,070-$1,350	$1,070 - 1,350
Federal Discretionary Highway		400- 600	400 - 600
State Funds		823-1,303	970 - 1,450
New Starts		750	750
Toll Credits		188	188
	Total	$3,523	$3,670

Chapter 7, Implementation of the Metro 2035 Regional Transportation Plan, (Federal Component), Implementation (page 7-34) is amended as follows:

Interstate-5 North (I-84 to Clark County)

This heavily traveled route is the main connection between Portland and Vancouver. The Metro Council has approved a Locally Preferred Alternative for the Columbia River Crossing (CRC) project that creates a multi-modal solution for the Interstate 5 corridor between Oregon to Washington to address the movement of people and freight across the Columbia River. A replacement bridge with three through lanes in each direction, reconstructed interchanges, tolls priced to manage travel demand as well as provide financing of the project construction, operation and maintenance, light rail transit to Vancouver, and bicycle and pedestrian investments have been identified for this corridor. As project details are evaluated and implemented in this corridor, the following shall be brought back to JPACT and the Metro Council for a subsequent RTP amendment for this Project:

- the number and design of auxiliary lanes on the I-5 Columbia River bridge and approaches to the bridge, including analysis of highway capacity and induced demand.

More generally in the I-5 corridor, the region should:

- consider the potential adverse human health impacts related to the project and existing human health impacts in the project area, including community enhancement projects to address environmental justice.

- consider managed lanes

- maintain an acceptable level of access to the central city from Portland neighborhoods and Clark County

- maintain off-peak freight mobility, especially to numerous marine, rail and truck terminals in the area

- consider new arterial connections for freight access between Highway 30, port terminals in Portland and port facilities in Vancouver, Wa.

- maintain an acceptable level of access to freight intermodal facilities and to the Northeast Portland Highway

- construct interchange improvements at Columbia Boulevard to provide freight access to Northeast Portland Highway

- address freight rail network needs

- develop actions to reduce through-traffic on MLK and Interstate to allow main street redevelopment

- provide recommendations to the Bi-State Coordination Committee prior to JPACT and Metro Council consideration of projects that have bi-state significance.

STAFF REPORT

IN CONSIDERATION OF RESOLUTION NO. 08-3960B, FOR THE PURPOSE OF ENDORSING THE LOCALLY PREFERRED ALTERNATIVE FOR THE COLUMBIA RIVER CROSSING PROJECT AND AMENDING THE METRO 2035 REGIONAL TRANSPORTATION PLAN WITH CONDITIONS

Date: June 26, 2008

Prepared by: Richard Brandman
Ross Roberts
Mark Turpel

BACKGROUND

Overview

The Columbia River Crossing (CRC) is a proposed multimodal bridge, transit, highway, bicycle and pedestrian improvement project sponsored by the Oregon and Washington transportation departments in coordination with Metro, TriMet and the City of Portland as well as the Regional Transportation Council of Southwest Washington, CTRAN and the City of Vancouver, Washington. (More detailed project information may be found at: http://www.columbiarivercrossing.org/)

The CRC project is designed to improve mobility and address safety problems along a five-mile corridor between State Route 500 in Vancouver, Washington, to approximately Columbia Boulevard in Portland, Oregon, including the Interstate Bridge across the Columbia River.

The project would be funded by a combination of Federal Transit Administration (FTA) New Starts funding for the transit component, Federal Highway Administration (FHWA) funding for highway, freight, bicycle and pedestrian improvements, with local match being provided by the states of Oregon and Washington through toll credits and other funding. Tolls are also proposed for a new I-5 bridge to pay for a portion of the capital project and manage transportation demand.

Guiding the project is a 39 member CRC Task Force, of which Councilor Burkholder serves as the Metro representative. On June 5, 2008, the Metro Council approved policy guidance for Councilor Burkholder as its CRC Task Force member in the formulation of the draft locally preferred alternative (LPA) (after consideration of public testimony and review of options for a LPA). On June 24, the CRC Task Force approved recommendations for a LPA for the project sponsor agencies (including Metro) consideration.

Accordingly, the attached Resolution No. 08-3960B will provide for Metro Council consideration of:

1) Adoption of a CRC LPA.
2) Amendment of the federal component of the Metro 2035 Regional Transportation Plan (RTP).
3) Statement of additional Metro Council concerns and considerations regarding the Project.

Project History

The CRC Project history began in 1999, with the Bi-State Transportation Committee recommendation that the Portland/Vancouver region initiate a public process to develop a plan for the I-5 Corridor based on four principles:

- Doing nothing in the I-5 Corridor is unacceptable;
- There must be a multi-modal solution in the I-5 Corridor - there is no silver bullet;

- Transportation funds are limited. Paying for improvements in the I-5 Corridor will require new funds; and,
- The region must consider measures that promote transportation-efficient development.

Accordingly, the twenty-six member I-5 Transportation and Trade Partnership was constituted by Governors Locke and Kitzhaber, including a Metro Council representative.

In June 2002, the Partnership completed a *Strategic Plan* and on November 14, 2002, the Metro Council, through Resolution No. 02-3237A, For the Purpose of Endorsing the I-5 Transportation and Trade Study Recommendations, endorsed the *Strategic Plan* recommendations including:

- Three through lanes in each direction on I-5, one of which was to be studied as an High Occupancy Vehicle (HOV) lane, as feasible;
- Phased light rail loop in Clark County in the vicinity of the I-5, SR500/4th Plan and I-205 corridors;
- An additional or replacement bridge for the I-5 crossing of the Columbia River, with up to two additional lanes for merging plus two light rail tracks;
- Interchange improvements and additional auxiliary and/or arterial lanes where needed between SR 500 in Vancouver and Columbia Boulevard in Portland, including a full interchange at Columbia Boulevard;
- Capacity improvements for freight rail;
- Bi-state coordination of land use and management of the transportation system to reduce demand on the freeway and protect corridor improvement;
- Involving communities along the corridor to ensure final project outcomes are equitable and committing to establish a fund for community enhancement;
- Developing additional transportation demand and system strategies to encourage more efficient use of the transportation system.

Several of the recommendations from the Strategic Plan have been completed. For example, construction of the I-5 Delta Park Project has begun.

The I-5 bridge element began in February 2005 with the formation of a 39 member Columbia River Crossing (CRC) Task Force. This Task Force, which includes a Metro Council representative, developed a vision statement, purpose and need statement and screening criteria.

The adopted project purpose is to: 1) improve travel safety and traffic operation on the I-5 crossing of the Columbia River; 2) improve the connectivity, reliability, travel times and operations of public transit in the corridor, 3) improve highway freight mobility and interstate commerce, and 4) improve the river crossing's structural integrity.

More specifically, the following issues concerning the existing conditions were cited as need:

- Safety - the bridge crossing area and approach sections have crash rates more than two times higher than statewide averages for comparable urban highways. Contributing factors are interchanges too closely spaced, weave and merge sections too short contributing to sideswiping accidents, vertical grade changes that restrict sight distance and very narrow shoulders that prevent avoidance maneuvers or safe temporary storage of disabled vehicles.
- Seismic - neither I-5 bridges meet seismic standards, leaving the I-5 corridor vulnerable in the event of a large earthquake;
- Bridge Alignment - the alignment of the I-5 bridges with the downstream railroad bridge contributes to hazardous barge movements;

- Cost - rehabilitation of the existing bridges, bringing them to current standards would be more costly, both in money and some environmental impacts, such as water habitat conditions, than a replacement bridge;
- Traffic Impact - an arterial bridge would bring unacceptable traffic congestion to downtown Vancouver, Washington.

The CRC Project analyzed 37 distinct bridge, transit, highway and transportation demand management modes/designs, which the CRC Task Force narrowed to twelve. These twelve options then received even more analysis.

In November 2007, CRC staff, after further consideration of technical analyses and using the approved screening criteria and project purpose and need, recommended three alternatives be advanced to a draft environmental impact statement (DEIS). These included:

- Alternative 1) No Action;
- Alternative 2) A Replacement Bridge and Bus Rapid Transit with Complementary Express Bus Service; and
- Alternative 3) A Replacement Bridge and Light Rail Transit with Complementary Express Bus Service.

Open houses were held to take public comment about whether these three alternatives should be advanced to analysis in the DEIS. The Metro Council, other project sponsors and some members of the public expressed interest in a less expensive, smaller project alternative. Accordingly, two supplemental bridge alternatives (one with bus rapid transit, the other with light rail transit) were proposed to be added to the alternatives studied in the DEIS.

The Metro Council concurred with these five alternatives in adopting Resolution No. 07-3782B, "For the Purpose of Establishing Metro Council Recommendations Concerning the Range of Alternatives to Be Advanced to a Draft Environmental Impact Statement For the Columbia River Crossing Project," on February 22, 2007.

On December 13, 2007, the Metro Council adopted the federal component of the 2035RTP. The RTP included funds for preliminary engineering and right-of-way purchase in the financially constrained system project list for a new bridge across the Columbia River. This item was reconfirmed with the adoption of the air quality conformity determination in February 2008 that assumed a new bridge with light rail transit to Vancouver.

In a meeting of the CRC Task Force in January 2008, an informal poll was taken that initiated discussion of the LPA. Strong support was found for:

- A replacement bridge with tolls;
- Light rail transit extended to Vancouver, Washington;
- Bicycle and pedestrian path improvements.

(Councilor Burkholder, the Metro Council representative, deferred comment in this survey citing the need to confer with the full Metro Council).

On May 2, 2008, a DEIS addressing the five CRC alternatives was released for a 60-day public comment period. During that time, the CRC project received 1,120 comments on the DEIS. The CRC also held two open houses attended by 425 people and held four question and answer sessions.

Later in May 2008, review and discussion of the CRC alternatives and the potential benefits and adverse impacts as disclosed in the CRC Draft Environmental Impact Statement were discussed by the Metro Council. After consideration of the CRC documents, Metro Council work session discussions and public testimony received at a Metro Council public hearing June 5, the Metro Council approved policy guidance by adopting Resolution No. 08-3938B, "For the Purpose of Providing Metro Council Direction to its Delegate Concerning Key Preliminary Decisions Leading to a Future Locally Preferred Alternative Decision for the Proposed Columbia River Crossing Project," on June 5, 2008.

Resolution 08-3938B included the following major points:

- A multimodal approach that includes:
    - light rail transit extended to Vancouver;
    - A replacement bridge with three through lanes in each direction and the number of auxiliary lanes to be determined;
    - Tolls to manage travel demand as well as provide an ongoing funding source for bridge construction, operations and maintenance;
    - Improved bicycle and pedestrian facilities;
    - Compact land use development patterns with a mixture of housing types to minimize long commutes and reduce automobile dependence.
- Recognition that the above elements and others identified in an exhibit to the resolution will need to be satisfactorily addressed as part of the LPA or at later decision points, prior to a final decision.
- Need to address potential and existing health impacts and using a community enhancement fund to address environmental justice.
- Independent analysis of greenhouse gas emissions and whether the project alternatives would help achieve or frustrate greenhouse gas emission reduction goals for 2020 and 2050.
- Charging tolls as soon as legally and practicably possible and use of state-of-the-art demand management tool to influence travel behavior and reduce greenhouse gas emissions and reduce vehicle miles traveled.
- Recognition of the need for the Metro Council to consider an LPA adoption and an RTP amendment and that the two decisions could be made concurrently.

On June 24, 2008, the CRC Task Force, by a vote of 37-2, recommended the following:

- A replacement bridge with three through lanes northbound and southbound.
- Light rail as the preferred high capacity transit mode with an alignment and terminus based on FTA funding, technical considerations and Vancouver City Council and CTRAN votes in early July 2008.
- Formation of a formal oversight committee.
- Continuation of existing advisory committees dealing with freight, pedestrians and bicycles, urban design, community and environmental justice and creation of a new sustainability working group.
- A list of project and regional elements that have not been made final at this time, but which the CRC Project recognizes the need for consideration. (see Attachment 1 to this staff report)

In addition to the Metro Council public hearing on the project on June 5, 2008 and the CRC Task Force hearing on June 24, 2008, there were numerous public meetings, open houses, and mailings regarding the project. Additionally, the LPA and the need for an RTP amendment were discussed at the Transportation Policy Advisory Committee's (TPAC) May 30, 2008 meeting and both the RTP amendment and the LPA resolution were recommended at its June 27, 2008 meeting. The proposed RTP amendments and LPA were also discussed at the Joint Policy Advisory Committee on Transportation's (JPACT) June 12, 2008 meeting and approved at its July 10, 2008 meeting.

This proposed Resolution No. 08-3960B, For the Purpose of Endorsing the Locally Preferred Alternative for the Columbia River Crossing Project and Amending the Metro 2035 Regional Transportation Plan with Conditions, is generally consistent with the June 24 CRC Task Force recommendations. In addition, proposed Resolution No 08-3960B addresses the following:

1) A list of project concerns to be addressed and resolved (attached as Exhibit A to Resolution No. 08-3960B).
2) Amendment of the 2035 RTP to:
    - revise the Financially Constrained Project List (appendix 1.1);
    - revise the "Other RTP Projects not included in the Financially Constrained list" (appendix 1.2);
    - amend Chapter 5, Financial Plan of the RTP, to include a section on the funding of the CRC project (and included as Exhibit B to Resolution No. 08-3960B);
    - amend Chapter 7, Implementation of the RTP, to revise the description of the I-5 North corridor (and included as Exhibit C to Resolution No. 08-3960B).

(A separate RTP amendment that would revise the state component of the RTP and include land use findings is not proposed at this time and would be addressed once more information and analysis is available concerning auxiliary lanes and other issues identified in Resolution No 08-3960B.)

In addition to these immediate decisions, the following actions will take place in Fall 2008 and beyond include:

- Number of auxiliary travel lanes
- Bridge design details (such as bridge type, whether Stacked Highway/Transit design would work, be cost-effective and whether this aspect of the bridge should be pursued)
- Transportation Demand Management (TDM) specifics
- Interchange design specifics
- Bicycle and pedestrian design details
- More specificity on finance plan

The CRC Task Force's June 24 recommendations to consider a Locally Preferred Alternative (LPA) will also be brought to the cities of Portland and Vancouver, TriMet and CTRAN, and Metro and the Regional Transportation Council of Southwest Washington for adoption and corresponding transportation plan amendments. These actions will allow ODOT and WSDOT to submit to the FTA an application to enter preliminary engineering to prepare a final environmental impact statement (FEIS).

[1] By July 8, the City of Vancouver and CTRAN are scheduled to conclude the alignment and terminus of the LRT line in Vancouver, Washington. In order to facilitate the bi-state transportation aspects of this draft resolution, these southwest Washington project partner decisions will be provided to the Joint Policy Advisory Committee (JPACT), which meets on July 10 to consider this resolution and to the Metro Council that meets on July 17 also to consider this resolution. Accordingly, draft Metro Resolution No. 08-3960B may be proposed for revision in July as a result.

ANALYSIS/INFORMATION

1. **Known Opposition** The CRC is a very large and complex transportation project. There are strong feelings – pro and con – associated with the project. Opposition to the project includes concerns raised regarding the need for the project, greenhouse gas emissions that could be generated by the project, costs, tolls and light rail extension to Vancouver, Washington.

2. **Legal Antecedents**

Federal

- National Environmental Policy Act
- Clean Air Act
- SAFETEA-LU
- FTA New Starts Process

State

- Statewide Planning Goals
- State Transportation Planning Rule
- Oregon Transportation Plan
- Oregon Highway Plan
- Oregon Public Transportation Plan
- Oregon Bicycle and Pedestrian Plan

Metro

- Resolution No. 02-3237A, "For the Purpose of Endorsing the I-5 Transportation and Trade Study Recommendations," adopted on November 14, 2002.
- Resolution No. 07-3782B, "For the Purpose of Establishing Metro Council Recommendations Concerning the Range of Alternatives to Be Advanced to a Draft Environmental Impact Statement For the Columbia River Crossing Project," adopted on February 22, 2007.
- Ordinance No. 07-3831B, "For the Purpose of Approving the Federal Component of the 2035 Regional Transportation Plan (RTP) Update, Pending Air Quality Conformity Analysis," adopted on December 13, 2007.
- Resolution No. 08-3911, "For the Purpose of Approving the Air Quality Conformity Determination for the Federal Component of the 2035 Regional Transportation Plan and Reconforming the 2008-2011 Metropolitan Transportation Improvement Program," adopted on February 28, 2008.
- Resolution No. 08-3938B, "For the Purpose of Providing Metro Council Direction to its Delegate Concerning Key Preliminary Decisions Leading to a Future Locally Preferred Alternative Decision for the Proposed Columbia River Crossing Project," adopted on June 5, 2008.

3. **Anticipated Effects** The approval of this resolution would allow the submission of a New Starts application for light rail transit to Vancouver Washington as well as include proceeding with the next steps towards a replacement bridge with tolls and light rail transit. It would not resolve the number of auxiliary lanes or other issues and considerations listed in the resolution but which will need to be addressed in the future once additional information and analysis is completed.

4. **Budget Impacts** If there is a role for Metro to play in the completion of the CRC Final Environmental Impact Statement (this could be additional updated travel forecasting, for example), the CRC project would reimburse Metro for any costs incurred for such work.

RECOMMENDED ACTION
Adopt Resolution No. 08-3960B, For the Purpose of Endorsing the Locally Preferred Alternative for the Columbia River Crossing Project and Amending the Metro 2035 Regional Transportation Plan with Conditions.

Columbia River CROSSING

A RESOLUTION OF THE COLUMBIA RIVER CROSSING TASK FORCE TO PROVIDE DIRECTION TO THE COLUMBIA RIVER CROSSING PROJECT ON KEY DECISIONS FOR A LOCALLY PREFERED ALTERNATIVE

WHEREAS, the I-5 Interstate Bridge is one of only two Columbia River crossings between Vancouver, Washington and Portland, Oregon and approximately 150,000 people rely on crossing the I-5 Bridge daily by car, transit, bicycle and on foot; and

WHEREAS, the existing structures are aging and in need of seismic upgrade, and the closely-spaced interchanges are in need of safety improvements; and

WHEREAS, the movement of land and water-based freight is hindered by the current crossing, and

WHEREAS, high capacity transit does not currently connect Vancouver and Portland, and the bicycle and pedestrian paths do not meet current standards; and

WHEREAS, the I-5 Transportation and Trade Partnership Final Strategic Plan recommended congestion and mobility improvements within the I-5 Bridge Influence Area in 2002; and

WHEREAS, the Columbia River Crossing Task Force was established in February 2005, to advise the Oregon Department of Transportation and the Washington State Department of Transportation on project-related issues and concerns; and

WHEREAS, the Columbia River Crossing Task Force advised development of the project's Vision and Values Statement, alternatives development, and narrowing of the alternatives to five that would be studied in a Draft Environmental Impact Statement; and

WHEREAS, the Columbia River Crossing project is committed to implementing the principles of sustainability into project planning, design and construction in order to improve the natural and social environment and the regional economy whenever possible; and to minimize effects related to climate change; and

WHEREAS, the Oregon State Department of Transportation, Washington State Department of Transportation, Metro Council, Southwest Washington Regional Transportation Council, TriMet, C-TRAN, City of Portland and City of Vancouver have worked collaboratively on the development of the Draft Environmental Impact Statement; and

WHEREAS, the Columbia River Crossing project published a Draft Environmental Impact Statement on May 2, 2008, disclosing the potential environmental and community impacts and potential mitigation of the five alternatives; and

WHEREAS, the Columbia River Crossing project is seeking public comments on the Draft Environmental Impact Statement from the Columbia River Crossing Task Force as well as the public through outreach events, working sessions and hearings with sponsor agencies, and through two open houses and two public hearings during the comment period; and

WHEREAS, the Columbia River Crossing Task Force has opted to confirm Key Decisions that will lead to selection of a Locally Preferred Alternative.

NOW, THEREFORE, BE IT RESOLVED THAT THE COLUMBIA RIVER CROSSING TASK FORCE MAKES THESE RECOMMENDATIONS TO THE COLUMBIA RIVER CROSSING PROJECT:

1. In regards to the river crossing selection, the CRC Task Force supports the construction of a replacement bridge with three through lanes northbound and southbound as the preferred option.
2. In regards to the high capacity transit selection, the CRC Task Force supports light rail as the preferred mode.

~~3.~~ In regards to the alignment and terminus of the high capacity transit line, and based on the information provided to date, the CRC Task Force

- Recognizes that the selection of the alignment and terminus options should be determined through a combination of:
    i. Federal New Starts funding eligibility**,**
    ii. Public and local stakeholder involvement,
    iii. CRC project evaluation and technical determination of the terminus that allows for the greatest flexibility for future high capacity transit extensions and connections in Clark County, and
    iv. Outcome of the Vancouver City Council and C-TRAN votes on July 7 and July 8, respectively.

4. Creation of a formal oversight committee that strives for consensus and provides for a public process of review, deliberation and decision-making for outstanding major project issues and decisions.
5. The Freight Working Group, the Pedestrian and Bicycle Advisory Committee, the Urban Design Advisory Group, the Community and Environmental Justice Group, and the newly formed Sustainability Working Group, shall continue their advisory roles for refinement of the LPA. These advisory groups shall report findings and recommendations to the local oversight committee.

6. The CRC Task Force understands that several project elements have not been finalized at the time of this resolution. These elements will need to be satisfactorily resolved through a process that includes public involvement, recommendations from governing bodies of the sponsor agencies, and recommendations by a local advisory committee. The CRC Task Force supports the consideration of the attached list of Supplemental Positions for Future Project and Regional Consideration.

Columbia River Crossing Project
Supplemental Positions for Future Project and Regional Consideration

For Project Consideration:
The Columbia River Crossing Task Force presents these supplemental positions for consideration during the post-Locally Preferred Alternative (LPA) phase of the project development process. The Columbia River Crossing Task Force supports the following in association with the CRC project:

- The continued development of a mitigation plan, including avoidance of adverse impacts
- The continued development of a sustainability plan, including the formation of a sustainability working group
- Further study and analysis to determine the appropriate number of auxiliary lanes, necessary for safety and functionality in the project area, and consistent with minimizing impacts. The project should recognize that auxiliary lanes are for interchange operations, not for enhanced mainline throughput, and design the bridge width accordingly.
- The continued commitment to provide enhancements within potentially impacted communities
- As articulated in the final strategic plan of the I-5 Trade and Transportation Partnership, establish a community enhancement fund for use in the impacted areas of the project; such a fund would be in addition to any impact mitigation costs identified through the Draft EIS and would be modeled on the successfully implemented community enhancement fund of the I-5 Delta Park Project and subsequent Oregon Solutions North Portland Diesel Emissions Reduction Project.
- Continued work to design interchanges in the project area that meet the safety and engineering standards and requirements of the Federal Highway Administration, the departments of transportation for Oregon and Washington and the cities of Portland and Vancouver, in a way that is consistent with minimizing impacts.
- Continued work to ensure that interchanges are freight sensitive and provide enhanced mobility, in a way that is consistent with minimizing impacts.
- Imposing tolls on the existing I-5 bridge as soon as legally and practically permissible to reduce congestion by managing travel demand as well as to provide an ongoing funding source for the project
- A public vote where applicable, regarding the funds required to implement the light rail line
- The development of an aesthetically pleasing, sustainable and cost-efficient river crossing that provides a gateway to Vancouver, Portland and the Northwest

- Designing the project – river crossing, transit, and pedestrian and bicycle facilities – to be a model of sustainable design and construction that serves both the built and natural environment
- The development of light rail stations that meet the highest standards for operations and design. These stations would be designed to be safe and accessible to pedestrians, bicyclists, and people with disabilities.
- Continued development of a “world class” bicycle, pedestrian facility, as well as the consideration for provisions for low-powered vehicles such as scooters, mopeds and neighborhood electric vehicles, as part of the construction of a replacement river crossing
- Ensure that the preferred alternative solves the significant safety, congestion and mobility problems in the project area while meeting regional and statewide goals to reinforce density in the urban core and compact development that is both pedestrian friendly and enhances mobility throughout the project area and the region
- Development of an innovative transportation demand management (TDM) program to encourage more efficient use of limited transportation capacity
- Independent validation of the greenhouse gas and climate change analysis conducted in the Draft Environmental Impact Statement to determine the project’s effects on air quality, carbon emissions and vehicle miles traveled per capita
- The inclusion of strategies aimed at reducing greenhouse gases and reducing vehicle miles traveled per capita. The Oregon Global Warming Commission or the Washington Climate Action Team should advise the CRC project on project related aspects that will help achieve both states greenhouse gas reduction goals set for 2020 and 2050.
- The development of a more detailed draft finance plan after the LPA is selected to define the funding and financing sources for this project from federal, state and local resources, while ensuring financial equity locally, within the region, and between the states of Oregon and Washington
- Independent review of the project’s feasibility and risks, including the project’s relationship to funding other transportation projects in the region
- Continued study of project health impacts such as those identified in the report submitted to the Task Force by the Multnomah County Health Department

For Regional Consideration:
There are system-wide transportation concerns that can only be resolved on a regional level and not by the Columbia River Crossing project. The Columbia River Crossing Task Force supports:

- Revisiting the remaining recommendations outlined in the *Strategic Final Plan* of the I-5 Transportation and Trade Partnership Study, dated September 2002
- Evaluating other bottlenecks within the system (e.g., I-405 / I-5 loop, Rose Quarter, etc.)
- Developing a regional plan for traffic demand management in the bi-state Portland-Vancouver region that promotes a reduction in vehicle miles traveled per capita

- Evaluating the effectiveness of a regional high occupancy vehicle (HOV) system
- Developing a regional plan for freight that considers the work of the I-5 Transportation and Trade Partnership and the CRC project's work with the CRC Freight Working Group
- Developing a web-based transit trip planning resource to plan transit trips in the Portland-Vancouver region

METRO

Appendix 4.1 2035 Regional Transportation Plan
Findings of Compliance with SAFETEA-LU

III. Compliance with SAFETEA-LU
TITLE 23 - UNITED STATES CODE
SECTION 134 - METROPOLITAN PLANNING

The following findings are intended to explain how the 2035 Regional Transportation Plan ("RTP") complies with applicable requirements of Section 134 in general. These findings are a roadmap to the decision record for the 2035 RTP update. Inapplicable subsections of Section 134 and Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) are not cited in these findings.

134(f)(2)(A-B) Interstate Compacts

> *"The consent of Congress is granted to any 2 or more States to enter into agreements or compacts, not in conflict with any law of the United States, for cooperative efforts and mutual assistance in support of activities authorized under this section as the activities pertain to inter-state areas and localities within the States and to establish such agencies, joint or otherwise, as the States may determine desirable for making the agreements and compacts effective."*

Metro has entered into an intergovernmental agreement with the Regional Transportation Commission ("RTC"), the MPO for Clark County, Washington. The RTC is represented on Metro's Transportation Policy Alternatives Committee ("TPAC") and Joint Policy Advisory Committee on Transportation ("JPACT"). Likewise, Metro is represented on RTC technical and policy advisory committees. The function of Metro's interagency coordinating committees is described in Section 1.2 of the 2035 Regional Transportation Plan ("RTP").

134(g)(2) Transportation Improvements Located in Multiple MPOs

> *"If a transportation improvement is located within the boundaries of more than 1 metropolitan planning organization, the metropolitan planning organizations shall coordinate plans and TIPs regarding the transportation improvement."*

Based on a recommendation from the I-5 Partnership Governors Task Force, the Bi-State Transportation Committee became the Bi-State Coordination Committee in early 2003. This joint committee advises the region, state and local jurisdictions on transportation and land use issues of bi-state significance. The intergovernmental agreement between the RTC and Metro states that JPACT and the RTC Board "shall take no action on an issue of bi-state significance without first referring the issue to the Bi-State Coordination Committee for their consideration and recommendation."

Several projects in the I-205 and I-5 highway corridors, including transit improvement, are near the Metropolitan Planning Organization (MPO) boundary, or span the Metro and RTC MPOs. These projects are listed in Appendix 1.1 of the 2035 RTP. Metro has coordinated these projects with the RTC through the membership of TPAC, JPACT and the Bi-State Coordination Committee, which advises the RTC, and JPACT/Metro on issues of bi-state significance.

134(g)(3) Relationship with Other Planning Officials

> *'The Secretary shall encourage each metropolitan planning organization to consult with officials responsible for other types of planning activities that are affected by transportation in the area (including State and local planned growth, economic development, environmental protection, airport operations, and freight movements) or to coordinate its planning process, to the maximum extent practicable, with such*

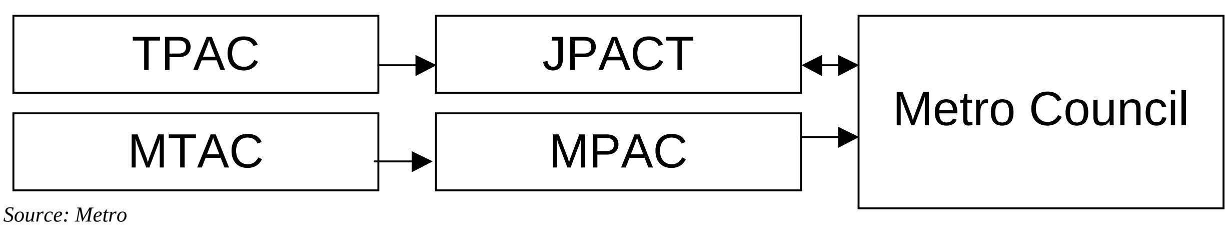
planning activities. Under the metropolitan planning process, transportation plans and TIPs shall be developed with due consideration of other related planning activities within the metropolitan area."

The 2035 RTP update coordinated and consulted with other planning officials through a variety of methods, including one-on-one meetings with planning officials, 5 stakeholder workshops that included environmental, business, freight, economic development, public health, and other interests affected by transportation. Metro also coordinates with freight, rail, airport operations and business interests through the Regional Freight and Goods Movement Task Force and Regional Freight and Goods Movement Technical Advisory Committee. Metro is a member of Regional Partners for Economic Development and endorsed the Consolidated Economic Development Strategy (CEDS).

Metro's jurisdictional boundary encompasses the urban portions of Multnomah, Washington and Clackamas counties. Metro's planning partners include the 25 cities, three counties and affected special districts of the region, ODOT, Oregon Department of Environmental Quality (DEQ), Port of Portland, South Metro Area Rapid Transit (SMART), TriMet and other interested community, business and advocacy groups as well as state and federal regulatory agencies such as the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA). Metro also coordinates with the City of Vancouver, Clark County Washington, the Port of Vancouver, the Southwest Washington Regional Transportation Council (RTC), C-Tran, the Washington Department of Transportation, the Southwest Washington Air Pollution Control Authority and other Clark County governments on bi-state issues. The Southwest Washington Regional Transportation Council is the federally designated MPO for the Clark County portion of the Portland-Vancouver metropolitan region. Metro consults with planning officials from each of these agencies.

Metro facilitates this consultation, coordination and decision-making through four advisory committee bodies –the Joint Policy Advisory Committee on Transportation (JPACT), the Metro Policy Advisory Committee (MPAC), the Transportation Policy Alternatives Committee (TPAC) and the Metro Technical Advisory Committee (MTAC). In addition, the Metro Committee for Citizen Involvement (MCCI) provides advice to the Metro Council on how to best engage residents in regional planning activities. **Figure 1.1** displays the regional transportation decision-making process.

Figure 1.1
Regional Transportation Decision-Making Process



Source: Metro

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. Under state law, the RTP serves as the region's transportation system plan (TSP). As a result, the Metro Policy Advisory Committee (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. In addition, Metro has implemented a fish and wildlife habitat protection program through regulations, property acquisition, education and incentives in coordination with MPAC.

In addition, the Bi-State Coordination Committee advises the RTC and JPACT/Metro on issues of bi-state significance. On issues of bi-state land use and economic significance the Committee advises the local and regional governments appropriate to the issue. Since formation in 1999, the committee has reviewed Federal transportation funding reauthorization, Columbia River Channel deepening and projects and studies focused on the I-5 Corridor. Restructuring in 2004, expanded this role to include examining the connection between land use and transportation in the I-5 corridor and taking a multi-modal approach – including freight and transit – in considering the impacts of land use and transportation decisions within the context of economic development and environmental justice issues. JPACT and the RTC Board cannot take action on an issue of major bi-state transportation significance without first referring the issue to the Bi-State Coordination Committee for their consideration and recommendation.

Goal 10 in the 2035 RTP calls for the region's government, business, institutional and community leaders work together in an open and transparent manner so the public has meaningful opportunities for input in transportation decisions and experiences an integrated, comprehensive system of transportation facilities and services that bridge governance, institutional and fiscal barriers.

134(h)(1) Scope of Planning Process - Metropolitan Planning Factors

This section requires that the metropolitan transportation planning process for a metropolitan area under this section shall provide for consideration of projects and strategies that will satisfy the planning factors (A) through (H), below.

134(h)(1)(A) Plan Supports Economic Viability

"Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency."

The policy component of the RTP is structured around the implementation of the Region 2040 Growth Concept through strategic transportation improvements. As the economic engines of the region's economy, the Portland central city, six regional centers, the region's industrial areas and intermodal facilities are identified as the primary areas for transportation investments (2035 RTP Section 2.2 and Table 2.1).

Transportation improvements in these primary components of the 2040 Growth Concept are also guided by a set of functional maps that establish a series of efficient, high-quality motor vehicle, freight, transit, bicycle and pedestrian systems that are similarly designed to reinforce the growth concept (2035 RTP Section 2.5). The RTP recognizes that new transit and road capacity are needed to achieve the Region 2040 vision and support the region's economic vitality. In addition, the plan considers transportation and the economy as inextricably linked, and recognizes investments that serve certain land uses or transportation facilities may have a greater economic return on investment than others. The plan also recognizes that focusing transportation investments and other strategies to support the gateway function of our transportation system is the primary way in which to strengthen that gateway role for the region and the rest of the state. This means ensuring reliable and efficient connections between intermodal facilities and destinations in, beyond, and through the region to promote the region's function as a gateway for trade and tourism. In addition, other elements of the 2035 RTP include:

- RTP policies that are linked to land use strategies that promote economic development (Goal 1 and Goal 2).
- Comprehensive, multimodal freight improvements that link intermodal facilities to industry are detailed for the plan period. (Regional Freight Plan)
- Highway LOS policy tailored to protect key freight corridors. (Table 2.4)
- RTP recognizes need for freight linkages to destinations beyond the region by all freight modes. (Sections 1.3 and 2.5.4)

Several corridor studies have also been completed since 2000, such as the I-5 Trade Partnership Study, and project recommendations have been included in the 2035 RTP to address the movement of freight in the region. Among the projects aimed at maintaining a robust economy are a number of highway corridor improvements, freight and passenger terminal access improvements, bridge improvements and rail crossing upgrades. These projects are included in the RTP financially constrained system in Appendix 1.1.

134(h)(1)(B) Plan Increases Safety

"Increase the safety of the transportation system for motorized and non-motorized users."

Safety issues and activities are summarized in Section 1.6 of the 2035 RTP. In addition, the policy framework in Section 2.3 of the 2035 RTP includes, "Goal 5: Enhance Safety and Security," and specific safety objectives and potential actions to increase safety of the transportation system for all users. A background research paper was also developed during the update to document current safety issues and planning efforts in the region. This research included in Appendix 7.0 (and available at www.oregonmetro.gov/rtp) and was considered during the formulation of the 2035 RTP goals, objectives, projects and potential actions included in Chapter2 and investment priorities in Appendix 1.1 of the 2035 RTP. The RTP includes a number of investments and actions aimed at further improving safety in the region, including:

- Investments targeted to address known safety deficiencies and high-crash locations.
- Completing gaps in regional bicycle and pedestrian systems.
- Retrofits of existing streets in downtowns and along main streets to include on-street parking, street trees marked street crossings and other designs to slow traffic speeds to follow posted speed limits.
- Intersection changes and ITS strategies, including signal timing and real-time traveler information on road conditions and hazards.
- Expanding safety education, awareness and multi-modal data collection efforts at all levels of government.
- Expand safety data collection efforts and create a better system for centralized crash data for all modes of travel.

In 2009, Metro began convening a Regional Safety work group to coordinate these activities. This work element will include the following activities:

- Working with ODOT to aggregate and analyze safety data specific to the Metro region.
- Developing safety performance measures to track on a regular basis through the Congestion Management Process and possibly a State of Safety in the Region report that will also recommend actions at local, regional and state levels. These measures will also influence investment criteria for projects at the regional level.

This emphasis on safety is also mirrored in Metro's MTIP funding process, where safety improvements are given a priority.

134(h)(1)(C) Plan Increases Security

"Increase the security of the transportation system for motorized and non-motorized users."

Security and emergency management activities are summarized in Section 2.4.7.4 of the 2035 RTP. In addition, the policy framework in Section 3.3 of the 2035 RTP includes, "Goal 5: Enhance Safety and Security," and specific security objectives and potential actions to increase security of the transportation system for all users. A background research paper was also developed during the update to document current security planning efforts in the region, including: the role of the Regional Emergency Management Group (REMG), which has expanded its scope to include anti-terrorism preparedness, TriMet's responsibility for transit security plans, ODOT's responsibility for coordination of state security plans, Port of Portland's responsibility for air, marine and other Port facilities security plans and implementation of system management strategies to improve security of the transportation system (e.g., security cameras on MAX and at transit stations). This research is included Appendix 6.0 and was considered during the formulation of the 2035 RTP goals, and objectives, included in Chapter 2 and investment priorities in Chapter 3 of the 2035 RTP.

The RTP calls for implementing investments that increase system monitoring for operations and security of the regional mobility corridor system. These types of investments would enhance existing coordination and communication efforts in the region, and recognize these facilities would serve as the primary transportation network in the event of an evacuation of the region. The plan also directs Metro to work with local, state and regional agencies to identify critical infrastructure in the region, assess security vulnerabilities and develop coordinated emergency response and evacuation plans. This work is being led by the REMG, with Metro's participation. In addition, transportation providers are directed to monitor the regional transportation and minimize security risks at airports, transit facilities, marine terminals and other critical infrastructure. Future RTP updates will consider expanding Metro's role, as the MPO, to increase existing coordination and planning efforts in the region and funding of initiatives to address these issues.

134(h)(1)(D) Plan Increases Accessibility and Mobility

"Increase the accessibility and mobility of people and for freight."

The transportation vision that guides the RTP (2035 RTP Chapter 2) is based on the premise that the system must become more multi-modal in design and function in order to fully implement the 2040 Growth Concept, sustain the region's economic competitiveness, and reduce dependency on the automobile as a sole mode of travel. The vision is translated into motor vehicle, transit, freight, bicycle and pedestrian policies that emphasis mobility and access to 2040 centers, industrial areas, and intermodal facilities (2035 RTP Section 2.5). The RTP policies are organized on the principle of providing accessibility to centers and employment areas with a balanced, multi-modal transportation system. The policies also identify the need for freight mobility in key freight corridors and to provide freight access to industrial areas and intermodal facilities.

The plan emphasizes accessibility and reliability of the system, particularly for commuting and freight, and includes a new, more customized approach to managing and evaluating performance of mobility corridors. This new approach builds on using new, multi-modal, cost-effective technologies to improve safety, optimize the existing system, and ensure that freight haulers and commuters have a broad range of travel options in each corridor. Improving access to and within 2040 Target Areas (priority land uses) and completing gaps in pedestrian, bicycle and transit systems is also a critical part of this strategy. The policies resulted in a multi-modal set of recommended projects and programs to increase access and mobility options to people and for freight in Appendix 1.1 and strategies tailored to each of the region's 24 mobility corridor (Chapter 4).

134(h)(1)(E) Plan Protects Environment

"Protect and enhance the environment, promote energy conservation, improve quality of life, and promote consistency between transportation improvements and State an local planned growth and economic development patterns."

A background research paper was also developed during the update to document current environmental issues and planning efforts in the region. The research is summarized in Section 1.2 of the 2035 RTP. This research is also included in Appendix 7.0 (and available at www.oregonmetro.gov/rtp) and was considered during the formulation of the 2035 RTP goals, objectives, projects and potential actions included in Chapter 2 and investment priorities in Appendix 1.1 of the 2035 RTP. The policy component of the RTP seeks to protect sensitive environmental areas and resources from the potentially negative effects of transportation improvements (2035 RTP Goal 6). The transit, bicycle and pedestrian systems envisioned in the plan (2035 RTP Section 2.5) and corresponding projects that implement these systems, promote energy conservation and enhance air quality by reducing the use of motor vehicles. The region's parking policies (Objective 1.2 in Chapter 2 of the RTP and Title 4 of the Regional Transportation Functional Plan) are also designed to encourage the use of alternative modes, and reduce reliance on the automobile, thus promoting energy conservation and reducing air quality impacts. In addition:

- The region has developed an environmental street design guidebook to facilitate environmentally sound transportation improvements in sensitive areas, and to coordinate transportation project development with regional strategies to protect endangered species.
- The RTP conforms to the Clean Air Act and State Implementation Plan.
- Many new transit, bicycle, pedestrian and TDM projects have been added to the plan to provide a more balanced multi-modal system that maintains livability.
- RTP transit, bicycle, pedestrian and TDM projects planned for the plan period will complement the compact urban form envisioned in the 2040 Growth Concept by promoting an energy-efficient transportation system.
- Metro coordinates its system level planning with resource agencies to identify and resolve key issues.

134(h)(1)(F) Plan is Multi-modal

"Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight."

The RTP establishes integrated modal systems for motor vehicles, transit, freight, bicycles and pedestrians through a series of functional classification maps and accompanying narrative (2035 RTP Section 2.5). The street design classifications (2035 RTP Section 2.5.1) serve as the policy tool for integrating these modal systems, and linking them to the 2040 land use components. These modal systems and design classifications emphasize regional travel, as they apply only to the regional transportation system, which includes regional, statewide and interstate travel routes;and intermodal facilities for people and freight. The regional street design classifications (2035 RTP Section 2.5.1) link transportation and 2040 land use considerations for all portions of the regional transportation system.

The design classifications establish a modal-orientation on detailed segments of the major street system, reflecting future travel demand that is expected for individual 2040 land use components. In compact, mixed-use areas, the street design classifications emphasize transit, bicycle and pedestrian elements, as well as calmed motor vehicle travel speeds and on-street parking that supports storefront development. In industrial and employment areas, the street design classifications emphasize motor vehicle travel, including freight, with an emphasis on motor-vehicle mobility. However, all of these classifications are multi-modal in design, and embrace the principle that all streets should serve all modes of travel in some manner. The exception to this strategy are limited-access freeway and highway facilities, that are not intended to include pedestrian and bicycle access, due to safety concerns.

The modal systems are also complemented by connectivity provisions that will increase local and major street connectivity in the region. The RTP freight policies and projects address the intermodal connectivity needs at major freight terminals in the region. These policies were considered in the development of investment priorities in Appendix 1.1 of the 2035 RTP.

134(h)(1)(G) Plan Promotes System Management

"Promote efficient system management and operation."

A background research paper was also developed during the update to document current system management efforts in the region. The research is summarized in Section 1.7 of the 2035 RTP. This research is also included in Appendix 7.0 (and available at www.oregonmetro.gov/rtp) and was considered during the formulation of the 2035 RTP goals, objectives, projects and performance targets included in Chapter 2 and investment priorities in Appendix 1.1 of the 2035 RTP. In addition, the region developed the first ever 10-year strategy for Regional Transportation System Management and Operations, which is adopted as a component of the 2035 RTP and will guide future regional TSMO investments. The plan implements policy direction from the federal and state governments to better link system management with planning for the region's transportation system. A growing body of research demonstrates that adding road capacity alone is not a sustainable solution to congestion. The policy component of the 2035 RTP includes specific provisions for efficient system management and operation (2035 RTP Goal 4), with an emphasis on TSM, ATMS and the use of non-auto modal targets (Table 2.5) to optimize the existing and planned transportation system. The regional congestion management process also requires local jurisdictions to explore system management solutions before adding roadway capacity to the regional system (2035 RTP Section 6.4 and Regional Transportation Functional Plan section 3.08.220). The plan also calls for consideration of value pricing in the region to better manage capacity and peak use of the throughway system. However, more work is needed to gain public acceptance of this tool. RTP projects in Appendix 1.1 include many system management improvements along regional mobility corridors and the supporting arterial system.

134(h)(1)(H) Plan Emphasizes System Preservation

"Emphasize the preservation of the existing transportation system."

A background research paper was also developed during the update to document current operations, maintenance and preservation (OM&P) efforts and costs in the region in addition to other financial trends in the region. The research is summarized in Section 1.5 and Chapter 3 of the 2035 RTP. This research is also included in Appendix 7.0 (and available at www.oregonmetro.gov/rtp)and was considered during the formulation of the 2035 RTP goals, objectives, projects and performance targets included in Chapter 2 and investment priorities in Appendix 1.1 of the 2035 RTP. RTP policies (Goal 9 and related objectives) emphasize the preservation of the existing transportation system and ensuring land use decisions support preserving the functional integrity of the transit and roadway elements of the transportation system. The asset management policy resulted in a number of major reconstruction and preservation improvements in the projects and programs included in the financially constrained system in the plan. The plan recognizes more work is needed to improve data collection and reporting on OM&P costs and expenditures in the region. Finally, Metro's MTIP process provides funding for reconstruction and preservation improvements that are included in the RTP financially constrained system.

134(i)(1) Timing for Development of Transportation Plan

"Each metropolitan planning organization shall prepare and update a transportation plan for its metropolitan area in accordance with the requirements of this subsection."

The 2035 RTP serves as the long-range transportation plan for the purposes of this section and has been updated within the required 4-year time period required in this section.

134(i)(2) Transportation Plan Required

"A transportation plan under this section shall be in a form that the Secretary determines to be appropriate and shall contain, at a minimum, (A) through (D), below."

134(i)(2)(A) Identify Transportation Facilities

"An identification of transportation facilities (including major roadways, transit, multi-modal and intermodal facilities, and intermodal connectors) that should function as an integrated metropolitan transportation system, giving emphasis to those facilities that serve important national and regional transportation functions. In formulating the transportation plan, the metropolitan planning organization shall consider factors described in subsection (h) as such factors relate to a 20-year forecast period."

Section 2.4 defines the regional transportation system. The plan also establishes integrated modal systems for motor vehicles, transit, freight, bicycles and pedestrians through a series of functional classification maps and accompanying narrative (2035 RTP Section 2.5). The street design classifications (2035 RTP Section 2.5.1) serve as the policy tool for integrating these modal systems, and linking them to the 2040 land use components. These modal systems and design classifications emphasize regional travel, as they apply only to the regional transportation system, which includes regional, statewide and interstate travel routes. The previously established findings of compliance with the eight planning factors in subsection (f) were based on a 25-year planning period, and were considered during the formulation of the 2035 RTP goals, objectives, projects and performance targets included in Chapter 2 and Appendix 1.1 of the 2035 RTP.

134(i)(2)(B) Mitigation Activities

> *"A long-range transportation plan shall include a discussion of types of potential environmental mitigation activities and potential areas to carry out these activities, including activities that may have the greatest potential to restore and maintain the environmental functions affected by the plan. The discussion shall be developed in consultation with Federal, State, and tribal wildlife, land management, and regulatory agencies."*

SAFETEA-LU provisions for additional consultation with state and federal resource agencies, and tribal groups that were not already part of Metro's existing committee structure were met through a consultation meeting held on October 16, 2007 with the Collaborative Environmental Transportation Agreement for Streamlining (CETAS) work group, consisting of the Oregon Department of Transportation and ten state and federal transportation, natural resource, cultural resource and land-use planning agencies. A background research paper was also developed during the update to document current environmental trends, issues and current mitigation strategies in the region. This research was considered during the formulation of the 2035 RTP goals, objectives and performance targets included in Chapter 2 and investment priorities in Appendix 1.1 of the 2035 RTP. In addition, staff conducted an analysis of the potential environmental effects of transportation investments. The background research report and environmental considerations analysis is included in Appendix 4.5.

134(i)(2)(C) Develop a Financial Plan

> *"A financial plan that demonstrates how the adopted transportation plan can be implemented, indicates resources from public and private sources that are reasonably expected to be made available to carry out the plan, and recommends any additional financing strategies for needed projects and programs. The financial plan may include, for illustrative purposes, additional projects that would be included in the adopted transportation plan if reasonable additional resources beyond those identified in the financial plan were available. For the purpose of developing the transportation plan, the metropolitan planning organization, transit operator and State shall cooperatively develop estimates of funds that will be available to support plan implementation."*

The 2035 RTP revenue forecast and financial analysis for operations and maintenance costs was based on a thorough evaluation of city and county, ODOT, TriMet and SMART cost projections (2035 RTP Sections 3.3). The financially constrained system described in Chapter 3 of the 2035 RTP was specifically developed to comply with SAFETEA-LU planning requirements. The system was developed based on a forecast of expected revenues that was formulated in partnership with the Oregon Department of Transportation, cities and counties in the Metro region, TriMet and the South Metro Area Rapid Transit (SMART) district. A background research report was also developed during the update to document current funding trends and sources. The subsequent financial analysis and the background report are included in Appendix 4.2 and in Appendix 7.0(and available at www.oregonmetro.gov/rtp), respectively.

The projects and programs recommended in the financially constrained system were developed cooperatively with local jurisdictions, ODOT and, port and transit districts, and through workshops sponsored by TPAC. The financially constrained system is intended as the "federal" system for purposes of demonstrating air quality conformity, and allocating federal funds through the MTIP process (2035 RTP Appendix 4.5 and 6.5). The RTP financial plan and revenue forecast assumptions are described in Chapter 3 of the 2035 RTP. The total reasonably expected revenue base assumed in the 2035 RTP for the road system is approximately $ 9.07 billion.

In addition to the financially constrained system, the 2035 RTP identifies a larger set of projects and programs for the "State System," which is double the scale and cost of the financially constrained system. The illustrative system represents the region's objective for implementing the Region 2040 Plan.

134(i)(2)(D) Operational and management strategies

> *"Operational and management strategies to improve the performance of existing transportation facilities to relieve vehicular congestion and maximize the safety and mobility of people and goods."*

See also findings under 134(h)(1)(G). The system management policies in the RTP (2035 RTP Section 2.5.7) and resulting projects and programs are intended to maximize the use of existing facilities. The regional congestion management process (CMP) also requires local jurisdictions to explore system management solutions before adding roadway capacity to the regional system (2035 RTP Section 6.4). These provisions are implemented through Goals 4 and 5 in Chapter 2 of the RTP, Title 1 Section 3.08.160 and 3.08.220 of the Regional Transportation Functional Plan, the Regional Transportation System Management and Operations Plan that is adopted as a component of the 2035 RTP, and a number of projects and programs recommended in the updated RTP, which are listed in Appendix 1.1 of the 2035 RTP. In addition, Metro has established a Regional Transportation Options Committee as a subcommittee of TPAC to address demand management. The TransPort Committee is a subcommittee of TPAC to address ITS and operations. The plan also calls for consideration of value pricing in the region to better manage capacity and peak use of the throughway system. However, more work is needed to gain public acceptance of this tool and approval from the Oregon Transportation Commission to implement this strategy in the Metro region. RTP projects in Appendix 1.1 include many system management improvements along regional mobility corridors and the supporting arterial system.

134(i)(2)(E) Capital investment and other strategies

> *"Capital investment and other strategies to preserve the existing and projected future metropolitan transportation infrastructure and provide for multimodal capacity increases based on regional priorities and needs."*

See also findings under 134(h)(1)(F), 134(h)(1)(G) and 134(h)(1)(H). In addition, during the plan period, approximately $13.6 billion in federal, state and local revenue can reasonably be expected to be available for capital improvements. This amount represents a major shortfall when compared to the total capital cost to implement the state system of investments identified by local agencies, ODOT, TriMet and Metro in Appendix 1.1. As a result, the financially-constrained system does not attempt to address all transportation needs. Instead, the financially-constrained system attempts to focus limited revenue in key 2040 target areas throughout the region, including the central city, industrial areas and intermodal facilities and regional and town centers. Chapter 2 of this plan identifies policies for defining a balanced regional transportation system and Chapter 4 of the plan specific transportation needs for each of the region's 24 mobility corridors. Other considerations in developing the financially-constrained system included:

- a focus on system and demand management investments and implementation of transportation control measures to meet air quality requirements;
- investments that met multiple goals identified in Chapter 3 of this plan;
- smaller, key phases of larger projects; and
- projects that would complete gaps or address existing deficiencies in the components of the regional transportation systems identified in Chapter 2 of this plan.

This system contains many "placeholder" projects for larger mobility corridor investments, where a specific transportation need is identified, but more work is needed to develop refined projects or programs that serve the identified need. In some cases, work is under way as is the case for the Sunrise Project, Columbia River Crossing, Milwaukie LRT, Portand-to-Lake Oswego Street Car and the Sellwood Bridge. Other corridor work will be completed through future National Environmental Policy Act (NEPA) processes.

134(i)(2)(F) Transportation and transit enhancement activities

> *"Proposed transportation and transit enhancement activities."*

Transportation enhancement activities have been conducted within the Metropolitan Transportation Improvement Program (MTIP) process. As a funding issue, these activities are primarily addressed in the MTIP, not in the 2035 RTP. RTP projects in Chapter 3 and Appendix 1.1 include many transit enhancements.

134(i)(3) Coordination With Clean Air Act Agencies

> *"In metropolitan areas which are in non-attainment for ozone or carbon monoxide under the Clean Air Act, the metropolitan planning organization shall coordinate the development of a transportation plan with the process for development of the transportation control measures of the State implementation plan required by the Clean Air Act."*

The Portland Area Carbon Monoxide (CO) Maintenance Plan and Portland Area Ozone Maintenance Plan were prepared in 1996 and received Federal approvals on September 2, 1997 and May 19, 1997 (including corrections made April 17, 1996) respectively based on attainment with Clean Air Act standards for ozone and CO emissions. The CO maintenance plan was last updated in 2004. In 2006, the EPA approved a new CO State Implementation Plan (SIP) finding new CO motor vehicle emission budgets adequate for transportation conformity purposes in the Second Portland Area Carbon Monoxide Maintenance Plan. This second CO maintenance plan is effective through 2017, after which time conformity demonstration will no longer be necessary, if the area continues to not violate the CO National Ambient Air Quality Standards (NAAQS).

As Metro and the region have proposed a new 2035 RTP and 2010-2013 MTIP, an air quality conformity determination has been prepared for the transportation improvements proposed in this latest region-wide transportation plan and the implementing transportation improvement program. In order to demonstrate that the proposed 2035 RTP and 2011-2013 MTIP meet federal and state air quality planning requirements, Metro must complete a technical analysis, consult with relevant agencies and provide for public comment. In addition, the Transportation Policy Alternatives Committee (TPAC) is specifically named in the state rule as the standing committee designated for "interagency consultation," a technical review process. After TPAC review, the draft conformity determination report is then brought to the Joint Policy Advisory Committee on Transportation (JPACT – see http://www.metro-region.org/index.cfm/go/by.web/id=305 for more information about this committee) for consideration and then the Metro Council. A Metro Council (http://www.metro-region.org/index.cfm/go/by.web/id=28) approved air quality conformity determination is submitted to the United States Department of Transportation (USDOT). In practice, this means review by the Federal Highway Administration and Federal Transit Administration. These USDOT agencies make a conformity determination after consultation with the Environmental Protection Agency. Upon USDOT approval, federal funding of transportation projects may commence. See the Air Quality Conformity Determination prepared for the 2035 RTP and 2010-13 MTIP further documents how this provision is addressed.

134(i)(4) Consultation

> *"The metropolitan planning organization shall consult, as appropriate, with State and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation concerning the development of a long-range transportation plan. The consultation shall involve, as appropriate—*
> *(i) comparison of transportation plans with State conservation plans or maps, if available; or*
> *(ii) comparison of transportation plans to inventories of natural or historic resources, if available."*

SAFETEA-LU provisions for additional consultation with state and federal resource agencies, and tribal groups that were not already part of Metro's existing committee structure were met through a consultation meeting held on October 16, 2007 with the Collaborative Environmental Transportation Agreement for Streamlining (CETAS) work group, consisting of the Oregon Department of Transportation and ten state and federal transportation, natural resource, historic, cultural resource and land-use planning agencies.

A background research paper was also developed during the update to document current environmental trends, issues and mitigation strategies in the region. This research was considered during the formulation of the 2035 RTP goals, objectives, projects and performance targets included in Chapter 2 and investment priorities in Appendix 1.1 of the 2035 RTP. In addition, staff conducted an analysis of the potential environmental effects of transportation investments – this analysis included a comparison of the RTP investments with available State Conservation maps and inventories of historic resources. The background research report and environmental considerations analysis is included in Appendix 4.5.

134(i)(5) Participation by Interested Parties

> *"Each metropolitan planning organization shall provide citizens, affected public agencies, representatives of public transportation employees, freight shippers, providers of freight transportation services, private providers of transportation, representatives of users of public transportation, representatives of users of pedestrian walkways and bicycle transportation facilities, representatives of the disabled, and other interested parties with a reasonable opportunity to comment on the transportation plan."*

Metro maintains a proactive public involvement process that provides complete information, timely public notice, and full public access to key decisions. Metro supports early and continuing involvement of the public in developing its policies, plans and programs. Public Participation Plans are designed to both support the technical scope and objectives of Metro studies and programs while simultaneously providing for innovative, effective and inclusive opportunities for engagement. Every effort is made to employ broad and diverse methods, tools and activities to reach potentially impacted communities and other neighborhoods and to encourage the participation of low-income and minority citizens and organizations.

The work program and PPP for the 2035 RTP update was developed with input from Metro's Advisory Committees, including Metro's Committee for Citizen Involvement in spring 2006. The 2035 RTP provided several public comment opportunities for the community, affected public agencies, representatives of transportation agency employees, freight shippers, providers of freight transportation services, private providers of transportation, representatives of users of public transit, and other interested persons. Public involvement opportunities and key decision points were published in the Oregonian and other community newspapers, posted on Metro's web site, e-mailed via the Planning Department E-News to more than 4,500 individuals and live newsfeeds from Metro's website. All plan documents were simultaneously published (and regularly updated) on the Metro web site, including draft plan amendments, the update schedule, other explanatory materials and summaries of public comments received.

Attachment 1 to the staff report to this ordinance provides a detailed summary of public involvement, and engagement activities and decisions throughout the process.

134(i)(6) Plan Publication

> *"A transportation plan involving Federal participation shall be:*
>
> *(i) published or otherwise made readily available by the metropolitan planning organization for public review;*
> *(ii) approved by the metropolitan planning organization; and*
> *(iii) submitted for information purposes to the Governor at such times and in such manner as the Secretary shall establish"*

Federal Component

Proposed amendments to the 2035 RTP were organized into a discussion draft 2035 RTP document that was released for public comment from October 15 – November 15, 2007. The subsequent Air Quality Conformity Determination was released for public review and comment from January 18 – February 18, 2008. The proposed amendments and subsequent Air Quality Conformity Determination were posted on Metro's website and available upon request during the public comment periods.

On December 13, 2007, the Joint Policy Advisory Committee on Transportation (JPACT) and the Metro Council approved the 2035 RTP with amendments identified to respond to public comments, pending air quality conformity analysis. JPACT and the Metro Council approved the subsequent Air Quality Conformity Determination for the 2035 RTP and 2008-11 Metropolitan Transportation Improvement Program on February 26 and February 28, respectively. With U.S. DOT approval, the approved 2035 RTP and Air Quality Conformity Determination for the RTP and the 2008-11 Metropolitan Transportation Improvement Program were submitted to the Governor for approval.

State Component

As described in finding for **134(i)(5) Participation by Interested Parties**, the draft RTP and projects, draft TSMO Plan, draft Regional Freight Plan, draft HCT System Plan summary report, draft Regional Transportation Functional Plan and complete list of projects were released for a 30-day public comment period that was held from September 15 to October 15, 2009. The RTP comment package was released as part of the *Making the Greatest Place* effort and Metro's chief operating officer's recommendation titled "Strategies for a sustainable and prosperous region."

In early 2010, staff completed the air quality conformity analysis and prepared documents to be released for a third and final 45-day public comment period and hearings. Forty-five days before the comment periods opened, electronic notices were sent to all neighborhood associations, citizen participation organizations, jurisdictions, tribes with any potential interest in the area, business and community stakeholders, and all individuals who asked to be included in our list of interested parties announcing the comment period and providing information on how to comment. A second notice was sent when the comment period opened. A public notice was published in The Oregonian, the newspaper of record for the metro area, and display ads were published in all ethnic newspapers and community newspapers. A press release was published on the Metro web site and sent to all area media.

On June 10, 2010, the Joint Policy Advisory Committee on Transportation (JPACT) and the Metro Council approved the 2035 RTP with amendments identified to respond to public comments by Ordinance No. 10-1241A. JPACT and the Metro Council also approved the subsequent Air Quality Conformity Determination for the 2035 RTP and 2011-13 Metropolitan Transportation Improvement Program by Resolution No. 10-4150A. With U.S. DOT approval, the approved 2035 RTP and Air Quality Conformity Determination for the RTP and the 2011-2013 Metropolitan Transportation Improvement Program will be submitted to the Governor for approval.

134(i)(7) Selection of Projects

> *"Not-withstanding paragraph (2)(C), a State or metropolitan planning organization shall not be required to select any project from the illustrative list of additional projects included in the financial plan under paragraph (2)(C)."*

The implementation provisions of the RTP require the MTIP to select projects for federal funding exclusively from the federally-recognized financially constrained system (2035 RTP Appendix 1.1). The 2035 RTP provides an updated set of financially constrained projects and programs for future MTIP funding allocations.

134(k)(1)(A) Designation of Transportation Management Areas

> *"The Secretary shall identify as a transportation management area each urbanized area (as defined by the Bureau of the Census) with a population of over 200,000 individuals."*

The Portland region exceeds this population threshold, and is designated as a Transportation Management Area. The Metro planning area boundary, Census Urbanized Area boundary, and other relevant boundaries are shown in Figure 1.2 of the 2035 RTP for reference.

134(k)(2) Transportation Plans in Management Areas

> *"In a metropolitan planning area serving a transportation management area, transportation plans and programs shall be based on a continuing and comprehensive transportation planning process carried out by the metropolitan planning organization in cooperation with the State and public transportation operators."*

Metro is the designated metropolitan planning organization for the Portland region, and prepares the regional transportation plan in cooperation with the Oregon departments of Transportation, Environmental Quality and Land Conservation and Development, TriMet, SMART and other transit operators in the region, the Port of Portland, three counties and 25 cities. This cooperation and coordination occurs through TPAC, MTAC, JPACT and MPAC and periodic briefings to the Oregon Transportation Commission, Land Conservation and Development Commission and the TriMet Board.

134(k)(3) Congestion Management Process

> *"Within a metropolitan planning area serving a transportation management area, the transportation planning process under this section shall address congestion management through a process that provides 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 this title and chapter 53 of title 49 through the use of travel demand reduction and operational management strategies. The Secretary shall establish an appropriate phase-in schedule for compliance with the requirements of this section."*

The 2035 RTP work on mobility corridors (Chapter 4) and Performance Measures (Chapter 5) relate to the eight-step Congestion Management process. The RTP goals (Chapter 2) serve as the overarching framework of the region's CMP. The mobility corridors will be the focus of the system and network of interest. The CMP will identify congested mobility corridors and multimodal strategies to mitigate the congestion. Where more motor vehicle capacity is appropriate, the CMP will include additional system and demand management strategies to ensure the capacity investment is effectively managed to get the most value from the investment. Building upon the performance measures in the RTP, the CMP will provide a framework for data collection and plan monitoring for system performance. The data will be used to help assess various strategies for managing congestion. The region's partner agencies and local governments will then look for ways to implement appropriate strategies into on-going or new projects in those corridors. As strategies are implemented, a follow-up assessment will be conducted to determine the effectiveness of the improvements.

A background research paper was developed during the update to document current regional street and highways trends, performance issues and congestion mitigation strategies in the region. This research was considered during the formulation of the 2035 RTP goals, objectives, projects and performance targets included in Chapter 2 and investment priorities in Appendix 1.1 of the 2035 RTP. Section 1.7 of the 2035 RTP also summarizes current congestion mitigation activities in the region and current bottlenecks on the region's highways. The RTP includes a number of other measures that provide a more complete picture of how periods of heavy motor vehicle travel affect the region, including vehicle miles traveled per capita, which FHWA statistics show are declining in the Portland region – an opposite trend from what most other major cities are experiencing, and a positive indicator that the multi-modal strategy of the RTP, combined with the region's urban growth policies, are reducing the amount of personal driving for area residents.

The 2035 RTP retains the congestion management program (Section 6.4) that was developed in response the federal ISTEA, and certified as part of Title 6 of the Urban Growth Management Functional Plan in 1996. This section of the RTP and Chapter 2 objectives and implement the CMP Roadmap submitted to and approved by FHWA in 2006. The region's CMP is included in Appendix 4.4 for reference. In addition, the Regional Transportation Functional Plan codifies the CMP in Section 3.08.220, directing local governments to follow the CMP steps and strategies when developing TSPs and updates to those plans.

134(k)(4)(A) Selection of Projects

> *"All federally funded projects carried out within the boundaries of a metropolitan area serving a transportation management area under this title (excluding projects carried out on the National Highway System and projects carried out under the bridge program or the Interstate maintenance program) or under chapter 53 of title 49 shall be selected for implementation from the approved transportation improvement program by the metropolitan planning organization designated for the area in consultation with the State and any affected public transportation operator."*

All federal funds allocated through Metro are granted through the MTIP, the approved transportation improvement program for the Portland area MPO, and recognized as such by the State, TriMet and SMART (2035 RTP Section 6.5). Projects and programs funded with federal revenue through the MTIP process must be identified as part of the financially constrained system in the RTP. The 2035 RTP provides an updated set of financially constrained projects and programs for future MTIP funding allocations.

134(k)(4)(B) National Highway System Projects

> *"Projects carried out within the boundaries of a metropolitan planning area serving a transportation management area on the National Highway System and projects carried out within such boundaries under the bridge program or the Interstate maintenance program under this title shall be selected for implementation from the approved transportation improvement program by the State in cooperation with the metropolitan planning organization designated for the area."*

The MTIP funding decisions are developed in coordination with the Oregon Department of Transportation. Projects funded in the MTIP are incorporated into the State Transportation Improvement Program (STIP), to ensure consistency between regional and state improvement programs.

134(k)(5)(A) Certification Required

> *"The Secretary shall:*
>
> *(i) ensure that the metropolitan planning process in each metropolitan planning area serving a transportation management area is being carried out in accordance with applicable provisions of Federal law; and*
>
> *(ii) subject to subparagraph (B), certify, not less often than once every 4 years, that the requirements of this paragraph are met with respect to the metropolitan planning process."*

Metro's planning process is certified annually based on the adoption of the Unified Planning Work Program ("UPWP"), through the federal self-certification process. Metro last completed the self-certification process on April 15, 2010 through Resolution No. 10-4136. The FHWA is expected to approve the 2010-2011 UPWP and self-certification in July 2010. The next scheduled certification review will occur in February 2011.

134(k)(5)(B) Certification Requirements

> *"The Secretary may make the certification under subparagraph (A) if:*
>
> *(i) the transportation planning process complies with the requirements of this section and other applicable requirements of Federal law; and*
>
> *(ii) there is a transportation improvement program for the metropolitan planning area that has been approved by the metropolitan planning organization and the Governor."*

FHWA and FTA approved the Federal Component of the 2035 RTP and the associated air quality conformity determination on March 5, 2008. The 2009-10 Unified Planning Work Program self-certification process confirmed that the 2035 RTP complied with the requirements of this section, and other applicable requirements of federal law, and that Metro's MTIP had been approved by JPACT, the Metro Council and the Oregon Transportation Commission (OTC), on behalf of the Governor.

In Spring 2011, the 2035 RTP and the 2010-2013 MTIP will be reviewed for compliance with the requirements of this section as part of the next scheduled certification review.

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Appendix 4.2 2035 Regional Transportation Plan

Financially Constrained Revenue Assumptions

SAFETEA-LU contained a number of requirements for MPOs to address in updating regional transportation plans (RTP). Federal regulations require that a RTP be financially constrained and demonstrate that total project costs not exceed the total revenue level reasonably expected to be available for the Metro region over the life of the plan. Chapter 3 of the 2035 RTP describes the Metro Region's sources of revenue, forecasts of reasonably expected revenue and explains the methodology and assumptions used to forecast the revenue used in developing the Financially Constrained System.

Additionally, SAFETEA-LU also requires that the 2035 RTP consider the effects of inflation in developing project cost estimates and revenues. Under new rules from FHWA and FTA, the financial constraint of the RTP must be demonstrated in "Year-of-Expenditure" dollars or YOE dollars. The rationale behind this requirement is that long-range estimates of transportation costs have understated the deficit between costs and revenues. By converting all costs and revenues to YOE dollars theoretically presents a more accurate picture of costs, revenues, and deficits associated with a long-range transportation plan. The following discusses the methodology used in calculating costs and revenues into YOE dollars.

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Financially Constrained RTP Project Costs

Metro selected a four percent annual inflation rate to use for the life of the plan. A flat four percent is recommended by FHWA as the default inflationary rate. Additionally, the Oregon Department of Transportation (ODOT) used roughly a four percent average inflationary rate applied to projects in the 2008 – 2011 Metropolitan Transportation Improvement Program (MTIP). Four percent will also be used in developing the 2010 – 2013 MTIP. In developing the revenue forecasts and during the solicitation process for 2035 RTP projects, all costs and revenues were reflected in 2007 dollars. For financially constrained projects, to change to YOE dollars, cost estimates were inflated based on the time period for project implementation.

Projects are reflected in YOE dollars for the last year of each estimated implementation time period (2017, 2025, and 2035). This is intended to reflect the costs of completing the project by the end of the time period. The YOE total was derived by applying the four percent inflationary factor to the final year of each project based upon its estimated project implementation time period. For projects that fall into multiple implementation periods, the total project cost was split evenly among the time periods and inflated by the respective time periods' YOE dollars. Appendix 1.1 lists all the projects included in the Financially Constrained System in 2007 dollars and YOE dollars.

Financially Constrained RTP Revenues

Estimates of financially constrained revenues, discussed in depth in Chapter 5, were based on preliminary revenue estimates conducted by ECONorthwest with assistance from Kittelson and Associates. The report, Preliminary *Financial Analysis for the 2035 Regional Transportation Plan Update*, in combination with ODOT's *Financial Assumptions Report* were used to identify revenues for various revenue categories by year (from 2007 – 2035) for six funding pools:

- ODOT Road Modernization Funding Pool
- Regional Transit and Programs Funding Pool
- Clackamas County/Cities Modernization Funding Pool
- Washington County/Cities Modernization Funding Pool
- City of Portland and Port of Portland Modernization Funding Pool
- Multnomah County/Cities (Excluding City of Portland) Modernization Funding Pool

All forecasted revenues in Chapter 3 are shown in 2007 dollars. YOE dollars were calculated for each of the seven funding pool's by applying the four percent inflationary rate to each funding source by year (2007 – 2035). The year-by-year breakdowns for each of the funding sources were derived from the ECONorthwest report. Tables 1 – 7 summarize the funding sources for each of the funding pools in 2007 dollars and YOE dollars.

Table 1: ODOT Modernization Funding Pool (Millions of $)

	Financially Constrained Amount	
Funding Source	**2007 $**	**YOE $**
Metro Region Share of Existing State and Federal Formula Funds excluding Fed Funds Allocated to Local Governments	$273.20	$453.00
ODOT Share of High Priority Project and Other Discretionary Fed Grants in Metro Region	$376.80	$689.90
Metro Region Share of New Revenues: Assumed for Analytical Purposes to be State Share of $15 Vehicle Registration Fee Increase for Modernization Every 8 Years beginning 7/1/09	$147.70	$301.10
OTIA	$97.90	$108.10

Other (including other in STIP, local in STIP and unlisted other/carry forward in STIP)	$80.60	$89.00
CRC Toll Bond Proceeds	$1,350.00	$1,998.33
CRC Federal Highway Discretionary Funds	$600.00	$888.15
CRC State Revenue (Oregon Share)	$506.00	$749.00
CRC State Revenue (WA Share)	$506.00	$749.00
Existing CRC State Revenue	$20.00	$29.60
Financially Constrained Amount Forecasted for Metro region share of all ODOT Road Modernization Funds + CRC	**$3,958.20**	**$6,055.19**
Funding Source	**State RTP System Amount**	
	2007 $	**YOE $**
Additional State VRF Increase of $2/year	$574.70	$1,139.73
Total Amount of Revenue for ODOT Road Modernization for the State RTP	**$4,532.90**	**$7,194.92**

Table 2: Regional Transit and Programs Funding Pool (Millions of $)

	Financially Constrained Revenue	
Funding Source	**2007 $**	**YOE $**
Metro Region CMAQ Funds	$306.00	$561.10
Alternative Mode Share (25%) of Metro Region STP Funds	$120.70	$221.00
Metro Region Enhancement Funds	$44.20	$94.20
SMART Local Revenue	$105.20	$192.20
5309 New Starts/Small Starts Funds	$639.90	$778.50
State Lottery Bonds (Milwaukie LRT)	$250.00	$304.20
Local Match for New Starts/Small Starts Funds	$101.60	$123.60
Value of Willamette Shore ROW for Lake Oswego Streetcar Local Match	$75.00	$91.20
TriMet Local Capital	$702.05	$1,282.20
5309 Discretionary Bus Grants	$29.00	$53.00
CRC New Starts	$750.00	$1,110.18
CRC (TriMet $37 and C-TRAN $274)	$311.00	$460.36
Active Transportation Corridor Funds (HPP & Other)	$75.00	$136.98

Financially Constrained Amount Forecasted + CRC	**$3,509.65**	**$5,408.72**
	State RTP Revenue	
Funding Source	**2007 $**	**YOE $**
Additional Payroll Tax Increase of 0.2%	$1,431.68	$2,614.85
5309 New Starts/Small Starts Funds	$1,143.75	$2,317.03
Other Local Match Beyond TriMet for New Starts/Small Starts Funds	$571.88	$1,158.52
Total Amount of Revenue for the State RTP	**$6,656.96**	**$11,499.12**

Table 3: Clackamas County/Cities Modernization Funding Pools (Millions of $)

	Financially Constrained Revenue	
Funding Source	**2007 $**	**YOE $**
Regional High Priority Projects/Other Disc. Grants	$88.40	$161.55
Regional STP Funds	$95.50	$174.26
"Other" Federal Funds Exc. Bridge	$13.80	$25.92
Bridge	$14.20	$25.95
General Fund	$0.00	$0.00
SDC-TIF	$585.00	$1,068.33
Urban Renewal	$116.00	$211.87
Private Development	$109.60	$200.11
Special Assessment	$3.20	$5.53
Other Local Sources	$99.50	$181.67
Share of $15 VRF Increase Every 8 Years	$46.90	$96.07
Financially Constrained Amount Forecasted	**$1,172.00**	**$2,151.26**
	State RTP Revenue	
Funding Source	**2007 $**	**YOE $**
Additional State VRF Increase of $2/year	$99.06	$196.46
Regional/Local VRF Increase of $1/year	$255.78	$433.06
SDC Increase to the Regional Average	$69.65	$119.91
Total Amount of Revenue for the State RTP	**$1,596.49**	**$2,900.69**

Table 4: Washington County/Cities Modernization Funding Pools (Millions of $)

Funding Source	Financially Constrained Revenue	
	2007 $	YOE $
Regional High Priority Projects/Other Disc. Grants	$100.90	$184.30
Regional STP Funds	$109.00	$199.20
"Other" Federal Funds Exc. Bridge	$15.80	$28.60
Bridge	$14.20	$26.00
General Fund	$1,119.30	$2,168.70
SDC-TIF** (Doubling of SDC based on TDT & Hillsboro fees for $8 million)	$662.40	$1,209.82
Urban Renewal	$43.50	$79.40
Private Development	$89.70	$163.90
Special Assessment	$45.00	$82.10
Other Local Sources	$126.20	$230.04
Share of $15 VRF Increase Every 8 Years	$61.10	$125.20
Financially Constrained Amount Forecasted	**$2,387.60**	**$4,497.26**
Funding Source	**State RTP Revenue**	
	2007 $	**YOE $**
Additional State VRF Increase of $2/year	$175.13	$347.31
Regional/Local VRF Increase of $1/year	$447.18	$756.45
SDC Increase to the Regional Average	$180.91	$308.50
Urban Renewal Increase Hillsboro	$107.00	$195.43
Increase in MSTIP – General Fund	$829.00	$1,514.11
Total Amount of Revenue for the State RTP	**$4,126.82**	**$7,619.06**

Table 5: City of Portland and Port of Portland Modernization Funding Pools (Millions of $)

Funding Source	Financially Constrained Amount	
	2007 $	YOE $
Regional High Priority Projects/Other Disc. Grants	$118.20	$216.43
Small Starts for Streetcar Projects	$200.00	$405.16
Regional STP Funds	$126.90	$231.70
"Other" Federal Funds Exc. Bridge	$18.40	$33.60

Table 5: City of Portland and Port of Portland Modernization Funding Pools (Millions of $)

Funding Source	Financially Constrained Amount	
	2007 $	YOE $
Bridge	$0.00	$0.00
General Fund	$0.00	$0.00
SDC-TIF	$222.00	$405.50
Urban Renewal	$203.00	$370.80
Private Development	$72.90	$133.20
Special Assessment	$17.70	$32.30
State Grants	$41.10	$50.00
Other Local Sources	$58.00	$105.90
Port of Portland Funds	$256.90	$469.20
Share of $15 VRF Increase Every 8 Years	$94.80	$193.60
Financially Constrained Amount Forecasted	**$1,429.90**	**$2,647.39**
Funding Source	**State RTP System Amount**	
	2007 $	**YOE $**
Small Starts for Streetcar Projects	$82.50	$247.39
Additional State VRF Increase of $2/year	$178.97	$352.57
Regional/Local VRF Increase of $1/year	$305.49	$516.89
SDC Increase to the Regional Average	$357.86	$601.21
Total Amount of Revenue for for the State RTP	**$2,354.72**	**$4,365.46**

Table 6: Multnomah County/Cities (Excluding City of Portland) Modernization Funding Pools (Millions of $)

Funding Source	Financially Constrained Revenue	
	2007 $	YOE $
Regional High Priority Projects/Other Disc. Grants	$28.40	$51.90
Regional STP Funds	$30.60	$55.90
"Other" Federal Funds Exc. Bridge	$4.40	$8.10
General Fund	$0.00	$0.00
SDC-TIF	$393.60	$737.60
Urban Renewal	$66.70	$121.80

Table 6: Multnomah County/Cities (Excluding City of Portland) Modernization Funding Pools (Millions of $)

Funding Source	Financially Constrained Revenue	
	2007 $	**YOE $**
Private Development	$307.90	$562.30
Special Assessment	$0.00	$0.00
Other Local Sources	$177.90	$324.92
Share of $15 VRF Increase Every 8 Years	$29.80	$62.70
Financially Constrained Amount Forecasted	**$1,039.30**	**$1,925.22**
	State RTP Revenue	
Funding Source	**2007 $**	**YOE $**
Additional State VRF Increase of $2/year	$121.54	$239.43
Regional/Local VRF Increase of $1/year	$305.49	$516.89
SDC Increase to the Regional Average	$103.77	$176.95
Total Amount of Revenue for the State RTP	**$1,465.00**	**$2,858.49**

Table 7: Local Willamette River Bridges Modernization Funding Pools (Millions of $)

Funding Source	Financially Constrained Revenue	
	2007 $	**YOE $**
Bridge Funds	$144.70	$264.28
Financially Constrained Amount Forecasted	**$144.70**	**$264.28**
	State RTP Revenue	
Funding Source	**2007 $**	**YOE $**
N/A	$0.00	$0.00
Total Amount of Revenue for the State RTP	**$144.70**	**$264.28**

Table 8 below shows the total cost of the projects and the expected revenues for the Financially Constrained System.

Table 8: Total Costs and Revenues (Millions $)

Totals	Financially Constrained Revenue 2007 $	YOE $
Total Cost of 2035 RTP Financially Constrained Projects	$13,350.61	$22,013.01
Total 2035 RTP Financially Constrained Revenues	$13,641.35	$22,949.32
Total Difference	**$290.74**	**$936.31**
% Difference	**2.13%**	**4.08%**
	State RTP Revenue	
Totals	**2007 $**	**YOE $**
Total Cost of 2035 State RTP Projects	$19,822.78	$34,288.12
Total 2035 State RTP Revenues	$20,655.59	$35,702.02
Total Difference	**$832.81**	**$1,413.90**
% Difference	**4.03%**	**3.96%**

Revenues for the Financially Constrained RTP exceed costs by $290.74 million and $936.31 million in 2007 and YOE dollars respectively. The difference represents 2.13% in 2007 dollars and 4.08% YOE dollars when compared against the total magnitude of investments in the Financially Constrained System. For the State RTP System, revenues exceed costs by $832.81 million and $1,413.90 million in 2007 and YOE dollars respectively. The difference represents 4.03% in 2007 dollars and 3.96% YOE dollars when compared against the total magnitude of investments in the State RTP System. In addition, project costs reflect planning level estimates that have not yet benefited from project development with more refined cost estimation. For these reasons and given a planning horizon of 29 years the disparities between costs and revenues fall within a reasonable margin of error and reflect a financially constrained RTP.

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Appendix 4.3 2035 Regional Transportation Plan
Summary of Stakeholder and Community Engagement

Federal Component of 2035 RTP Update (2005-2008)

To meet the requirements of SAFETEA-LU, the 2035 RTP Public Participation Plan (PPP) was designed to ensure early and active public participation throughout the updating process and timely, effective notification prior to major decisions. The PPP called for concerted efforts to solicit input from populations that are traditionally underrepresented in transportation decision-making, specifically minorities and low-income people. To help remove barriers to attending meetings, all the public meetings were held at locations served by mass transit. Translators and interpreters were available as needed.

Metro advisory committees—the Transportation Policy Alternatives Committee (TPAC), the Joint Policy Advisory Committee on Transportation (JPACT), the Metro Policy Advisory Committee (MPAC) and the Metro Technical Advisory Committee (MTAC)—were forums for discussion and decision-making by elected officials and their staffs, representing cities and counties of the region, transportation agencies and providers. Three of those committees—TPAC, MPAC and MTAC—have community representatives as regular members, bringing the lay perspective to those discussions and making recommendations on decisions.

Two additional committees played significant roles in providing input from the community—the Metro Committee for Citizen Involvement (MCCI) and a Metro-council appointed task force on Regional Freight and Goods Movement. MCCI is a chartered committee composed of residents of the region that advises the Metro Council on public involvement MCCI reviewed a draft of the PIP, received periodic updates from staff, and provided feedback to staff on public outreach material.

The Regional Freight and Goods Movement task force, composed of multi-modal public-and private-sector freight interests, developed a *Regional Freight and Goods Movement Plan* for the RTP update. This task force received technical input and recommendations from a Regional Freight Technical Advisory Committee (TAC), composed of staff from local, regional, and state agencies operating within Metro's jurisdictional boundaries.

Public information

Information on RTP developments was provided to the public throughout the update process through briefings of reporters and editorial boards, press releases, media packets, civic journalism, electronic newsletters, and fact sheets available through the Metro website and distributed at meetings and events.

The RTP project website posted information about the update process, with a timeline indicating key decision points and public comment opportunities. A transportation information telephone line presented information about key decision points and directed callers to sources of more information.

Federal SAFETEA-LU provisions for additional consultation with state and federal resource agencies and tribal groups that were not part of Metro's existing committee structure were met through a consultation meeting held on October 16, 2007, with the collaborative Environmental Transportation Agreement for Streamlining (CETAS) work group. That group consisted of representatives from the Oregon Department of Transportation (ODOT) and 10 state and federal transportation, natural resource, cultural resource and land-use planning agencies.

Stakeholder and community engagement

Methods for engaging public agencies and targeted public and private-sector stakeholder groups included regional forums; stakeholder, task force, and advisory committee workshops; scientific public opinion research; meetings with county coordinating committees (forums for staff and elected officials from the counties to coordinate work with their counterparts from the cities within their boundaries); and public open houses and hearings. Key events are indicated in the graphic below.

2006

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Regional forums/ roundtables				◆		◆				◆		
Stakeholder workshops										◆	◆	◆
Informal feedback (web, card)								◆	◆	◆	◆	
Public opinion survey	◆											

2007

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Public opinion survey	◆											
Regional forums/ roundtables	◆									◆		
Mobility Workshop				◆								
CETAS consultation										◆		
Joint MPAC/JPACT meetings					◆					◆		
JPACT retreat	◆											
Public comment/ hearings										◆	◆	

Regional forums and roundtables

Regional forums held periodically throughout the updating process helped define the scope of the update, identify key issues, shape the public engagement strategy and address issues at milestones in the update process. In April 2006 a regional transportation forum helped define the scope of the update. In June 2006 a "New Look" land-use and transportation forum helped identify key transportation issues related to environmental protection and land-use planning. Participants included mayors and chairs from across the region, representatives of business groups, community-based organizations, academic institutions, non-profits organizations and the general public.

Regional roundtables, a gathering of mayors, county commission chairs, county commissioners and city councilors from the cities and counties in the Metro region as well as those from neighboring cities, provide a forum for all regional elected officials to focus on issues of mutual concern. Regional roundtables, a gathering of mayors, county commission chairs, county commissioners and city councilors from the cities and counties in the Metro region as well as those from neighboring cities, provide a forum for all regional elected officials to focus on issues of mutual concern. Roundtables held on October 25, 2006 and October 26, 2007, discussed the RTP and related land use and funding issues.

Agency and jurisdictional outreach

Metro staff worked with cities, counties, and agencies such as TriMet and the Port of Portland on targeted outreach and communication efforts to address specific needs of each agency or jurisdiction and to facilitate collaboration among the agencies and jurisdictions in the RTP process. Throughout the process, regular standing County Coordinating Technical Advisory Committees meetings and other meetings (e.g., joint MTAC/TPAC and MPAC/JPACT workshops, and briefings to the Regional Travel Options Subcommittee, Transport Subcommittee, Freight TAC, the Southwest Washington Regional Transportation Council [RTC] and the Bi-State Coordination Committee) provided opportunities to share project information and provide input. In May 2007, Metro, TriMet and ODOT together facilitated a joint MPAC/JPACT/Freight Task Force "mobility workshop" to facilitate cross-agency, inter-jurisdictional discussions of regional needs and priorities.

Stakeholder and community workshops

In September and October of 2006, Metro staff met with interested individuals, community advocacy and advisory groups, and professional planners to discuss the current and future state of the region's bicycle and pedestrian systems and a regional trail system... Metro followed up with a combined bicycle and pedestrian technical workshop to address RTP policy updates to address gaps in the current bike, pedestrian and trail systems. (See summary of bicycle and pedestrian outreach at the end of this section)

From late October through early December 2006, Metro held nine additional stakeholder workshops to inform the policy framework for the RTP. Four of the nine workshops were held with existing policy advisory committees and five with groups that represented specific public interests, public responsibilities, or groups historically underrepresented in the transportation planning and decision-making processes.[1] These workshops engaged 127 individuals and 50 different community organizations and government entities. The five business and community workshops are briefly described below.

Freight and business

This workshop assembled employers and individuals involved in area businesses, industries, agriculture and organizations related to the movement of freight and goods throughout the region. This group included representatives of Metro's Regional Freight and Goods Movement Task Force, Washington Counties Rural Roads Operations and Maintenance Advisory Committee (RROMAC), the Portland Visitor's Association, Oregon Trucking Association and the Westside Business Alliance.

Active living

This workshop assembled professionals, academics and individuals interested in the connection between transportation and public health. Participants were drawn from health departments and nonprofit organizations, such as Elders in Action, Active Living-Healthy Eating Partnership, Salud!,

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[1] *2035 Regional Transportation Plan Update Stakeholder Engagement Report* from the Metropolitan Group available through the 2035 RTP Update Publications page: www.metro-region.org/index.cfm/go/by.web/id=25036

Oregon Institute on Disability and Development (OHSU), Oregon Department of Health Services, and Multnomah County Health Department.

Transportation equity

Two workshops focused on transportation equity. One workshop recruited low-income residents of North Portland through the Environmental Justice Action Group, to bring to hear the perspective of urban dwellers who may have reasonably good access to a variety of transportation choices, but who may have safety concerns or other priorities. The other workshop, conducted in Spanish at Centro Cultural in Cornelius, Oregon, sought input from individuals living in an area of the region with the largest, and fastest growing Latino population. The discussions focused on the transportation priorities of day laborers and agricultural workers who may travel to different job locations from day to day and who may live in areas that do not offer viable transportation choices.

Community and environmental health

This workshop included representatives from member organizations of the Coalition for a Livable Future (CLF). The CLF member organizations include a broad range of transportation advocacy groups, environmental protection groups and community-based organizations. Participants included representatives from the CLF parent organization, Oregon Sustainable Agriculture Land Trust (OSALT), Sierra Club, Better People, League of Women Voters, Bicycle Transportation Alliance, and Association of Oregon Rail and Transit Advocates (AORTA).

Scientific public opinion research

In February 2006 by Davis, Hibbits & Midghall[2] published the results of scientific public opinion research that reaffirmed the region's commitment to basic values as expressed in the region's 2040 Growth Concept. The 2040 Growth Concept, adopted by the Metro Council in 1995 after an extensive public involvement effort, recognizes the close relationships among transportation, land-use, economic vitality and wise growth-management. This growth vision formed the foundation for the goals and policies of the RTP.

In January 2007 Moore Information presented the results of another scientific public opinion survey[3] designed to complement and supplement information from prior public input and the stakeholder engagement workshops that were part of the RTP update. That survey sought to better understand regional transportation priorities and values.

Informal presentations and feedback opportunities

Metro staff and Councilors made presentations to community groups, business organizations, local governments, the TriMet Board, the Oregon Transportation Commission, the Land Conservation and Development Commission, the Bi-State Coordination Committee and other interested advisory committees throughout the region. These presentations offered opportunities for participants to provide feedback on the direction of the RTP and the policies and goals under development.

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[2] Regional Attitudes Toward Population Growth and Land Use Issues, http://www.metro region.org/files/planning/dhm-publicopinionsurvey-report.pdf

[3] Summary of Moore Information survey results, http://www.metro-region.org/files/planning/2007rtpopinionresearch.pdf

A comment card was created in Fall 2006 to solicit feedback on transportation needs, priorities and gaps. (See copy of comment card at the end of this section.) The card was distributed at presentations given during that time. The card was converted to a web-based format to gather input through SurveyMonkey.com on the project website. The cars were also translated into Spanish and distributed through Centro Cultural. The results from all the responses were compiled and summarized for consideration in addition to the larger body of information gained through the scientific public opinion surveys and stakeholder workshops to help shape the RTP policies. (See "Summary of Web and Comment Card Responses" at the end of this section.)

Public comment period, open houses, hearings and notification

On October 15, 2007, the review draft of the 2035 RTP was posted on Metro's website for viewing or downloading. Printed copies were sent to all regional jurisdictions and agencies, Metro advisory committee members, and to the general public on request. This marked the start of a formal 30-day public comment period that ended on November 15, 2007.

Forty-five days prior to the October 15 opening of the public comment period, electronic notices were posted on the Metro website and distributed to all neighborhood associations, citizen participation organizations (CPOs) and interested parties who had asked to be included in Metro's RTP notification list. The notices included information on how to access the review draft online, where to call to request a hard copy, how to submit comments (by email, through an online web comment form, by US post, or in person at any of four open houses and public hearings). This information was also distributed via Metro's information telephone line, in articles included in a transportation planning e-newsletter and in each Metro Councilor's monthly newsletter.

Thirty days before the first open house a news advisory was sent to all major and community newspapers in the region. The advisory included information about the open houses, public hearings and comment period. The week before each open house, a newspaper advertisement was placed in the major newspapers as well as in the local ethnic and community newspapers.

All comments, testimonies and supporting material submitted as part of the comment period were compiled into a Public Comment Report. The Public Comment Report was provided to Metro Councilors, TPAC, JPACT, MTAC and MPAC for review. Jurisdictions and agencies that had proposed lists of investments for inclusion in the financially constrained plan had an opportunity to adjust those lists based on public comment. Metro staff created a log of substantive comments, with responses recommending action to suggested changes.

Feedback Card

How should we invest your transportation dollars in the next 30 years?

Metro is working on a long-range transportation plan that fosters healthy economies, protects the environment and supports vibrant communities. We need your help.

Think ahead to 2035 when our region will have a million more people and we need to

- move more freight and goods
- support more regional businesses and industries
- accommodate more people on sidewalks, bikeways, roads and transit
- invest more in maintenance on an aging road system

What do we need most in our transportation system?

____

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____

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What is missing from our transportation system now?

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What should we do to improve the safety of our transportation system?

____

____

____

____

Your ZIP code:______________________

To be added to our list of interested parties, go to **www.metro-region.org/rtp** and click on "2035 RTP update."

Summary of Web and comment card responses

To supplement our broad public outreach, we solicited open-ended responses to three general questions by distributing post cards at a variety of meetings and posting the questions on the Metro Website. We received responses from 55 different individuals originating from 33 different area zip codes.

This outreach effort was not a scientific survey, and the results should not be interpreted as such. However, these unprompted, open-ended responses from across the region can provide some insight into how the public experiences the region's transportation system.

The responses are summarized below.

1. What do we need most in our transportation system?

Balanced, multi-modal system (autos, transit, bike and pedestrian)	15
Improve freeway and regional road system	11
Safe/separate/dedicated bike routes	6
Bus rapid transit/faster transit between major centers	5
Reduce congestion/eliminate bottlenecks/improve traffic flow	5
Better freight ways/more freight on rails	4
Reduce number of cars on the roads/more alternatives	4
Improve maintenance of existing system/fix bridges	4
More/expanded/more frequent/later bus service	3
More sidewalks	3
Land use that reduces the need to drive	2
More light rail lines within the region	2
Making environmental impact a priority in any decision	2
New bridges (replace Sellwood; across the Columbia)	2
Safety designed into pedestrian crossings	1
More road connections between Portland and "satellite" cities	1
Transit routes connecting suburbs	1
More attention to aesthetics	1
High-speed mass transit along the entire I-5 corridor	1
More door-to-door public transportation	1
Better law enforcement/ticket inspectors	1

Brief analysis: The most frequent single response—a balanced transportation system—reflects a realization that we need to invest in all modes of transportation to address the region's transportation needs.

Collapsing categories that singled out specific modes, those receiving the most mention included 23 for improving car travel (adding, fixing, or maintaining roads and bridges); 13 for transit (adding, expanding, or improving the speed); and 6 for bicycle, especially dedicated facilities.

Two of the respondents mentioned improved land use as "most needed" for our transportation system, indicating that the connection between land use and transportation needs has reached some.

2. What is missing from our transportation system now?

Bike and pedestrian facilities (sidewalks, lanes, dedicated bridges)	9
More local roads; more freeway lanes; new freeways (eastside; Westside bypass)	9
Mass transit from neighbor cities to employment areas	6
Improved/expanded public transit (light rail, bus routes, express service)	5
Better bus connections/routes/expanded hours	5
Suburb to suburb transit	4
Relieve congestion (217; 99E; NW metro area; general)	4
Improved freight system	3
Creative funding ideas	3
IT (signal coordination)	2
Columbia R. crossing	2
Affordable housing close in	2
Secure parking at transit malls	2
Commuter rail along the entire I-5 corridor	2
Bus rapid transit	2
Regional plan	1
Land uses that concentrate development in centers	1
New bridges (Columbia, Willamette)	1
Water taxis	1
Integrate land use/development with transportation planning	1

Brief analysis: Transit was mentioned 24 times (routes, speed, and service), with half of those responses specifically mentioning the need for connections to neighboring cities or between suburbs. Improving car travel (t improving or building new roads and bridges) was mentioned 14 times. Bicycle and foot travel (adding routes, sidewalks, safety refuges) was mentioned 9 times.

The need for affordable housing close to centers was mentioned twice as "missing." Coupled with two mentions of the need to integrated land-use and transportation planning indicates that, again, the message that land use affects transportation has reached at least some.

3. What should we do to improve the safety of the transportation system?

Separate/improve/increase bike routes	14
Enforcement (red lights, speeding, transit security, bike laws)	13
Reduce number of autos; increase rail/alternative transportation	8
Increase highway capacity	6
Sidewalks/pedestrian crossings	4
Correct poor road designs/engineer for safety (lower speeds; pedestrian refuges on major arterials; crossing facilities at transit stops	4
Public safety education	3
Install surveillance cameras (transit stops; on trains; on buses)	3
Lower speed limit	2
Reduce congestion	2

Dedicated bus lanes	1
More frequent bus service to reduce wait time at stops	1
Identify and fix crash sites	1
Install "help" buttons on transit and at stops	1
Fix existing roads and bridges	1

Brief analysis: We deliberately left the interpretation of safety open, so respondents would feel free to address personal safety or the safety of mode travel. Of a total of 64 suggestions, 59 focused on improving the safety of specific modes of travel; 5 addressed personal safety.

Of improvements to modes of travel, ways to improvement car travel drew 16 suggestions (reduce congestions, add capacity, fix poor or unsafe designs). Ways to improve bicycle safety received 14 specific mentions. Enforcement (red lights, transit security, bike laws) drew 13 specific suggestions.

Feedback from outreach to bicycle and pedestrian groups

In September and October 2006 Metro staff met with the following bicycle and pedestrian planners, advocacy and community groups in different parts of the region to explore barriers to walking and biking and to identify needed improvements.

Beaverton Bicycle Advisory Committee
Portland Bicycle Advisory Committee
Clackamas county Bike and Pedestrian Advisory Committee
Multnomah County Bicycle and Pedestrian Advisory Committee
Washington County Bicycle and Pedestrian Coordinator
City of Portland Pedestrian Advisory committee
Bicycle and Pedestrian Technical Workshop
Regional Trails Working Group

Safety was the top priority
Unsurprisingly, safety arose as the paramount concern for both bicyclists and pedestrians. Suggestions to improve safety for bike riders included designation of bike boulevards and low-traffic routes, addition of bike lanes on connectors and corridors (not arterials), and safe crossings where bike routes intersect arterials. Off-street bike paths were cited as especially important for helping older riders and children feel safe.

Vehicle driver-bike rider conflicts have increased with growth, with more education needed on both sides on ways to improve safety. For pedestrians, suggestions included providing safe crossings at all transit stops and better lighting on sidewalks and pathways.

Barriers were physical
Rail yards, railroad crossings, freeway on-ramps, large intersections and wide, busy streets pose major barriers to both bicyclists and pedestrians. These structures were built as part of a transportation system that was designed for trains and motor vehicles without planning for bikes or pedestrians. Both bicyclists and pedestrians noted that many roads, bike lanes and sidewalks are discontinuous. Many areas, especially those outside of downtown and eastside Portland, lack sidewalks and bike facilities (lanes and parking) entirely.

Solutions included building overpasses, adding medians and crossing islands, adding curb extensions, adding or improving the timing of crossing signals, and connecting discontinuous routes. New developments should integrate bicycle and pedestrian plans into the overall transportation system.

Flexible funding and more data are needed
Bike and pedestrian systems need flexible funding sources that can be used for improvements in areas that fall outside of the 2040 priorities—for example, along corridors and on connectors between centers. Both bike and pedestrian systems would benefit from more hard data to identify gaps and provide measures of progress.

State component of 2035 RTP Update (2008-2010)

Following approval of the federal RTP, the focus turned to the completion of a final RTP to meet regional and state land use goals and the Oregon Transportation Planning Rule. On May 1, 2008, the LCDC accepted the RTP in the manner of periodic review and approved the work program and timeline for the state component of the RTP, which called for its completion by December 2009.

2008

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Stakeholder workshops						◆	◆	◆	◆	◆	◆	◆
Web-page status reports	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
E-newsletters			◆		◆		◆		◆		◆	
Interactive feedback (Web)					.	◆	◆	◆		◆		
Presentations				◆						◆		
Media outreach	◆								◆			

2009

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Stakeholder workshops	◆	◆										
Joint MPAC/JPACT meetings									◆	◆	◆	
Web-page status reports	◆		◆		◆		◆		◆	◆	◆	◆
E-newsletters	◆		◆		◆		◆		◆			
Presentations					◆					◆		
Public comment/hearings									◆	◆		.
PROJECT LIST APPROVED												◆

2010

	Jan	Feb	Mar	Apr	May	Jun
Web-page status reports	◆	◆	◆	◆	◆	◆
Public notification		◆	◆			
Media outreach			◆		◆	
Public comment			◆	◆		
Public hearing					◆	
FINAL RTP DECISION						◆

During 2008 and 2009, RTP work focused on framing and refining transportation and land-use choices as part of the broader *Making the Greatest Place* effort. This comprehensive effort seeks to integrate local and regional land use and transportation investments to focus future population and employment growth in centers, corridors, and employment areas, consistent with the 2040 Growth Concept. This work included the evaluation of different land-use and transportation investment scenarios.

To provide a forum for discussions, MPAC and JPACT held three joint meetings between October and December 2008, to discuss transportation and investment policy choices that would be made in the next year or two. More than 100 people attended the joint meetings, which included the elected officials who are members of those committees, other elected officials, local government staff, non-government partners and members of the interested public. The results of those meetings helped prioritize transportation investments that would best support desired land uses and reduce travel distances.

During January 2009, Metro and Oregon Department of Transportation staff conducted 14 coordination interviews with local transportation agencies to provide information about the RTP's mobility corridor concept and to identify issues within each of the 24 corridors in preparation for future workshops.

Through March and April 2009, Metro and ODOT hosted seven mobility corridor workshops by geographic region to identify common mobility gaps and deficiencies and discuss the desired function of each corridor and individual transportation facilities. These meetings helped to develop a new Mobility Corridor Atlas and identify priority projects.

Metro also convened a bicycle work group to identify policy refinements to respond to public comments received during the federal component of the RTP update and to incorporate active transportation policy recommendations identified by the Blue Ribbon Committee for Trails.

At the same time, Metro and its regional partners continued to work on related planning efforts that will be included in the RTP: the Sunrise Corridor project, the I-5/99W connector study, the Sellwood Bridge study, the High-Capacity Transit (HCT) system plan, the Regional Freight Plan and the Transportation System Management and Operations (TSMO) plan. Metro also worked with communities around the region to identify their local land use, transportation and public infrastructure-related aspirations for managing growth and the investments needed to support them.

The technical analysis and policy development guided further system development and refinement before soliciting projects and funding strategies from the region's 25 cities, three counties, TriMet, South Metro Area Rapid Transit (SMART), Port of Portland and the Oregon Department of Transportation (ODOT) – the region's transportation providers. On June 15, 2009, the Metro Council, in conjunction with JPACT and MPAC, issued a "call for projects" to refine RTP investment priorities. The RTP goals, performance targets and refinement criteria provided policy direction for investment priorities to be brought forward for consideration in the final 2035 RTP.

JPACT-ENDORSED CRITERIA TO REFINE INVESTMENT PRIORITIES

- Make multi-modal travel safe and reliable
- Target investments to support local aspiration and the 2040 Growth Concept
- Provide multi-modal freight mobility and access
- Expand transit coverage and frequency
- Expand active transportation options
- Reduce transportation-related greenhouse gas emissions

- Address transportation needs of underserved communities

Projects were solicited from county coordinating committees, the city of Portland, TriMet, SMART, the Port of Portland and ODOT. Each project sponsor was requested to identify investment priorities consistent with the draft RTP performance targets and criteria, and within the funding target established by JPACT. Projects and programs were requested to come from plans or studies that had been developed through a public process. The solicitation resulted in 1,058 proposed projects with a total estimated cost of $19.6 billion.

The draft RTP and projects, draft TSMO Plan, draft Regional Freight Plan and draft HCT System Plan summary report and complete list of projects were released for a 30-day public comment period that was held from September 15 to October 15, 2009. The RTP comment package was released as part of the Making the Greatest Place effort and Metro's chief operating officer's recommendation titled "Strategies for a sustainable and prosperous region."

Forty-five days before the opening of the public comment period, electronic notices were distributed to all regional neighborhood associations, citizen participation organizations and interested parties who had asked to be included in Metro's notification lists. The notices included information on how to access the review draft online, dates and times of public open houses and hearings, and instructions on different options for submitting comments.

During the comment period, seven open houses and five public hearings were held. A Spanish interpreter was present at events held in Hillsboro, Gresham and North Portland, where large concentrations of Spanish speakers are known to live. The ability to engage an interpreter at any of the events was promoted in display ads and through a flyer in Spanish that was distributed to organizations that serve Spanish-speaking people in those communities.

On December 17, 2009, the Metro Council approved Resolution No. 09-4099, directing staff to:

- incorporate amendments recommended to respond to public comments received in a final draft RTP
- conduct a final analysis for conformity with the federal Clean Air Act
- prepare findings, and the functional plan amendments needed to implement the new policies and strategies.
- release the final draft RTP 45 days of public comment beginning in March 2010, before MPAC, JPACT and the Metro Council consider approval by ordinance in June 2010.

In early 2010, staff prepared documents to be released for a third and final 45-day public comment period and hearings. Forty-five days before the comment periods opened, electronic notices were sent to all neighborhood associations, citizen participation organizations, jurisdictions, tribes with any potential interest in the area, business and community stakeholders, and all individuals who asked to be included in our list of interested parties announcing the comment period and providing information on how to comment. A second notice was sent when the comment period opened. A public notice was published in The Oregonian, the newspaper of record for the metro area, and display ads were published in all ethnic newspapers and community newspapers. A press release was published on the Metro web site and sent to all area media.

All comments, testimonies and supporting material submitted as part of the comment period were compiled into a Public Comment Report. The Public Comment Report was provided to Metro Councilors, TPAC, JPACT, MTAC and MPAC for review. Metro staff created a log of substantive comments, with responses recommending action to suggested changes. MPAC, JPACT and the Metro Council considered public comments received prior to action on this ordinance.

METRO

Appendix 4.4 2035 Regional Transportation Plan
Congestion Management Process Roadmap

FEDERAL FINDINGS AND FUTURE WORK PROGRAM ACTIVITES

1.0 INTRODUCTION

The communities of the Portland metropolitan region have embraced a collaborative approach to planning that has made our region one of the most livable regions in the country. In the last two decades of the 20th century, the region join together to address the challenges, like growing traffic congestion, brought on by rapid population growth. In the 21st century we are faced with a new set of challenges. In addition to continued, steady population growth, we also must address climate change, rising energy prices, aging infrastructure, and limited funding for transportation.

The Portland region's Congestion Management Process (CMP) is designed with these challenges in mind. It represents a new way of thinking about integrated transportation networks and land use to manage mobility of people and goods movement.

This report lays out the framework of our CMP and provides a road map for locating the elements of the CMP that have been woven into the 2035 Regional Transportation Plan and supporting documents.

1.1 CMP OVERVIEW

To integrate congestion management into the regional transportation planning process the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) required metropolitan planning organizations (MPO) to develop a congestion management system (CMS). The 2005 Safe, Accountable, Flexible, Efficient, Transportation Equity Act: a Legacy for Users (SAFETEA-LU), expanded the CMS requirements through the creation of the Congestion Management Process (CMP). In 23 CFR Part 450 Section 320 the Federal Highway Administration defines a CMP as "…a process that provides for safe and effective integrated management and operation of the multimodal transportation system, based on a cooperatively developed and implemented metropolitan-wide strategy, of new and existing transportation facilities…through the use of travel demand reduction and operational management strategies."

The CMP "presents a systematic process for managing congestion that provides information on transportation system performance and on alternative strategies to alleviate congestion and enhance the mobility of persons and goods to levels that meet state and local needs."[1] At the very minimum the CMP must:

- Measure multi-modal transportation system performance
- Identify the causes of congestion
- Assess alternative actions
- Implement cost-effective actions
- Evaluate the effectiveness of implemented actions

As the federally designated MPO for the Portland region, Metro is required to maintain the region's CMP. Metro's CMP is an integral component of the 2035 Regional Transportation Plan (RTP), helping to inform the policy and investment decisions imbedded in the plan and implementation of the plan through local transportation system plans and other implementing regulations. Metro has expanded upon the minimum CMP requirements, listed above, to apply the framework identified in FHWA's *"Interim Guidebook on the Congestion Management Process in Metropolitan Transportation Planning."* The framework includes the following eight-step process:

- Develop congestion management objectives
- Identify area of application
- Define system/network of interest
- Develop performance measures
- Institute system performance monitoring plan
- Identify/evaluate strategies
- Implement selected strategies/manage system
- Monitor strategy effectiveness

Develop Congestion Management Objectives

The 2035 RTP adopts an outcomes-based approach to regional transportation planning that is performance-driven and includes policies, objectives and performance targets that direct future planning and investment decisions to consider economic, equity and environmental objectives. Section 2.3 of the 2035 RTP outlines this approach through a series of goals, objectives and performance targets that describe the overall vision of the plan. The ten goals and supporting

[1] http://plan4operations.dot.gov/congestion.htm

objectives provide an overarching guide for transportation planning, while the performance targets provide a method for tracking progress towards meeting the goals and objectives. Together the goals, objectives and performance targets serve as the framework for the region's CMP. While all facets of transportation planning are covered, the goals and objectives specific to the CMP can be seen in Table 1.

Table 1
2035 RTP CMP Goals and Objectives

Goal	Objectives
1. Foster Vibrant Communities and Efficient Urban Form	**1.1 Compact Urban Form and Design** - Use transportation investments to reinforce growth in and multi-modal access to 2040 Target Areas and ensure that development in 2040 Target Areas is consistent with and supports the transportation investments.
	1.2 Parking Management - Minimize the amount and promote the efficient use of land dedicated to vehicle parking.
2. Sustain Economic Competitiveness and Prosperity	**2.1 Reliable and Efficient Travel and Market Area Access** - Provide for reliable and efficient multi-modal regional, interstate and intrastate travel and market area access through a seamless and well-connected system of throughways, arterial streets, freight services, transit services and bicycle and pedestrian facilities.
	2.2 Regional Passenger Connectivity - Ensure reliable and efficient connections between passenger intermodal facilities and destinations in and beyond the region to improve non-auto access to and from the region and promote the region's function as a gateway for tourism.
	2.3 Metropolitan Mobility - Maintain sufficient total person-trip and freight capacity among the various modes operating in the Regional Mobility Corridors to allow reasonable and reliable travel times through those corridors.
	2.4 Freight Reliability - Maintain reasonable and reliable travel times and access through the region as well as between freight intermodal facilities and destinations within and beyond the region to promote the region's function as a gateway for commerce.
3. Expand Transportation Choices	**3.1 Travel Choices** - Achieve modal targets for increased walking, bicycling, use of transit and shared ride and reduced reliance on the automobile and drive alone trips.
	3.2 Vehicle Miles of Travel - Reduce vehicle miles traveled per capita.
4. Emphasize Effective and Efficient Management of the Transportation System	**4.1 Traffic Management** - Apply technology solutions to actively manage the transportation system.
	4.2 Traveler Information - Provide comprehensive real-time traveler information to people and businesses in the region.
	4.3 Incident Management - Improve traffic incident detection and clearance times on the region's transit, arterial and throughways networks.
	4.4 Demand Management - Implement services, incentives and supportive infrastructure to increase telecommuting, walking, biking, taking transit, and carpooling, and shift travel to off-peak periods.

	4.5 Value Pricing - Consider a wide range of value pricing strategies and techniques as a management tool, including but not limited to parking management to encourage walking, biking and transit ridership and selectively promote short-term and long-term strategies as appropriate.
5. Enhance Safety and Security	**5.1 Operational and Public Safety** - Reduce fatalities, serious injuries and crashes per capita for all modes of travel.

In order to track progress towards achieving the above congestion-related goals and objectives, the following performance targets will be used:

Congestion By 2035, reduce vehicle hours of delay (VHD) per person by 10 percent compared to 2005.

Freight reliability By 2035, reduce vehicle hours of delay per truck trip by 10 percent compared to 2005.

Active transportation By 2035, triple walking, biking and transit mode share compared to 2005.

Travel By 2035, reduce vehicle miles traveled per person by 10 percent compared to 2005.

Safety By 2035, reduce the number of pedestrian, bicyclist, and motor vehicle occupant fatalities plus serious injuries each by 50% compared to 2005.

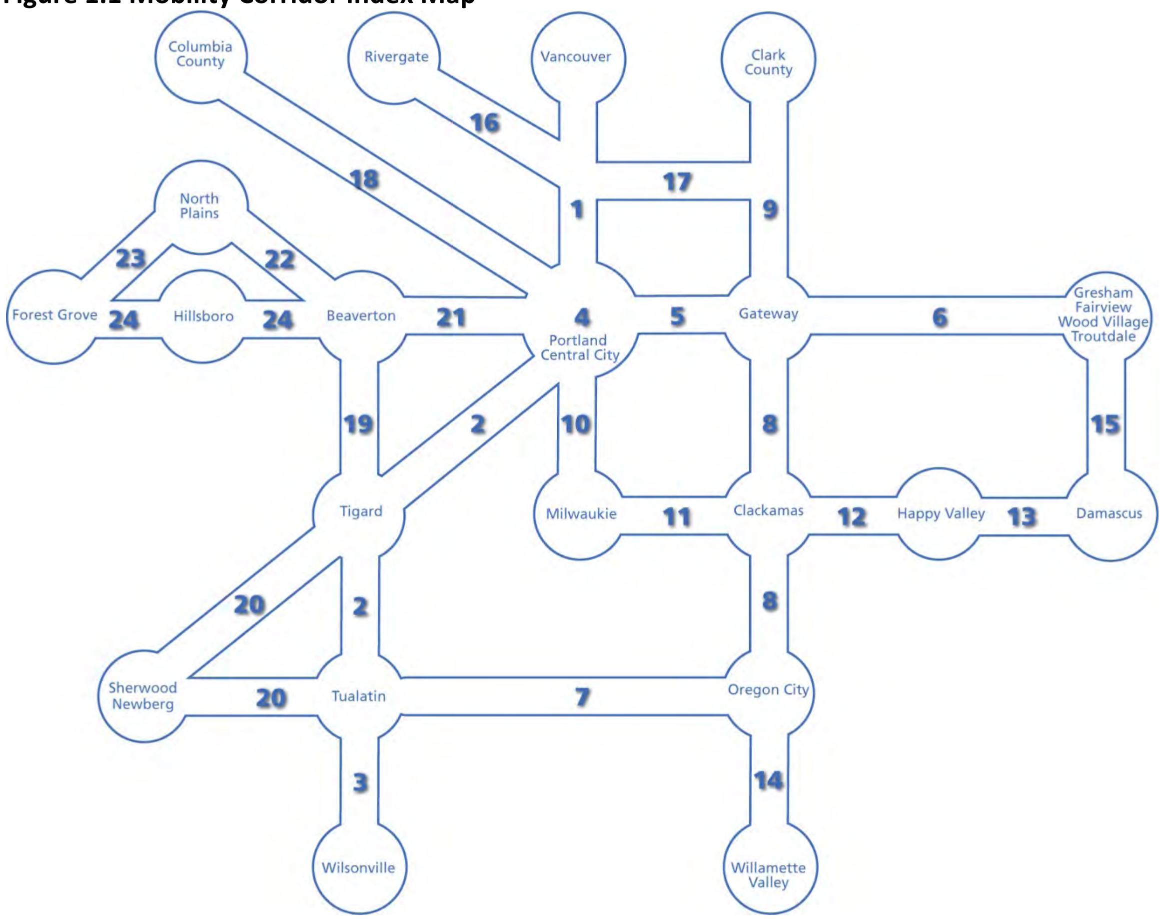
Identify Area of Application

The Portland Metropolitan Area has several planning boundaries with different purposes. Metro's jurisdictional boundary encompasses the urban portions of Multnomah, Washington and Clackamas counties. 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 Portland metropolitan region's urban growth boundary. In addition there is the Urbanized Area Boundary (UAB) which delineates areas that are urban in nature and the Metropolitan Planning Area (MPA) Boundary which marks the geographic area to be covered by MPO transportation planning activities. The Portland region's CMP is applied to the transportation network lying within the MPA Boundary. See Figure 1.2 of the 2035 RTP for a map of the planning area.

Define System or Network of Interest

The mobility corridors concept has emerged as a method for framing the geographic scope of the CMP and planning for a truly integrated transportation system. Regional mobility corridors integrate arterial streets, throughways, high capacity transit, frequent bus routes, freight/passenger rail, and bicycle parkways into regional subareas. These networks work together to provide for regional, statewide and interstate travel. 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. The regional mobility corridor concept calls for consideration of multiple facilities, modes and land uses when identifying needs and the most effective mix of land use and transportation solutions to improve mobility within a specific corridor. **Figure 1.1** is a conceptual representation of the 24 mobility corridors and the locations they connect.

Figure 1.1 Mobility Corridor Index Map



In April 2009, Metro published the Atlas of Mobility Corridors, the first of its kind created for this region. It was conceived as a way to visually present current land use and multi-modal transportation data for each of the region's 24 mobility corridors. It was designed primarily to help planners and decision-makers understand existing system conditions, identify needs and prioritize mobility investments. For each corridor, the atlas provides a general overview that includes location in the region, primary transportation facilities and land use patterns, and an assessment of gaps and deficiencies by travel mode. This information will be used to help identify the most cost-effective strategies and investment priorities for each corridor and serve as a framework for monitoring how well different strategies are working in each corridor over time.

The Atlas of Mobility Corridors served as the foundation for the development of mobility corridor strategies for all 24 mobility corridors included in Chapter 4 of the RTP. Within each mobility corridor strategy the following elements are included to guide the understanding of the concept

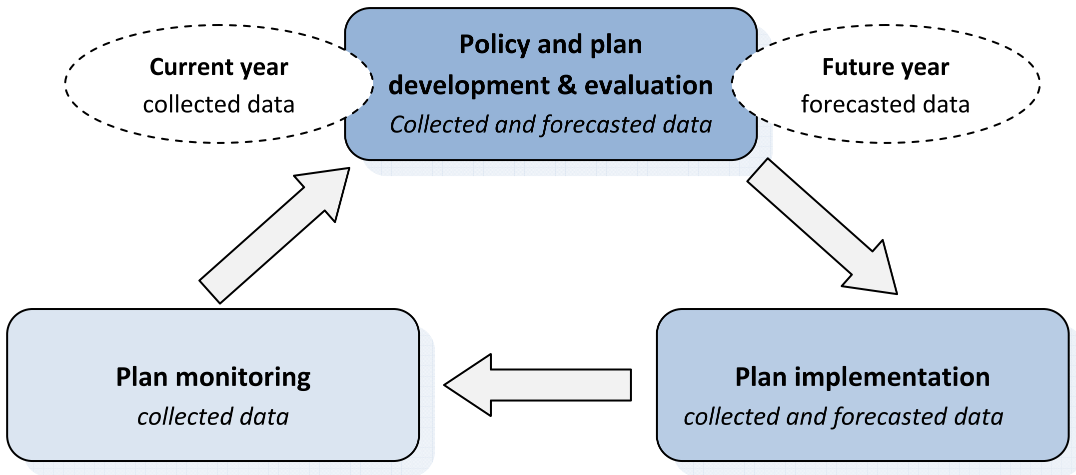
- Corridor function
- Corridor characteristics
- Regional transportation facilities
- Regional 2040 land uses
- Corridor needs
- 2035 RTP mobility corridor performance measures
- 2035 RTP investments
- RTP investment strategy

The mobility corridor strategies create the sub-areas to link regional investments to the outcomes-based policy framework of the RTP. They are intended as an early scoping tool to document land use and transportation needs, function and potential solutions for each mobility corridor.

Develop Performance Measures

The performance measurement system initiated with the 2035 RTP establishes an on-going evaluation and monitoring process, see **Figure 1.2**. The performance measures will serve as the dynamic link between RTP goals and plan implementation by formalizing the process of evaluation and monitoring to ensure the RTP advances toward achievement of the region's transportation, land use, economic, and environmental goals.

Figure 1.2 RTP Performance Measurement System



The following multimodal performance measures provide Metro the ability to measure transportation system performance within each of the 24 mobility corridors.

1. Vehicle miles traveled (total and per capita)
2. Average trip length by mobility corridor
3. Motor vehicle and transit travel time between key origin-destinations for mid-day and PM peak
4. Congestion - Location of throughways, arterials, and regional freight network facilities that exceed RTP motor vehicle-based level of service thresholds in mid-day and PM peak
5. Travel time reliability on throughways (buffer index – additional time added to ensure on time arrival 95% of the time)
6. Average incident duration on throughway system
7. Number and share of average daily shared ride, walking, bicycling and transit trips region wide, by mobility corridor and for the Portland central city and individual regional centers

Institute System Performance Monitoring Plan

The RTP system monitoring program will report out current conditions using observed data for each of the 24 mobility corridors. A system performance report will be prepared every two years in advance of the allocation process for regional flexible funds. The report will also inform the existing conditions element that is prepared in advance of future RTP updates to assess whether the region is moving in the right direction and identify possible policy or strategy adjustments that may be needed. Available congestion data includes:

- Cutline count information from the City of Portland, Multnomah County, Washington County, Clackamas County, and Oregon Department of Transportation (ODOT)
- Vehicle classification traffic count data from ODOT (from their highway performance monitoring system - HPMS - which includes several truck classifications)
- Automatic traffic recorder data from ODOT for 18 locations in the Portland Area, plus similar data from Washington DOT
- Volume and classification traffic counts from the Port of Portland's annual report
- Texas Transportation Institute's data for Portland - for their Urban Mobility Study - through an ODOT contact and directly from TTI
- TriMet Monthly Transit Performance Reports
- Washington State Monthly Speed Data
- ODOT Safety Data

Data Collection and Methodology

The following agencies will be the principal partners in collecting and evaluating CMP data. Other agencies will also be involved in the system, with their efforts coordinated through TransPort, the regional Intelligent Transportation Systems (ITS) committee.

- *ODOT* has installed a comprehensive monitoring system across the region. Its Traffic Management Operations Center (TMOC) collects ITS data using roadway sensors to conduct real-time management of the transportation system. The ongoing development of the system is overseen by TransPort, which monitors and updates the regional TSMO plan and ITS architecture.
- *Portland State University ITS Laboratory (PORTAL)* **–** collects and archives transportation data in the Portland-Vancouver Metropolitan area. Currently data available from PORTAL includes: travel speeds, weather, camera images, and incidents. In the future PORTAL will expand its capabilities to include data for freight, transit, arterials, bicycles/pedestrians and amount of congestion.
- *TriMet* provides Metro with boarding and headway data on the CMP high capacity transit network and other transit serving principal arterial routes. TriMet also reports traffic operations data from its GPS-equipped bus fleet.
- *Metro* further analyzes the highway and transit data provided by Portland State and TriMet and presents it in the biennial 2040 Performance Measures Report. Metro leads the region’s demand management program, including the evaluation function. In this role, Metro evaluates commute options survey data and other data sources to estimate non-SOV

travel in the region. Metro's travel forecasting program serves as the region's clearinghouse for forecast data and other information collected from federal, state and academic sources. See Appendix A for a more detailed description of Metro's data collection efforts.

- *Southwest Washington MPO* maintains a CMP for the greater Vancouver area. Its efforts are coordinated with the Metro region, using the same technical coordination that is employed in sharing travel forecasting and demographic data.

Identify and Evaluate Strategies

The Atlas of Mobility Corridors identifies time horizon strategies for each of the 24 mobility corridors. The process of developing each corridor strategy included:

- Scoping analysis that identifies land use, local aspirations, pedestrian, bike, management and operations, freight, highway, road and transit needs and issues.
- Integrated statement of mobility function and defined at a corridor area level where a concept was not included in the RTP.
- Potential land use and transportation solutions identified.

The strategies identify system needs, functions, solutions to address identified needs and investment strategies to work towards over life of the RTP. Each mobility corridor strategy contains two investment tracks: mobility corridors and community building. The investment strategy is broken into three time horizons: near term (1-4 years), medium term (5-10 years), and long term (10-25 years). See section 4.2 of the RTP for a detailed overview of all 24 mobility corridor strategies.

Each of the 24 mobility corridor strategies has been evaluated using Metro's regional travel demand forecast model. Ongoing evaluation of the strategies will be conducted using biennial performance reports which will be based on observed data.

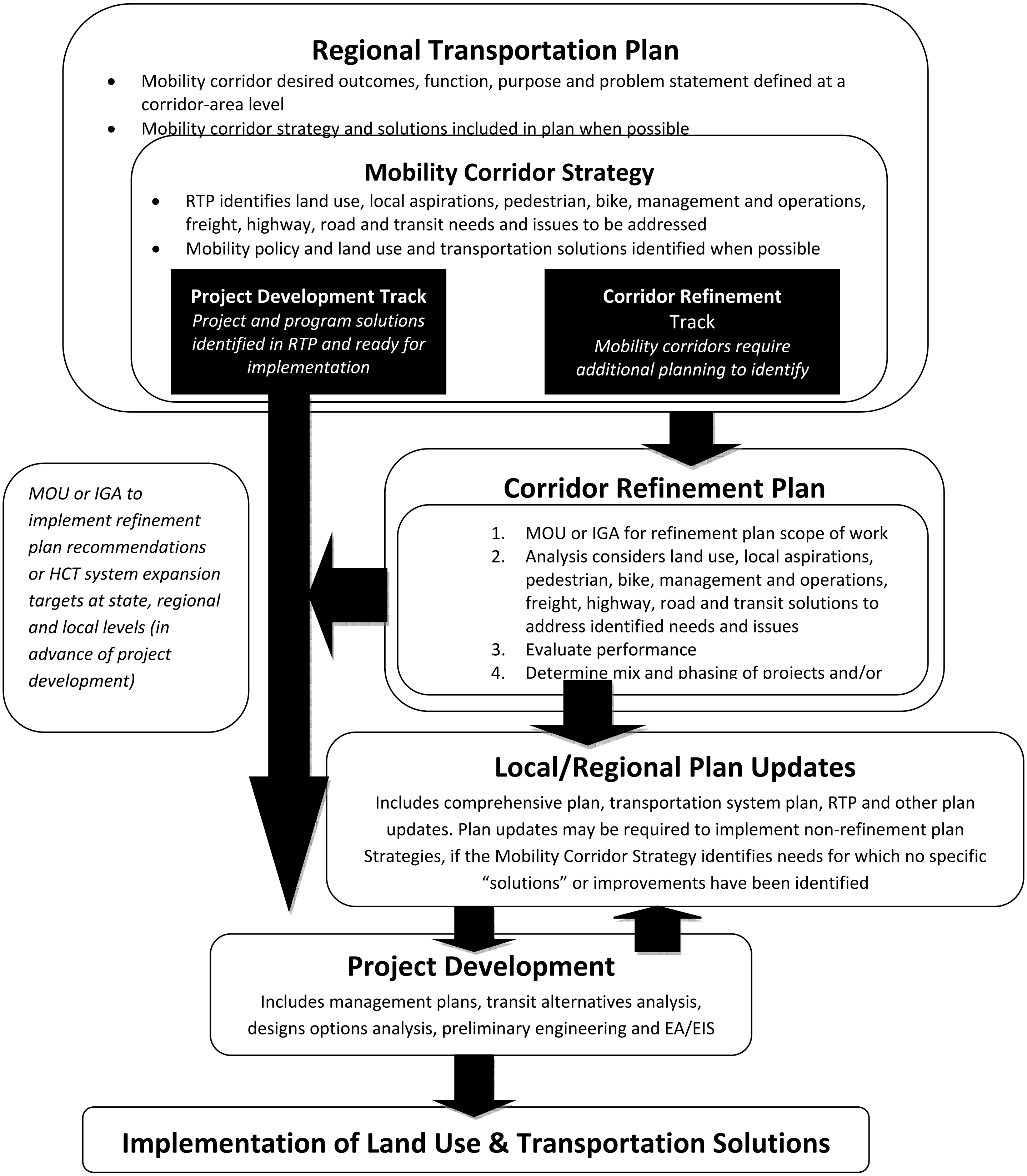
Implement Selected Strategies and Manage Transportation System

The State of Oregon Transportation Planning Rule (TPR) section 660-012-0020 requires that transportation system plans (TSPs) establish a coordinated network of planned transportation facilities adequate to serve regional transportation needs. The RTP serves as the region's TSP. The adoption of the 2035 RTP also requires that local jurisdictions update their TSPs in coordination with the policies and visions established in the RTP. Section 660-012-0025 of the TPR allows a Metropolitan Planning Organization (MPO) to defer decisions regarding function, general location and mode as long as it can be demonstrated that the refinement effort will be completed in the near future.

Congestion management solutions will be implemented in accordance with the prioritized strategies identified in the mobility corridors. For corridors where there is uncertainty surrounding transportation needs, function, and potential solutions, a Corridor Refinement Plan is required. The refinement planning process will provide for comprehensive consideration of land-use, management, walking and biking in addition to transit and highway focused analysis, see **Figure 1.3**. As a result a wider range of strategies and projects will progress through development and implementation at the local, regional, and/or state levels. A corridor refinement plan includes the following steps:

- MOU or IGA for refinement plan scope of work
- Analysis that considers land use, local aspirations, pedestrian, bike, management and operations, freight, highway, road and transit solutions
- Evaluate performance
- Determine mix and phasing of projects and/or land use changes needed to address function and needs
- Local and/or regional plan updates and MOU or IGA to implement refinement plan recommendations at state, regional and local levels
- HCT system expansion targets policy MOU, if applicable.

Figure 1.3 Mobility corridor implementation strategy.



Monitor Strategy Effectiveness

Mobility corridor system performance reports will be prepared every two years in order to monitor the effectiveness of implemented strategies. The performance targets in section 2.3.1 of the 2035 RTP will serve to track how well the region is doing in achieving the plan's goals and objectives. These reports will be published in advance of the allocation process for regional flexible funds. This process will guide future planning and investment priorities through informing project selection in the Metropolitan Transportation Improvement Program and how regional flexible funds are allocated. As a result the performance targets provide policy direction for developing the investment strategy recommended in the 2035 RTP.

1.2 FUTURE STRATEGIES

Infrastructure

Active Transportation

Metro coordinates with regional partners in the Active Transportation Partnership to increase the region's effectiveness in securing funding to complete a region wide network of on-street and off-street bikeways and walkways that are integrated with transit and supported by educational programs. An integrated system of this kind will make active transportation modes (biking, walking, & transit) a more viable option for the average citizen in the Portland Region.

Together with local jurisdictions Metro has identified and begun work on developing active transportation corridors that will create seamless connections between home, work, recreation, and communities within the region. Corridor routes are made up of a variety of facilities including: trails, bike lanes, light rail, and sidewalks. Metro is committed to supporting the Active Transportation Corridors through 25 regional demonstration projects. The demonstration projects range from adding a system of bicycle routes to previously underserved areas, to establishing intermodal connections at MAX stations, to increasing connectivity between existing bicycle and pedestrian facilities. Active Transportation Corridors are further supported by marketing programs such as Safe Routes to School and the City of Portland's SmartTrips program.

High Capacity Transit

Over the last 30 years the Portland Region has lead the way in providing state-of-the-art transit systems to the region. During that time over 50 miles of light rail and 15 miles of commuter rail were constructed. These high capacity transit lines connect far reaching communities across the region. The High Capacity Transit System Plan provides guidance for further investment in the regional transit corridors. The High Capacity Transit System Plan used an extensive evaluation process to identify regional priorities for transit investment over the long-term (30 years) and near-term (4 years). Corridors were screened in order to identify those corridors that could support HCT investment in the next 30 years. Through this process 18 corridors were identified and adopted for evaluation and prioritization by the Metro Council.

Arterial & Freeway Operations

In recognition of the fact that the region cannot build its way out of congestion, Metro has increasingly looked to Transportation System Management & Operations (TSMO) as way to manage congestion and improve reliability of the region's transportation system. The recently adopted regional TSMO plan provides a 10-year investment strategy for system management and operations projects. Investments identified in the TSMO plan focus on four areas:

- *Multi-modal traffic management* – Provides arterial and freeway multimodal traffic management and operations functions including signal timing, access management, arterial performance monitoring and data collection, and active traffic management.

- *Traveler information* – Provides current and forecasted travel conditions information via a variety of sources including web site, mobile devices, phone systems, dynamic message signs, highway advisory radio and via private sources for in-vehicle navigation systems to help people make better informed travel decisions.

- *Traffic incident management* – Provides resources and builds partnerships to foster a coordinated, timely and efficient response to incidents. The strategies are aimed at reducing overall incident duration to restore capacity quickly and reduce secondary crashes.

- *Transportation demand management* - Maximizes investments in the transportation system and relieves traffic congestion by managing travel demand, particularly during peak commute hours. Supports and leverages capital investments in transit, trails, and other infrastructure by marketing travel options to potential riders and users and increasing the share of trips made by transit, walking, cycling and other travel options.

To manage congestion in the region, Metro is looking at number of operational strategies that specifically target arterial and freeway operations. Currently the region has identified active traffic management as a potential strategy to manage the transportation system based on prevailing traffic conditions. Active traffic management is comprised of various elements, which work together in managing the transportation system including variable speed limits, lane control, reversible lanes, and advanced signal systems. Given the limited implementation of active traffic management nationally, preliminary study will be conducted to evaluate the technology and identify potential locations or corridors where active traffic management is most needed and will have the greatest impact. Currently identifying the potential for active traffic management has a planned time frame of 1-5 years with an active traffic management pilot project planned for implementation in 6 to 10 years.

Performance Measurement and Monitoring

In order to continually monitor and evaluate the regional transportation system, Metro is working with regional partners to identify and implement future performance measurement systems. Expanded data collection is a critical part of this effort. TransPort will continue work on planning and implementing performance measurement systems.

PORTAL

PORTAL is a traffic information system developed by Portland State University's ITS Lab. The purpose of the system is to implement the U.S. National ITS Architecture's Archived Data User Service (ADUS) for the Portland Metro area. PORTAL shares U.S. Department of Transportation's vision to improve transportation decisions through the archiving and sharing of ITS generated data. As the regional traffic information data warehouse for the Portland Metro area, PORTAL requires continuous support, maintenance and upgrades. Currently PORTAL is integrated with Google maps and provides facility specific information on:

- Real time traffic speeds
- 15-minute average speeds of last five weekdays
- Live camera images
- Locations of incidents
- Total vehicle miles traveled
- Total vehicle hours traveled
- Average travel time
- Average traffic speed
- 95th percentile travel time
- 95th percentile traffic speed

The next stage in PORTAL development is to link GIS data with PORTAL to increase its capabilities. Future plans call for PORTAL reporting levels of congestion, travel time index, and additional freight, transit, and non-motorized data.

Arterial Performance Measurement

A substantial portion of the region's congestion is experienced on the regional arterial network. However, many of the region's arterials lack the traffic detection and communications infrastructure to adequately measure arterial system performance. As a result, Metro has made it a high priority goal to expand traffic surveillance and transportation system condition data collection capabilities on arterials throughout the region. Arterial performance measurement in the form of travel times, travel speeds, and potentially origin-destination data will support engineering and planning decision-makers, enabling more efficient investments of limited funds. Provision of this data in real-time or near real-time makes the data even more useful for transportation professionals and the traveling public.

The first project identified in the TSMO plan is envisioned to make use of media access control address (MAC) reading technology at strategic locations to cover the major arterials region wide. This data will be stored and used in a similar fashion to PORTAL. The arterial performance data, such as real-time speeds, will be made available to the public in an easy to use format, such as ODOT's TripCheck website. The data could be used to help predict travel times under recurring or non-recurring events.

Expanding ITS network to include Washington State

In the effort to expand the regional ITS network, Metro will continue to work in close partnership with agencies in Washington State to create connections with ITS networks across the Columbia River. Current discussions have included representatives from state DOT's; transit agencies; and local, county, & regional governments from Oregon and Washington. ITS architecture updates and infrastructure improvements are being coordinated through the bi-state ITS network committee to ensure future projects will be compatible. As the Portland region is a part of the larger Portland-Vancouver Metropolitan area, this bi-state coordination will allow for more fluid management and assessment of the regional transportation system.

Programs

Traveler Information

There exists an ample amount of resources to help travelers in the Portland region decide when, where, and how they wish to travel. TripCheck, ODOT's online traveler information source, provides road conditions, weather alerts, camera images, trip planning, and recently began disseminating travel updates via the social medium Twitter. In addition to its online trip planning tool, TriMet's also provides bus arrival times through the transit tracker phone service. Transit tracker has been well utilized with an average 1.4 million calls every month. Other traveler information sources in the region include dynamic message signs, highway advisory radio, and traffic surveillance cameras.

Metro aims to improve upon the region's traveler information resources by providing more accurate and comprehensive information by route, mode, and time of day. The information system may include system components transmitted via internet, radio, cell phone, or physically on the roadside.

With the improved performance measurement capabilities noted above, not only will more information be disseminated to the travelers but it will be more accurate, reliable, and timely. The TSMO plan identifies funding for traveler information programs that:

- Provide Park & Ride information on TriMet's multimodal trip planning tool
- Enhance TripCheck to integrate arterial travel information
- Improve transit automated vehicle locator data collection

Regional Travel Options

Metro's Regional Travel Options (RTO) Program carries out regional strategies to increase use of travel options, reduce pollution and improve mobility. Regional travel options include all of the alternatives to driving alone – carpooling, vanpooling, riding transit, bicycling, walking and telecommuting. The program maximizes investments in the transportation system and relieves traffic congestion by managing travel demand, particularly during peak commute hours. Outreach efforts serve as a key element of the RTO program. The following is a list of outreach programs and services that promote reductions in drive alone travel.

- *Drive Less/Save More Campaign* – The campaign encourages people to think before they drive in order to reduce single-person car trips, adopt cost-saving driving habits and use travel options for non-work trips. Campaign messages reach target audiences through advertising, publicity and community outreach.
- *Individualized marketing projects* – Individualized marketing projects (also called TravelSmart or SmartTrips projects) encourage reductions in drive-alone auto trips. The concept, used in more than 300 projects around the world, identifies individuals who want to change the way they travel and uses personal, individualized contact to motivate them to think about their travel options.
- *SMART Options Employer and Community Outreach* – The City of Wilsonville SMART Options Outreach Program works with Wilsonville area employers and residents to promote transit and other transportation options.
- *Transportation Management Association (TMA) Program* – TMAs are public-private partnerships to relieve traffic congestion and pollution. There are six TMAs in the region that develop and implement area specific strategies for reducing drive-alone commute trips.

Policy

Land Use

2040 Growth Concept – In 1995, the Portland region adopted the 2040 Growth Concept, the long-range plan for managing growth that integrates land use and transportation planning to reinforce the objectives of both. The unifying theme of the 2040 Growth Concept is to preserve the region's economic health and livability and plan for growth in the region in an equitable, environmentally-sound and fiscally-responsible manner. The 2040 Growth Concept includes land-use and transportation building blocks as shown in Figure 2.1 of the 2035 RTP. The RTP responds to the 2040 Growth Concept with an approach that views transportation as an integrated and interconnected system that must be completed over time. The plan shifts the emphasis from moving vehicles to moving people and goods and connecting people and places. This integrated system provides for the movement of people by private vehicle, public transit, ridesharing, walking and biking as well as the movement of freight by roads, air, water and rail.

Urban Growth Boundary – Metro is responsible for managing the Portland metropolitan region's urban growth boundary required by Oregon under law. The boundary controls urban expansion onto farms and forests. Land inside the urban growth boundary supports urban services such as roads, water and sewer systems, parks, schools and fire and police protection that create thriving places to live, work and play. Metro is required by state law to have a 20-year supply of land for future residential development inside the boundary. Every five years, the Metro Council is required to conduct a review of the land supply and, if necessary, expand the boundary to meet that requirement.

Urban and Rural Reserves – In 2007, the Oregon Legislature approved Senate Bill 1011. This legislation enabled Metro to identify and designate areas outside the current urban growth boundary as urban and rural reserves. Urban reserves are lands currently outside the urban growth boundary that are suitable for accommodating urban development over the next 50 years. Rural reserves are lands outside the current urban growth boundary that are high value working farms and forests or have important natural features like rivers, wetlands, buttes and floodplains. These areas will be protected from urbanization for the next 50 years.

Climate Action Planning

In 2008-10, a number of requirements for integrating greenhouse gas considerations in the transportation planning process were proposed and debated at the state and federal level. In 2009, the Oregon Legislature passed House Bill 2001, which requires Metro to develop land use and transportation scenarios designed to reduce greenhouse gas emissions (GHGs). The 2009 Legislature also established the Metropolitan Planning Organization Greenhouse Gas Emissions Task Force through House Bill 2186. The task force's recommendations were approved by the 2010 Legislature through Senate Bill 1059. Senate Bill 1059 provides further direction to greenhouse gas scenario planning in the other Oregon MPOs and the Metro region. It also calls for a statewide GHG emission reduction strategy for the light-duty vehicle emissions sector (e.g., cars and light trucks); and calls for the state to develop a toolkit of emission reductions actions that can be implemented by local governments. This work is underway.

Federal climate legislation, with targets and commensurate planning requirements to mitigate GHG emissions remain pending in Congress. In anticipation of future requirements, this RTP includes specific CO_2 reduction targets, policies and actions to reduce the need to drive and improve operations of the transportation system – two primary strategies that have been identified for the transportation sector. However, more work is needed. Preliminary scenarios modeling conducted in 2008 looked at how vehicle emissions might change over time with different investment choices to illustrate the region's ability to continue to meet current state and federal air quality requirements and state targets to reduce greenhouse gas emissions. None of the scenarios, including the reference scenario, achieved the state targets by 2035.

The region's growing population will make it difficult to achieve the targets without other strategies. The region must identify the land use and transportation strategies needed to meet them. The region will also need to support new technology and conservation measures. The climate change scenarios work in 2010 through 2012 will evaluate a full array of land use and transportation strategies to meet state targets. A preferred set of strategies will be adopted during the next RTP update, triggering local government plan updates and adoption of plan and code revisions consistent with the updated RTP.

Regional Safety Work Program

As part of U.S. DOT's quadrennial certification review of the region's transportation planning practices, Metro received recommendations to better incorporate safety into long-range planning. Metro will work with local jurisdictions and agencies to develop a safety work program. The work program will focus on data collection for plan monitoring, analysis and presentation, context sensitive solutions, and performance measurement. This work will be tied to the region's CMP.

Metro will work with ODOT and members of the Regional Safety Work Group to refine the existing statewide traffic safety data to reflect conditions within the subset of the Metro boundary and develop a regional safety work program by December, 2011, with goals, performance measures, and strategies specific to the MPO.

CFR 450.320	RTP Reference
(a) The transportation planning process in a TMA shall address congestion management through a process that provides for safe and effective integrated management and operation of the multimodal transportation system, 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. Chapter 53 through the use of travel demand reduction and operational management strategies.	**RTP Section 1.7 - Growing Congestion.** This section identifies Metro's congestion management process and provides a broad overview of traditional and non-traditional approaches to congestion management employed in the Portland Region. **RTP Section 2 - Transportation System Vision.** Part of the overarching vision of for the RTP is to ensure, among other things, that:…"*the transportation system manages both demand and capacity, employs the best technology, and joins rail, highway, street, bus, air, water, pedestrian and bicycle facilities into a seamless and fully interconnected network.* The vision will be implemented through a variety of strategies and the local, regional, state and federal levels. The regions vision is outlined in the following subsections: • Outcomes based approach to planning • Integrated transportation and land use • Goals and objectives • Regional system definition • Regional system concepts and policies **RTP Section 6.4 - Congestion Management Process** This section provides greater detail on the components of the regions congestion management process. Specifically identifying the eight step process for addressing current and future congestion in the region: 1. Develop congestion management objectives 2. Identify area of application 3. Define system or network of interest 4. Develop performance measures 5. Institute system performance monitoring plan

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	6. Identify and evaluate strategies 7. Implement selected strategies and manage transportation system. 8. Monitor strategy effectiveness.
(b) The development of a congestion management process should result in multimodal system performance measures and strategies that can be reflected in the metropolitan transportation plan and the TIP. The level of system performance deemed acceptable by State and local transportation officials may vary by type of transportation facility, geographic location (metropolitan area or subarea), and/or time of day. In addition, consideration should be given to strategies that manage demand, reduce single occupant vehicle (SOV) travel, and improve transportation system management and operations. Where the addition of general purpose lanes is determined to be an appropriate congestion management strategy, explicit consideration is to be given to the incorporation of appropriate features into the SOV project to facilitate future demand management strategies and operational improvements that will maintain the functional integrity and safety of those lanes.	**RTP Section 2.3 - Goals, Objectives, & Targets** The goals, objectives, and targets serve as the framework for the region's congestion management process. **RTP Table 2.4 - Regional Mobility Policy** Defines acceptable levels of congestion during the mid-day and A.M. and P.M. peak periods for transportation facilities and services within the region. Quality of service is defined using volume/capacity ratios. **RTP Section 2.5 - Regional System Concepts and Policies** The concepts and policies provide for travel through a seamless and well-connected system of regional throughways and streets, local streets, freight systems, transit services and bicycle and pedestrian facilities. The concepts and policies emphasize safety, access, mobility and reliability for people and goods and the community-building and place making role of transportation. **RTP Section 2.5.2 - Arterial and Throughway Network Vision** The regional street and throughway system concept contains policy and strategy provisions to develop a complete and well-connected roadway system that provides adequate capacity and supports all modes of travel. Rather than relying principally on levels of congestion to direct how and where to address motor vehicle capacity needs, the concept calls for implementing a well-connected network design that is tailored to fit local geography, respect existing communities and future development and protect the natural environment. Three policies form the vision the arterial and throughway network vision: 1. Build a well-connected network of "complete" streets that prioritize safe and convenient pedestrian and bicycle access

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	2. Improve local and collector street connectivity 3. Maximize system operations by implementing management strategies prior to building new motor vehicle capacity, where appropriate. **RTP Section 4.1 - Mobility Corridors Strategy** Metro's mobility corridor strategy expands the region's focus on mobility from individual facilities to the network of facilities and adjacent land uses they serve. Each of the 24 mobility corridors focuses on the region's network of freeways and highways, including parallel networks of arterial streets, regional bicycle parkways, high capacity transit and frequent bus service. Within each corridor land use and transportation data are presented, enhancing Metro's ability to analyze and compare corridors. Through this, cost effective congestion management strategies and priority investments are identified for each corridor. Each mobility corridor contains descriptive information including: • Corridor function • Corridor characteristics • Regional transportation facilities • Regional 2040 land uses • Summary of needs • Performance measures • RTP investments • RTP investment strategy **RTP Section 5.2 - RTP Performance Measurement System** The performance measurement system initiated with the 2035 RTP establishes an on-going evaluation and monitoring cycle. The performance measures will serve as the dynamic link between RTP goals and plan implementation by formalizing the process of evaluation and monitoring to ensure the RTP advances toward achievement of the region's transportation, land use, economic, and environmental goals. Development of a performance measurement system satisfied both the Oregon Transportation Planning

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	Rule (TPR) and federal requirements to use performance monitoring as part of the region's CMP.
(c) The congestion management process shall be developed, established, and implemented as part of the metropolitan transportation planning process that includes coordination with transportation system management and operations activities. The congestion management process shall include:	**RTP Section 2.5.7 Transportation System Management and Operations (TSMO) Vision** A key component of the region's congestion management process is the recently adopted Transportation System Management and Operations (TSMO) plan. As part of the RTP, the TSMO plan is the region's guide to transportation management and operational strategies. Four RTP policies form the foundation of the TSMO vision: 1. Use advanced technologies, pricing strategies, and other tools to actively manage the transportation system. 2. Provide comprehensive real-time traveler information to people and businesses. 3. Improve incident detection and clearance times on the region's transit, arterial, and throughway network. 4. Implement incentives and programs to increase awareness of travel options and incent change.
(c) (1) Methods to monitor and evaluate the performance of the multimodal transportation system, identify the causes of recurring and non-recurring congestion, identify and evaluate alternative strategies, provide information supporting the implementation of actions, and evaluate the effectiveness of implemented actions;	**RTP Section 5.2 - RTP Performance Measurement System** The 2035 RTP update adopts an outcomes-based approach to monitoring the region's transportation system. Paramount to this approach is a comprehensive system of performance measurement and evaluation. • *Performance Measurement* - The performance targets outlined in **RTP Section 2.3.1** set quantifiable goals for achieving the region's desired policy outcomes. • *Evaluation* The evaluation measures identified in **RTP Table 5.2** measure the change between current conditions and the set of transportation investments the region has chosen to pursue. These measures rely on data generated from the regional travel demand forecast model and MetroScope – the regional land use model. Forecasted outcomes for each measure can be found in **RTP Section 5.3.** Additionally observed data will be used to generate system

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	performance reports every two years for each of the 24 mobility corridors. The following system evaluation measures directly serve to inform the region's congestion management decisions: - Vehicle miles traveled - Delay on the regional freight network - Auto and transit travel times between key destinations - Congested locations Ongoing evaluation is provided through periodic assessment of the regional transportation system, which will help to inform implementation decisions as the quantity and quality of data increases.
(c) (2) Definition of congestion management objectives and appropriate performance measures to assess the extent of congestion and support the evaluation of the effectiveness of congestion reduction and mobility enhancement strategies for the movement of people and goods. Since levels of acceptable system performance may vary among local communities, performance measures should be tailored to the specific needs of the area and established cooperatively by the State(s), affected MPO(s), and local officials in consultation with the operators of major modes of transportation in the coverage area;	**RTP Section 2.3 - Goals, Objectives, & Targets** This section identifies the goals, objectives and targets that serve as the framework for the CMP. The following objectives provide examples of the nexus between the 2035 RTP update and the congestion management process. New to the 2035 RTP update are a set of performance targets that support the outcomes-based framework and the plan's goals and objectives. The targets provide policy direction for developing the investment strategy recommended in **RTP Chapter 3**. Freight Reliability - By 2035 reduce truck vehicle hours of delay truck trip by 10% compared to 2005 Congestion - By 2035 reduce vehicle hours of delay per person by 10% compared to 2005. Travel - By 2035, reduce vehicle miles traveled per person by 10 percent compared to 2005.

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(c) (3) Establishment of a coordinated program for data collection and system performance monitoring to define the extent and duration of congestion, to contribute in determining the causes of congestion, and evaluate the efficiency and effectiveness of implemented actions. To the extent possible, this data collection program should be coordinated with existing data sources (including archived operational/ITS data) and coordinated with operations managers in the metropolitan area;	1. **Metro Travel Forecast Division -** Collects second hand transportation data from various sources, including: • VMT data from ODOT & FHWA. • Cutline count information from the City of Portland, Multnomah County, Washington County, Clackamas County, and ODOT. • Vehicle classification traffic count data from ODOT – includes several truck classifications. • Automated traffic recorder data from ODOT for 18 locations in the Portland area, plus similar data from the Washington DOT. • Volume and classification traffic counts from the Port of Portland's annual report. • Texas Transportation Institute's data for Portland - from their Urban Mobility Study. • Consumer price index data for Portland-Salem and the National CPI. • Oregon motor vehicle registrations and drivers license data • Population and employment data from Metro's data resource center and Portland State University. • Parking costs data for the Portland central business district and the Lloyd district. • National driving costs data from AAA. • TriMet transit fare survey data and monthly transit performance reports. • ODOT daily road reports. • Weekly road report and Oregon gas prices listing. • Washington speed data. • Oregon fuels tax reports for Washington and Multnomah counties. 2. **Metro Data Resource Center –** Acts as a research group within Metro's planning and development department. DRC has created the regional land information system (RLIS), a GIS application that supports transportation modeling and regional planning applications. It includes land parcel data from the 25 cities and 3 counties that a located within Metro's planning boundary. The DRC also conducts: • Detailed models and forecasts for trends in transportation and land use using demographic and economic data.

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	• Employment forecasting. • Economic and demographic modeling. • Visualization research. 3. **Portland State University –** The ITS lab at PSU houses the Portland Oregon Regional Transportation Data Archive Listing (PORTAL). Portland is an expansive transportation data archive that serves as the region's traffic information warehouse. Included in PORTAL are current and past freeway data for: travel speeds, congestion, incidents and weather. Currently PORTAL is in the process of obtaining freight and transit data.

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(c) (4) Identification and evaluation of the anticipated performance and expected benefits of appropriate congestion management strategies that will contribute to the more effective use and improved safety of existing and future transportation systems based on the established performance measures. The following categories of strategies, or combinations of strategies, are some examples of what should be appropriately considered for each area: i. Demand management measures, including growth management and congestion pricing; ii. Traffic operational improvements; iii. Public transportation improvements; iv. ITS technologies as related to the regional ITS architecture v. Where necessary, additional system capacity;	**RTP Section 4.2 - Mobility Corridors Strategies** The mobility corridors strategy reinforces the outcomes-based approach in the 2035 RTP update. In all 24 mobility corridors, multimodal performance evaluation findings are identified for each of the four different systems: 2005 base year, 2035 no build, 2035 RTP federal priorities, and 2035 RTP investment strategy. Evaluation findings are based on Metro's travel forecast model and include the following performance measures: • Vehicle miles traveled • Total traffic delay on the regional freight network • Total cost of traffic delay on the regional freight network • Automobile travel time between key origin-destinations • Transit travel time between key origin-destinations • Locations of congestion • Mode share for walking, biking, transit, and shared-ride • Transit productivity
(c) (5) Identification of an implementation schedule, implementation responsibilities, and possible funding sources for each strategy (or combination of strategies) proposed for	**RTP Section 4.2 Mobility Corridor Strategies** Each corridor strategy documents system needs, functions, solutions to address needs, and investment strategies. Mobility corridor strategies contain RTP projects by cost and mode for both the federal and state systems. The 2035 RTP investment strategy is broken into three time horizons: near term (1-4 years), medium term (5-10 years), and long term (10-25 years). Within each time horizon, specific

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implementation; and	strategies are identified for improving mobility in the corridor. **RTP Section 6.3 Implementation of Mobility Corridor Strategy** This section clearly documents how the mobility corridors strategy will be implemented as part of the RTP.
(c) (6) Implementation of a process for periodic assessment of the effectiveness of implemented strategies, in terms of the area's established performance measures. The results of this evaluation shall be provided to decision makers and the public to provide guidance on selection of effective strategies for future implementation.	**RTP Section 5.2.1 - RTP System Evaluation** The performance measurement system introduced with the 2035 RTP update adopts an outcomes-based performance evaluation and substantially broadens the performance measures applied to track how well the investment strategy addresses the full set of goals and objectives. The RTP system evaluation has two levels: performance targets and investment strategy performance evaluation. The performance targets set quantifiable goals for the achieving the region's desired policy outcomes. In comparison, investment strategy evaluation measures changes between current conditions and the set of transportation investments the region has chosen to pursue. There is some overlap between the targets and the measures but they serve different functions. The performance targets are listed in Table 2.3 of Chapter 2 of the 2035 RTP. **RTP Section 5.2.2 - RTP System Monitoring** The biggest 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 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 TSMO plan. The RTP system monitoring program will report on current conditions using observed data for each of the 24 mobility corridors. A system

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	performance report will be prepared every two years in advance of the allocation process for regional flexible funds. The report will also inform the existing conditions element that is prepared in advance of future RTP updates to assess whether the region is moving in the right direction and identify possible policy or strategy adjustments that may be needed. Table 5.2 in the 2035 RTP lists recommended performance monitoring measures that will be the focus of the system monitoring effort.
(d) In a TMA designated as nonattainment area for ozone or carbon monoxide pursuant to the Clean Air Act, Federal funds may not be programmed for any project that will result in a significant increase in the carrying capacity for SOVs (*i.e.*, a new general purpose highway on a new location or adding general purpose lanes, with the exception of safety improvements or the elimination of bottlenecks), unless the project is addressed through a congestion management process meeting the requirements of this section.	**Carbon Monoxide -** The current status, as determined by the US EPA as of January 6, 2010, is that the Metro area has a maintenance status for Carbon Monoxide. (For the region's Carbon Monoxide status, see the EPA's Green Book located at: http://www.epa.gov/oar/oaqps/greenbk/cmcs.html#OREGON. **Ozone –** The region is no longer subject to the 1-hour ozone standard and the region no longer has a requirement to complete air quality conformity for ozone. The region, however, is still considered in a maintenance status with regard to ozone. For the region's Ozone status see: http://www.epa.gov/oar/oaqps/greenbk/omcs.html#OREGON (1 hour) and http://www.epa.gov/oar/oaqps/greenbk/fmcs.html#OREGON (8 hour).
(e) In TMAs designated as nonattainment for ozone or carbon monoxide, the congestion management process shall provide an appropriate analysis of reasonable (including multimodal) travel demand reduction and operational management strategies for the	The Regional Transportation Functional Plan (RTFP) directs how cities and counties will implement the Regional Transportation Plan (RTP) and its constituent freight, high-capacity transit and transportation system management and operations plans. RTFP section 3.08.220A requires local governments to consider non-auto capacity improvements and strategies prior to motor vehicle capacity improvements to address transportation needs in the following order: 1. TSMO strategies, including localized TDM, safety, operational and access management improvements;

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corridor in which a project that will result in a significant increase in capacity for SOVs (as described in paragraph (d) of this section) is proposed to be advanced with Federal funds. If the analysis demonstrates that travel demand reduction and operational management strategies cannot fully satisfy the need for additional capacity in the corridor and additional SOV capacity is warranted, then the congestion management process shall identify all reasonable strategies to manage the SOV facility safely and effectively (or to facilitate its management in the future). Other travel demand reduction and operational management strategies appropriate for the corridor, but not appropriate for incorporation into the SOV facility itself, shall also be identified through the congestion management process. All identified reasonable travel demand reduction and operational management strategies shall be incorporated into the SOV project or committed to by the State and MPO for implementation.	2. Transit, bicycle and pedestrian system improvements; 3. Traffic-calming designs and devices; 4. Land use strategies; 5. Connectivity improvements to provide parallel arterials, collectors or local streets that include pedestrian and bicycle facilities,; 6. Motor vehicle capacity improvements, only upon a demonstration that other strategies in this subsection are not appropriate or cannot adequately address identified transportation needs. In addition, local governments are required to document why they selected particular strategies or improvements and why they did not select other strategies in their local transportation plan.

(f) State laws, rules, or regulations pertaining to congestion management systems or programs may constitute the congestion management process, if the FHWA and the FTA find that the State laws, rules, or regulations are consistent with, and fulfill the intent of, the purposes of 23 U.S.C. 134 and 49 U.S.C. 5303.	The Oregon Highway Plan (OHP) has several policies that establish general mobility objectives and approaches for maintaining mobility: • **Policy 1A** (State Highway Classification System) describes in general the functions and objectives for several categories of state highways. Greater mobility is expected on Interstate and Statewide Highways than on Regional and District Highways. • **Policy 1B** (Land Use and Transportation) has an objective of coordinating land use and transportation decisions to maintain the mobility of the highway system. The policy identifies several land use types and describes in general the levels of mobility appropriate for each. • **Policy 1C** (State Highway Freight System) has an objective of maintaining efficient through movement on major truck Freight Routes. The policy identifies the highways that are Freight Routes. • **Policy 1G** (Major Improvements) has the purpose of maintaining highway performance and improving highway safety by improving system efficiency and management before adding capacity. Mobility standards are established by the Highway Mobility Standards Policy (1F) consistent with the above OHP policies. The Highway Mobility Standards Policy applies mainly to transportation and land use planning decisions. The policy identifies three uses for the highway mobility standards: • Planning: identifying state highway mobility performance expectations for planning and plan implementation; • Review of amendments to comprehensive plans and land use regulations: maintaining consistency between desired highway performance and the type of land use development; and • Making traffic operations decisions such as managing access and traffic control systems to maintain acceptable highway performance.

METRO

Appendix 4.5 2035 Regional Transportation Plan
Environmental Considerations

Purpose

Metro staff performed a systems level environmental analysis of the 2035 Regional Transportation Plan (RTP) project list. Analysis was done for the projects in both the 2035 RTP Investment Strategy and Federal Priorities, referred to henceforth as the "RTP Investment Strategy" and "Federal Priorities", respectively. A separate background report complements this analysis, documenting key environmental issues and trends in the Portland metropolitan region and specific federal and state environmental requirements that must be addressed through the RTP.[1]

The analysis responds to federal SAFETEA-LU requirements for the RTP to discuss potential environmental mitigation activities and potential areas to carry out these activities, and to consult with appropriate resource agencies. This analysis of the Investment Pool was the basis for consultation with Collaborative Environmental and Transportation Agreement for Streamlining (CETAS) on October 16, 2007.

Background

Transportation impacts the natural and built environment in many ways, potentially having significant effects on the region's air quality, water quality, noise, fish and wildlife habitat, historic resources and tribal lands. These impacts are particularly important to Metro since the natural and social environment is deeply connected to the identity and quality of life of the Portland metropolitan region. When asked what they enjoy most about the quality of life in the region, citizens have consistently chosen environmental quality, access to nature and scenery as things they value and want to protect.

The Portland metropolitan region is situated at the northern end of the Willamette valley ecoregion, a fertile river valley surrounded by dramatic natural features - the Coast range to the west, the Cascades to the east, and the Columbia River to the north (including the Columbia River Gorge National Scenic area). Inside of the region, natural landscape is created by broad river valleys with wetlands, narrow river canyons with riparian vegetation, buttes and forests, mountains and meadows, foothills and farms.

The protection of natural and cultural resources has long been a key responsibility of Metro. The preamble of the 1992 Metro Charter proclaims that "Metro's most important service is to preserve and enhance the quality of life and the environment for ourselves and future generations." This ethic of sustainability is central to several Metro plans and programs, including the Making the Greatest Place Initiative, Regional Transportation Plan, Greenspaces Master Plan, Nature in Neighborhoods, Urban and Rural Reserves, and the region's overarching long-range plan, the 2040 Growth Concept. Environmental health is one of the 2040 Fundamentals adopted by the region in 1997.

[1] The background report is available to download from Metro's website at www.metro-region.org/rtp

Environmental Considerations Analysis

The analysis provided in this memo identifies areas of potential conflicts where proposed RTP projects intersect with protected environmental features. This memo and a series of maps demonstrate the areas of potential conflicts. Identifying these areas of potential conflict early in the transportation planning process allows for more meaningful consideration of natural resource protection and mitigation strategies, including project alignment, design and construction features that avoid or minimize impacts on the resource area. Many of these strategies are addressed specifically during the project development phase as part of the environmental and land use review, consultation and permitting processes all construction projects must undergo.

The analysis is organized into seven sections:

1. Regionally Significant Fish and Wildlife Habitat Inventory Analysis
2. Wildlife Incident Hotspots and Fish Passage Barriers Analysis
3. Floodplains and Wetlands Analysis
4. Historic Properties and Districts Analysis
5. Air Quality Analysis
6. Tribal Lands Analysis
7. Environmental Justice Analysis

This analysis complements other Metro efforts to incorporate and encourage environmental protection and mitigation strategies during the long-range planning and project development processes:

- **Livable Streets program** - published four handbooks (Creating *Livable Streets: Street Design Guidelines for 2040, Green Streets: Innovative Solutions for Stormwater and Stream Crossings ,Trees for Green Streets and Wildlife Crossings*) to provide design and construction guidelines to minimize transportation impacts on natural resources when avoidance is not possible.
- **2002 Culvert Inventory** - identifies areas where fish passage was blocked.
- **Nature in Neighborhoods Initiative** - includes Metro's fish and wildlife protection program (Goal 5), conservation education, restoration, habitat-friendly development practices guidelines, and on-going monitoring and reporting of key natural resource indicators.
- **Regional Environmental Information Network (REIN)** - provides a comprehensive website that allows for information sharing and networking among the individuals, community groups, public agencies and nonprofit organizations that are working to protect, restore and monitor the region's natural resources.
- **Regional Natural Areas Acquisition program** - initiated in 1996 and expanded in 2006, directs Metro to purchase natural areas, trails and greenways to be held for future use as open space, parks, trails and fish and wildlife habitat. More than 10,500 acres have been acquired by Metro since the program was initiated.
- **Metropolitan Greenspaces Master Plan** - adopted in 1992 by the Metro Council, provides a vision for a regional system of parks, natural areas, greenways, and trails and identifies 57 urban natural areas and 34 trail and greenway corridors that define the green infrastructure for the Portland metropolitan region.
- **State of Watersheds Monitoring** - Biennial reporting of the health of watersheds in the Portland metropolitan region, beginning in 2006.
- **Consultation Activities** - Ongoing environmental mitigation consultation with relevant resource agencies through Metro's Transportation Policy Alternatives Committee (TPAC) and Joint Policy

Advisory Committee on Transportation (JPACT), which includes representatives from the Oregon Department of Environmental Quality (DEQ); the Metro Technical Advisory Committee (MTAC) and Metro Policy Advisory Committee (MPAC) which include representatives from the Oregon Department of Land Conservation and Development (DLCD). To date, consultation with resource agencies has occurred as part of Metro region major project development activities, such as EIS and EA's, on a project by project basis through CETAS (Collaborative Environmental and Transportation Agreement for Streamlining) collaboration. This will be expanded to occur as part of updates to the RTP.

Methodology

Metro used the best available regional scale data to identify the potential areas of conflict between the proposed RTP project and protected environmental features identified in the planning area. Using Geographic Information System (GIS) mapping software, different environmental features of the planning area were overlaid with the projects identified in the pool of projects identified for the RTP. It is important to note that the potential alignments for proposed projects are conceptual until more detailed project development work is conducted.

The environmental analysis used the regionally significant fish and wildlife habitat (Goal 5/Title 13) inventory completed by Metro in 2005 as its basis. Metro developed the inventory based on the best science and data available and mapped regionally significant fish and wildlife habitat with input from local partners, resource agencies, technical review committees, and the public. Metro conducted fieldwork to validate and adjust the inventory. Identified habitat was ranked in importance based on its capacity to provide benefits to fish and wildlife.

Two types of habitat are included in the inventory:

- Riparian habitat – land and vegetation near streams, rivers, wetlands and lakes. A Riparian zone or corridor may include tree canopies, grassland, wild shrubs, woodland, and sometimes natural rocky embankments essential to the stability of the soils around the waterway.
- Upland habitat – natural areas that provide wildlife with food and shelter and corridors to move from one habitat area to another

Highly ranked riparian habitat areas within the current urban growth boundary were identified as "habitat conservation areas" to be protected by appropriate development standards contained in the proposed model ordinance or through other equivalent approaches identified by local jurisdictions. As new areas are added to the urban growth boundary, highly valued upland habitat areas will also be identified as habitat conservation areas. Habitat conservation areas (HCAs) are designated on based habitat value, with protection level adjusted depending on the area's economic importance to the region.

Metro's Goal 5 inventory[2] includes much of the environmental data recommended by the Federal Highway Administration (FHWA) for consideration to meet SAFETEA-LU requirements. Metro's Goal 5 inventory includes: wetlands identified in the National Wetland Inventory (NWI), Endangered Species Act (ESA) habitat and ESA listed streams, forest land, 100-year floodplains identified by the Federal Emergency Management Agency (FEMA), city/county/regional/state public parks, trails and recreational facilities, including the Willamette River Greenway.

[2] See http://www.oregonmetro.gov/index.cfm/go/by.web/id=5772/level=4 for a description of the Goal 5 methodology.

The Goal 5 inventory also includes resource areas that go beyond federal requirements such as natural hazard areas with steep slopes greater than 25 percent, local wetland inventories, 1996 flood areas of inundation, and species and habitat of concern. For each resource site in the inventory, Metro gathered existing and new data on sensitive species sighting locations, sensitive bird sites, and wildlife species and habitats of concern; linked sensitive wildlife species to their habitat needs; and estimated the amount of potential habitat available. It should be noted that due to the lack of site-specific data for many sensitive or threatened species within the planning area, these species cannot be spatially mapped to appropriately reflect location.

Other data sources that were consulted beyond Metro's Goal 5 inventory include: Division of State Lands existing mitigation banks, wildlife hotspot incident locations, culverts that are barriers to fish passage, and national historic properties.

Other inventories suggested by FHWA, but not included in this analysis due to a lack of a comprehensive regional database include: Scenic/Historic/Backcountry Roads, Superfund sites, archeologically sensitive areas, previous ODOT mitigation sites, potential ODOT mitigation banks, water quality limited bodies (defined by the Department of Environmental Quality), National Marine Fisheries and U.S. Fish and Wildlife recovery/conservation plans.

Metro also estimated future carbon monoxide, precursors of smog (volatile organic compounds and oxides of nitrogen) and carbon dioxide emissions from cars and trucks operating within the Portland Air Quality Management Area (AQMA) air shed to the year 2035 using EMME/2 modeling software and Mobile 6.2, the latest model approved by the U.S. Environmental Protection Agency (EPA). A conformity determination has been prepared for the Federal Priorities element of the 2035 RTP consistent with state and federal requirements.

Metro also reviewed tribal lands data available from the Bureau of Indian Affairs to identify potential federally recognized tribal lands in the planning area. None were identified in this analysis.

Finally, Metro compiled data from the 2000 Decennial Census to assess the distribution of environmental justice populations in the Portland metropolitan region. The data were aggregated and incorporated into a Geographic Information Systems database, and combined with base layers from Metro's Regional Land Information System (RLIS). The base layers used included: Urban Growth Boundary (UGB), Major Rivers, Major Arterials, Metro Urban Growth Boundary, 2000 Census Block Groups and Freeways. A map was created to assess the distribution of each environmental justice population regionally. The region was defined using the UGB. Data shown is for Census Block Groups within the UGB.[3]

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[3] A complete description of the analysis and findings is included in *Environmental Justice in Metro's Transportation Planning Process Background Paper* (September 18, 2006)/

I. Regionally Significant Fish and Wildlife Habitat Inventory Analysis

Staff intersected the 2035 RTP Investment Strategy and Federal Priorities project lists with regionally significant Goal 5 resource areas. This data is shown in Figures 1 and 2.

2035 RTP Investment Strategy Analysis

- 29 percent of RTP Investment Strategy projects (311 out of1,075) intersect high value habitat areas. High value habitat areas are based on the September 2004 Inventory and Economic, Social, Environmental and Energy Analysis Data. High value areas provide the best riparian habitat, with adjustments made for economic importance to the region.
- The portions of these projects that intersect high value habitat areas represent 9.4 percent of the total linear project mileage (116 of 1,233 miles).

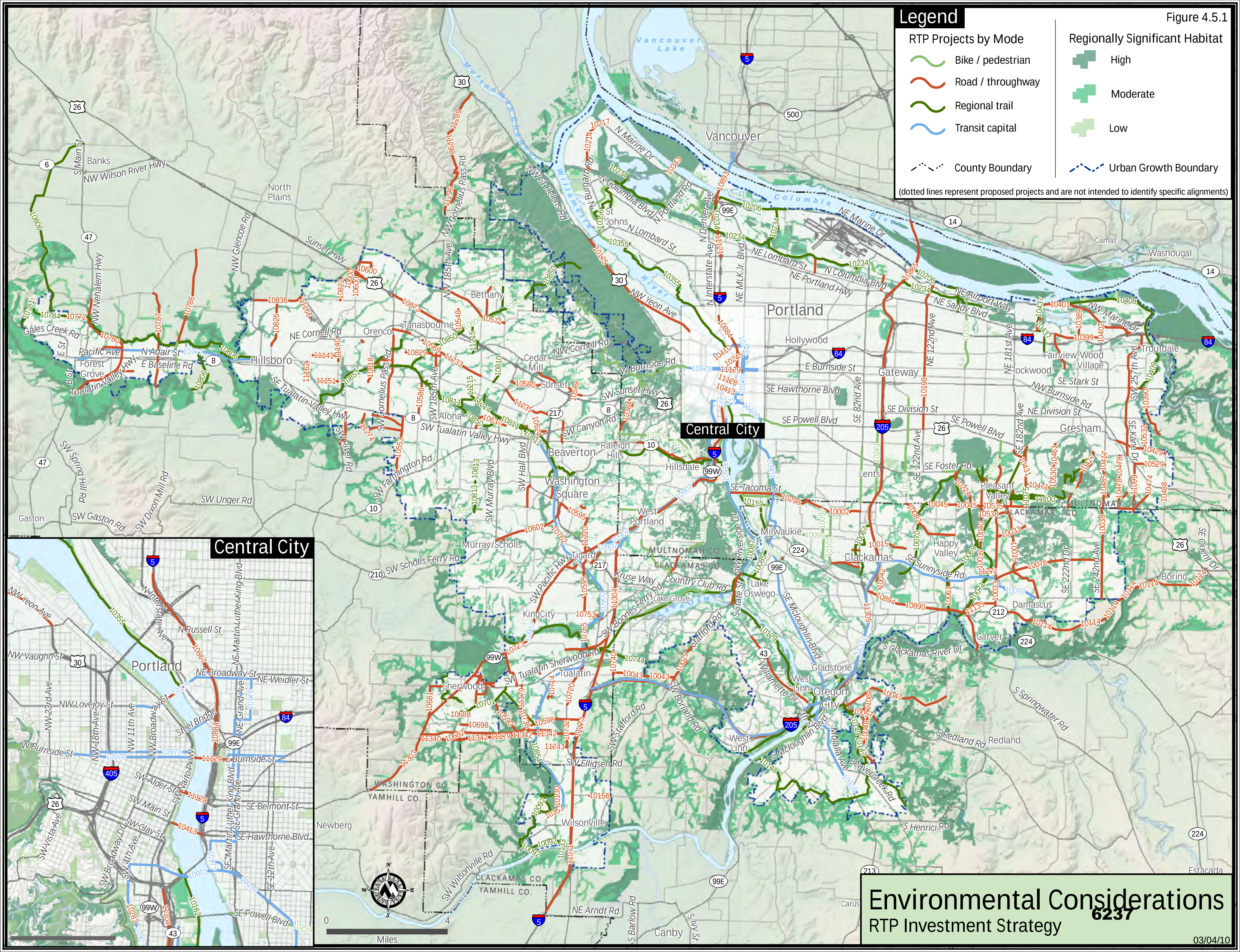
Table 1a. Summary of RTP Investment Strategy Projects Crossing High Value Habitat areas

	# of RTP investments crossing high value areas	% of all RTP investments crossing high value areas	Mileage of RTP investments crossing high value areas	% of all RTP investments (mileage) crossing high value areas
Bike/Ped	**43**	**4.0%**	15.0	1.2%
Freight	**8**	**0.7%**	0.8	0.1%
Regional Trail	**47**	**4.4%**	65.5	5.3%
Roads/Bridges	**176**	**16.4%**	22.7	1.8%
Throughways/Highways	**12**	**1.1%**	4.7	0.4%
Transit	**15**	**1.4%**	6.4	0.5%
Other	**10**	**0.9%**	0.8	0.1%
Total	**311**	**28.9%**	116.0	9.4%

* “Other” refers to projects with no mode associated with them, such as system and demand management programs and investment strategies.

Tables 1a and 1b show that for both the RTP Investment Strategy and Financially Constrained, more road/bridge projects cross high value areas compared to other project modes, but that trail projects compose more mileage of intersecting areas. This is explained by the fact that many regional trail projects travel alongside waterways, i.e. rivers, streams, creeks, for much of their potential alignments. Metro's Green Trails guidebook, provides a comprehensive source of information about planning, construction and maintenance of environmentally friendly or "green trails" – trails that avoid or minimize impacts to water resources and fish and wildlife habitat.

It is important to note that the potential alignments for proposed projects are conceptual until more detailed project development work is conducted. Projects that intersect high value areas should consider mitigation strategies as well as alignment options that avoid the resource area during future project development. The RTP project list (appendix 1.1) flags projects intersecting high-value areas.



Legend
Figure 4.5.1
RTP Projects by Mode
Bike / pedestrian
Road / throughway
Regional trail
Transit capital
County Boundary
Regionally Significant Habitat
High
Moderate
Low
Urban Growth Boundary
(dotted lines represent proposed projects and are not intended to identify specific alignments)
Central City
Miles
Environmental Considerations
RTP Investment Strategy
6237
03/04/10

2035 RTP Federal Priorities Analysis

- 30.7 percent of Federal Priorities projects (217 out of 706) intersect high value habitat areas. High value habitat areas are based on the September 2004 Inventory and Economic, Social, Environmental and Energy Analysis Data. High value areas provide the best riparian habitat, with adjustments made for economic importance to the region.
- The portions of these projects that intersect high value habitat areas represent13.6 percent of the total linear project mileage (98 of 722 miles).

Table 1b. Summary of RTP Federal Priorities projects Crossing High Value Habitat

	# of RTP investments crossing high value areas	% of all RTP investments crossing high value areas	Mileage of investments crossing high value areas	% of all investments (mileage) crossing high value areas
Bike/Ped	22	**3.1%**	11.0	1.5%
Freight	8	**1.1%**	0.8	0.1%
Regional Trail	41	**5.8%**	64.6	8.9%
Roads/Bridges	122	**17.3%**	15.4	2.1%
Throughways/Highways	9	**1.3%**	1.2	0.2%
Transit	11	**1.6%**	4.9	0.7%
Other*	4	**0.6%**	0.2	0.0%
Total	217	**30.7%**	98.2	13.6%

* “Other” refers to projects with no mode associated with them, such as system and demand management programs and investment strategies.

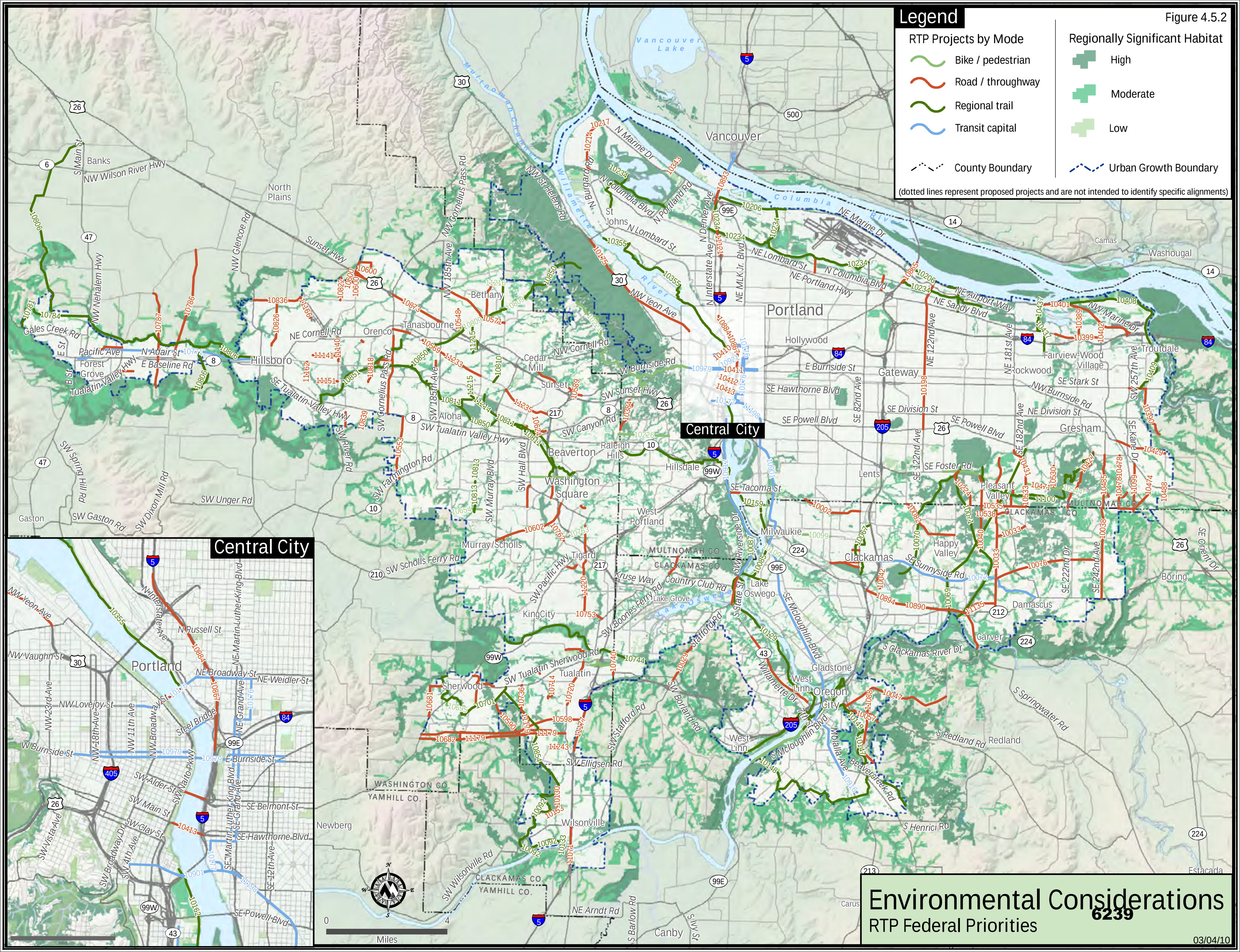

Legend
Figure 4.5.2
RTP Projects by Mode
Bike / pedestrian
Road / throughway
Regional trail
Transit capital
County Boundary
Regionally Significant Habitat
High
Moderate
Low
Urban Growth Boundary
(dotted lines represent proposed projects and are not intended to identify specific alignments)
Central City
Portland
Vancouver
Hillsboro
Beaverton
Gresham
Miles
Environmental Considerations
RTP Federal Priorities
6239
03/04/10

Table 2 displays ESA species that were considered during the Goal 5 inventory. This list is based on the best professional opinion of more than two-dozen local wildlife experts.

Table 2. ESA species in the Portland Region[4]

Common name	Scientific name	Oregon Dept of Fish & Wildlife Strategy Species?
Aleutian Canada Goose (wintering)	*Branta canadensis leucopareia*	*Yes*
American Bald Eagle	*Haliaeetus leucocephalus*	*Yes*
Oregon Slender Salamander	*Batrachoseps wrighti*	*No*
Tailed Frog	*Ascaphus truei*	*No*
Northern Red-legged Frog	*Rana aurora aurora*	*No*
Northwestern Pond Turtle	*Clemmys marmorata marmorata*	*No*
Harlequin Duck	*Histrionicus histrionicus*	*No*
Northern Goshawk	*Accipiter gentilis*	*Yes*
Band-tailed Pigeon	*Columba fasciata*	*Yes*
Lewis's Woodpecker (extirpated as breeding species)	*Melanerpes lewis*	*Yes*
Acorn Woodpecker	*Melanerpes formicivorus*	*Yes*
Olive-sided Flycatcher	*Contopus cooperi (= borealis)*	*Yes*
Streaked Horned Lark	*Eremophila alpestris strigata*	*Yes*
Purple Martin	*Progne subis*	*Yes*
Yellow-breasted Chat	*Icteria virens*	*Yes*
Oregon Vesper Sparrow	*Pooecetes gramineus affinis*	*Yes*
Tricolored Blackbird	*Agelaius tricolor*	*No*
Yuma Myotis	*Myotis yumanensis*	*No*
Long-legged Myotis	*Myotis volans*	*Yes*
Fringed Myotis	*Myotis thysanodes*	*Yes*
Long-eared Myotis	*Myotis evotis*	*No*
Silver-haired Bat	*Lasionycteris noctivagans*	*Yes*
Pacific Western Big-eared Bat	*Corynorhinus townsendii townsendii*	*No*
Camas Pocket Gopher	*Thomomys bulbivorus*	*No*
White-footed Vole	*Arborimus (= Phemacomys) albipes*	*No*
Red Tree Vole	*Arborimus (= Phenacomys) longicaudus*	*Yes*

II. Wildlife Incident Hotspots and Fish Passage Barriers Analysis

The purpose of the wildlife incident hotspot inventory is to identify key areas in the region where wildlife mortalities are caused by motor vehicles. This information highlights key areas where wildlife crossings designs should be considered in the transportation planning and project development process. In August, 2002, Metro completed a study that compiled wildlife mortality data for the three county

[4] These species (as of 2001) are classified under the ESA as either Endangered, Listed Endangered, Threatened, Listed Threatened, Proposed Endangered, Proposed Threatened, Candidate, or a Species of Concern. This list includes all known native vertebrate species (and nonnative vertebrate species with established breeding populations) that currently exist within the Metro region for at least a portion of the year. Vagrant species (those that do not typically occur every year) are not included on this list. The species list is based on the opinion of more than two-dozen local wildlife experts.

Portland region. It used several sources, including: city, county and state road maintenance department road kill pick-up records; ODOT's Crash Analysis and Reporting Unit; County animal control agencies; and animal care and rehabilitation centers.

The study reported more than 2,000 deer and elk deaths between 1992 and 2001 due to collisions with vehicles. The analysis began with a wider scope but was restricted to elk and deer due to limitations of available data—many agencies do not consistently report other wildlife mortalities. In a second study in 2005, the Oregon Department of Transportation used an expert-opinion approach to identify 86 hot spots along state maintained roads in ODOT Region 1. Most of these hot spots are locations where deer-vehicle collisions are frequent, although the experts also identified hot spots that served as crossing locations. Attachments 2 and 6 map data from both sources to show the wildlife incident hot spots around the region.

In 2002, Metro inventoried culverts in the region to identify barriers to fish passage. Fish passage barriers can be man-made or natural blockages to the free movement of fish species through a waterway. Upstream blockages that prevent spawning of fish, especially those that are identified as threatened or endangered, are of significant importance. Fish barriers can come in the form of culvert blockages, dams, shallow water, or a combination of factors that prevent fish from reaching their spawning grounds. Transportation projects that may develop new barriers, or intersect existing barriers will require adequate fish passage as directed by State law. Oregon Department of Fish & Wildlife (ODFW) is currently working on a statewide fish passage culvert inventory. Metro will participate in this effort, and incorporate that information as it becomes available.

Attachment 2, "Wildlife Incident Hotspots and Fish Passage Barriers in the Portland Region" and Attachment 6, (corresponding map for Financially Constrained) show the RTP projects overlaid on areas with culverts that serve as barriers to fish passage and high numbers of wildlife incidents.[5] In addition, Table 3 and Table 4 list the RTP projects that intersect with culverts that serve as barriers to fish passage and high-priority wildlife incident locations, respectively. Identification of these projects early in the planning process provides an opportunity to consider wildlife corridor acquisition/restoration, wildlife crossing design treatments and other strategies as part of future project development. Metro has begun development of a Wildlife Crossings handbook that will provide design options to planners, engineers, developers, biologists and citizens for reducing wildlife fatalities on roadways.

At the state level, ODFW and ODOT have undertaken steps to identify wildlife linkages, important wildlife habitat areas that are near or span paved roads. ODFW and ODOT are working with regional groups to identify these linkage areas through four different workshops that bring together state, regional and federal agency personnel; transportation maintenance workers; and transportation and land use planners. Currently the group is looking at terrestrial species. ODOT will combine this information gained from this effort with its wildlife mortality data, daily usage modeling and other information to start identifying possible high priority sites for wildlife crossings.

[5] Data collection efforts were better in Clackamas County, thus there are more hotspots identified in this part of the region.

Table 3. RTP Projects and Fish Passage Barriers

RTP ID	Project Name	Owner/Operator	Proposed Timing	Part of Federal Priorities System
10024	McLoughlin Blvd. Improvement	ODOT	2008-2017	Yes
10035	Foster Rd. Improvements	Damascus	2026-2035	
10040	162nd Ave. Extension North	Clackamas Co.	2018-2025	Yes
10043	Borland Rd.	Clackamas Co.	2018-2025	
10057	Redland Rd.	Clackamas Co.	2008-2017	Yes
10061	SE 142nd Ave.	Clackamas Co.	2026-2035	
10067	Phillips Creek Trail	Clackamas Co.	2008-2017	Yes
10069	East Buttes Powerline Trail	Gresham	2008-2017	Yes
10070	Mt. Scott Creek Trail	North Clackamas PRD	2008-2017	Yes
10101	Kellogg Creek Dam Removal/Bridge Replacement/Milwaukie TC River Access Improvements	Milwaukie	2008-2017	Yes
10127	Hwy. 43 Improvements	ODOT	2008-2017	Yes
10156	Boeckman Rd. at Boeckman Creek	Wilsonville	2008-2017	
10175	Yeon/St. Helens, NW (US 30): ITS	ODOT	2008-2017	Yes
10191	Garden Home Rd., SW (Capitol Hwy - Multnomah): Multi-modal Improvements	Portland	2008-2017	Yes
10215	Foster Rd., SE (136th - Jenne): Multi-modal Improvements	Portland	2008-2017	Yes
10224	Barbara Welch Rd., SE: Multimodal Improvements	Portland	2026-2035	Yes
10226	Hamilton St., SW	Portland	2026-2035	Yes
10227	SW Stephenson/SW Boones Ferry Intersection	Portland	2026-2035	Yes
10275	Vermont St., SW, (45th - Oleson): Bicycle and Pedestrian Improvements	Portland	2018-2025	
10276	30th Ave., SW (Vermont to B-H Hwy): Bicycle & Pedestrian Improvements	Portland	2018-2025	
10279	Beaverton-Hillsdale Hwy, SW (Capitol Hwy - 65th): Multi-modal Improvements	Portland	2026-2035	
10281	Beaverton-Hillsdale Hwy, SW: ITS	Portland	2008-2017	
10297	Spokane & Umatilla, SE (7th - Tacoma Overcrossing): Bikeway	Portland	2026-2035	
10298	Tacoma, SE (Sellwood Bridge - 45th/Johnson Creek): ITS	Portland	2018-2025	
10323	111th/112th Ave., SE (Market - Mt. Scott Blvd.): Bicycle & Pedestrian Improvements	Portland	2026-2035	
10346	Marine Dr, N/NE (Portland Rd. to 185th): ITS	Portland	2018-2025	
10347	Foster Rd., SE (162nd - Giese Rd.): Multi-modal Street Improvements	Portland/Gresham	2026-2035	
10382	Reconstruct Stark St. to Arterial Atandards	Multnomah Co.	2008-2017	Yes
10385	Reconstruct Halsey St. with Improvements	Multnomah Co.	2008-2017	Yes

10389	Reconstruct 223rd Ave.	Multnomah Co.	2018-2025	Yes
10390	Reconstruct Troutdale Rd.	Multnomah Co.	2026-2035	Yes
10391	Reconstruct Historic Columbia River Hwy.	Multnomah Co.	2026-2035	Yes
10394	Replace RR Over-crossing on 223rd Ave.	Multnomah Co.	2018-2025	Yes
10399	Reconstruct Sandy Blvd.	Multnomah Co.	2008-2017	Yes
10404	Beaver Creek Culvert Replacement	Multnomah Co.	2008-2017	Yes
10408	40 Mile Loop Trail	Multnomah Co.	2008-2017	Yes
10427	Regner Rd. Reconstruction	Gresham	2018-2025	Yes
10431	Highland/190th Rd. Widening	Gresham	2008-2017	Yes
10438	Springwater Trail Connections	Gresham	2018-2025	Yes
10451	202nd: Burnside to Powell	Gresham	2008-2017	
10461	Towle Ave. Improvements	Gresham	2008-2017	
10462	Butler Rd. Improvements	Gresham	2008-2017	Yes
10463	Foster Rd. Extension (north)	Portland/Gresham	2008-2017	Yes
10471	Butler Rd. Extension and Bridge	N/A	2008-2017	Yes
10486	Telford Rd.	Gresham	2008-2017	Yes
10488	282nd Ave.	Gresham	2008-2017	Yes
10523	Chase Rd., Orient Dr. to 282nd	Gresham	2018-2025	
10533	190th:30th to So. Boundary of Pleasant Valley	Gresham	2008-2017	Yes
10535	Clatsop: New Extension	Gresham	2008-2017	Yes
10540	162nd	Gresham	2008-2017	Yes
10542	Foster Rd. Improvements	Portland	2008-2017	
10568	Tualatin-Sherwood Rd. Improvements	Washington Co.	2018-2025	Yes
10580	Butner Rd. Improvements	Washington Co.	2026-2035	
10644	110th Ave. Sidewalk Gaps	Washington Co.	2018-2025	Yes
10667	155th Ave. Bike Lanes	Beaverton	2018-2025	Yes
10682	Brookman Rd	Sherwood	2018-2025	Yes
10755	72nd Ave. Improvements	Tigard	2008-2017	Yes
10758	Dartmouth Street Extension	Tigard	2018-2025	
10809	Bronson Creek Trail (Regional)	THPRD	2018-2025	Yes
10814	Evergreen Pkwy.	Hillsboro	2008-2017	Yes
10850	Beaverton Ck Trail, Bronson Ck Trail,	Hillsboro	2018-2025	Yes
10859	Pleasant View Dr., Powell Loop to Highland Drive	Gresham	2008-2017	
11074	East Buttes Loop Trail: From Springwater Trail to Rodlun Road	Gresham	2008-2017	Yes
11075	East Buttes Loop Trail (S) (Informally known as "Kelly Creek Trail"	Gresham	2008-2017	
11081	Boones Ferry Rd Bike Lanes	Lake Oswego	2009-2017	Yes
11083	Iron Mountain / Upper Drive	Lake Oswego	2008-2017	
11085	Kerr Parkway Bike Lanes	Lake Oswego	2008-2017	
11099	Barnes Rd.: Orient to South City Limits	Gresham	2018-2025	Yes
11116	SW Garden Home Road	Portland	2008-2017	
11117	St. Helens Rd. (US 30) Connectivity Improvements	Portland	2008-2017	
11179	I-5 to 99W Replacement Projects	ODOT	2008-2017	Yes
11229	Walnut Street Improvements	Tigard	2008-2017	Yes

11233	Walker Rd. Improvements	Washington Co.	2018-2025	Yes
11299	257th/Kane Dr.: Arterial Corridor Management (ACM) w/ Adaptive Signal Timing	Multnomah Co./Gresham	2008-2017	
11304	I-5 South Operational Improvements	ODOT	2008-2017	
11305	I-205 Operational Improvements	ODOT	2008-2017	
11332	I-205 BRT	TriMet	2008-2036	
11340	I-5/99W Southern Arterial Improvements	Washington Co.	2026-2035	
11342	I-5/99W Connector Southern Arterial/I-5 Interface	Washington Co.	2026-2035	
11345	SW Stephenson(Boones Ferry - 35th): Multi-modal Improvements	Portland	2026-2035	Yes

Table 4. RTP projects that intersect high-priority wildlife incident locations

RTP ID	Project Name	Owner/Operator	Proposed Timing	Part of the Federal Priorities System
10030	Stafford Rd. Improvements	Clackamas Co.	2018-2025	
10061	SE 142nd Ave.	Clackamas Co.	2026-2035	
10069	East Buttes Powerline Trail	Gresham	2008-2017	Yes
10070	Mt. Scott Creek Trail	North Clackamas PRD	2008-2017	Yes
10072	Sunnyside Rd. Frequent Bus	Damascus	2008-2017	Yes
10597	Evergreen Rd. Improvements	Washington Co.	2008-2017	Yes
10751	Hwy. 217 Overcrossing	ODOT	2018-2025	Yes
10755	72nd Ave. Improvements	Tigard	2008-2017	Yes
10758	Dartmouth Street Extension	Tigard	2018-2025	
10770	Hwy. 99W Intersection Improvements	ODOT	2008-2017	Yes
10814	Evergreen Pkwy.	Hillsboro	2008-2017	Yes
10822	253rd	Hillsboro	2008-2017	Yes
10907	High Capacity Transit: Barbur / 99W Corridor (Portland to Tigard or Sherwood)	TriMet	2008-2017	
11303	OR 99W Transportation System Management and Operations	ODOT	2008-2017	

IV. Historic Properties and Districts Analysis

Potential transportation project related impacts may include physical changes to historic transportation infrastructure, effects of road widening on historic settings or structures, effects on historic roadside elements, effects of air pollution on resources due to increased traffic, and disturbance or infringement on cultural landscapes. The nature of these impacts is highly site and project specific, and the information about historic and cultural resources is constantly evolving. It is important for each project to be evaluated in the specific context and timeframe in which it is designed with up-to-date information.

There are several state and federal laws and regulations that call for preservation and/or enhancement of cultural resources. Of specific relevance to transportation projects are Section 106 of the National Historic Preservation Act (NHPA) of 1966 and Section 4(f) of the Department of Transportation Act of 1966. The Historic properties are any historic district, site, building, structure or object included in, or eligible for inclusion in, the National Register of Historic Places. More than 650 historic sites and districts have been identified in the Metro region. This list is available upon request. [6] Staff intersected the 2035 RTP Investment Strategy and Federal Priorities with historic properties within the Portland metropolitan region that are listed in the National Register of Historic Places. This data is displayed in Figures 3 and 4.

[6] For more information on each site visit http://www.nationalregisterofhistoricplaces.com/or/state.html#pick em and click on Clackamas, Multnomah or Washington County. Metro's Data Resource Center can provide a list for the portions of these Counties within the Metro region.

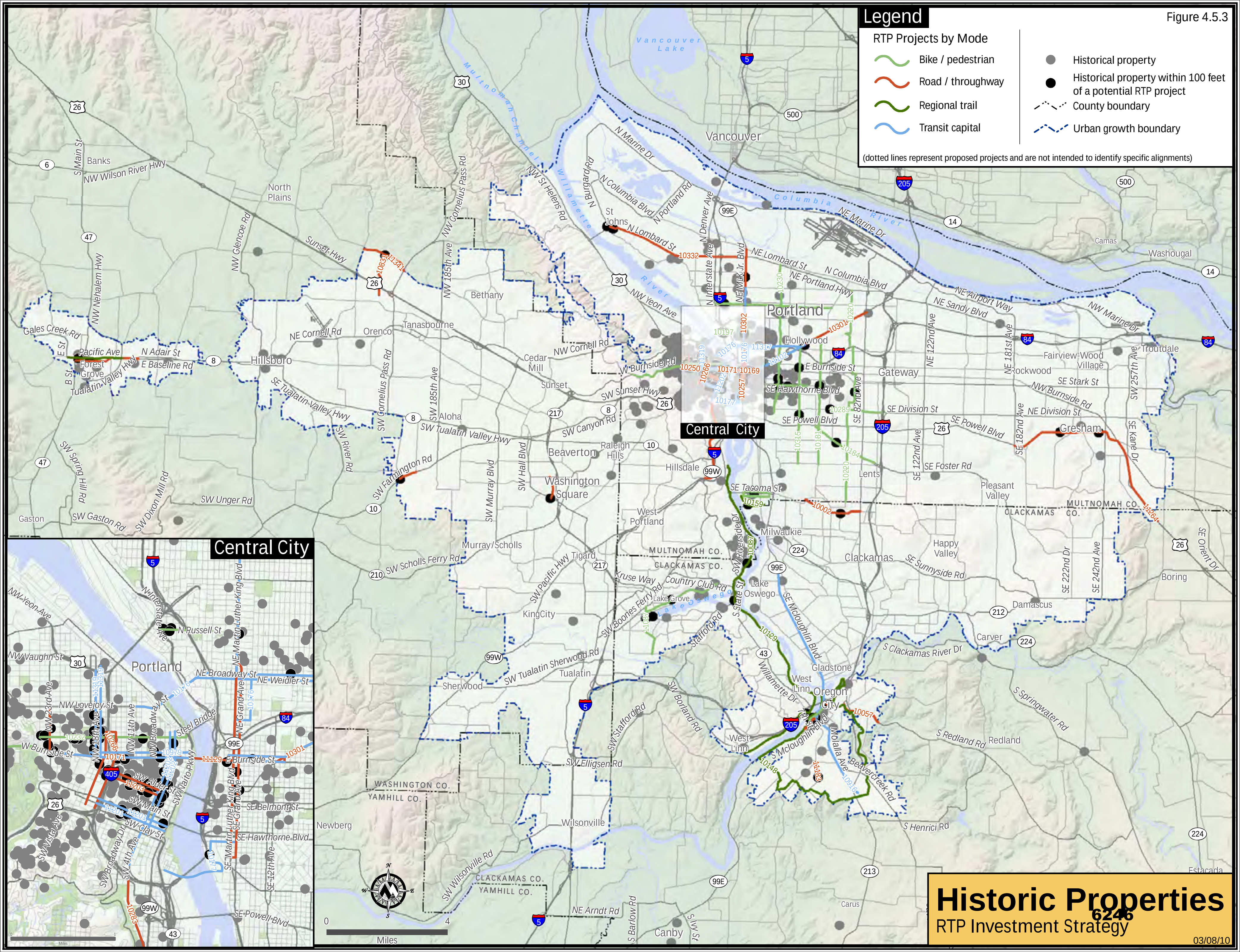
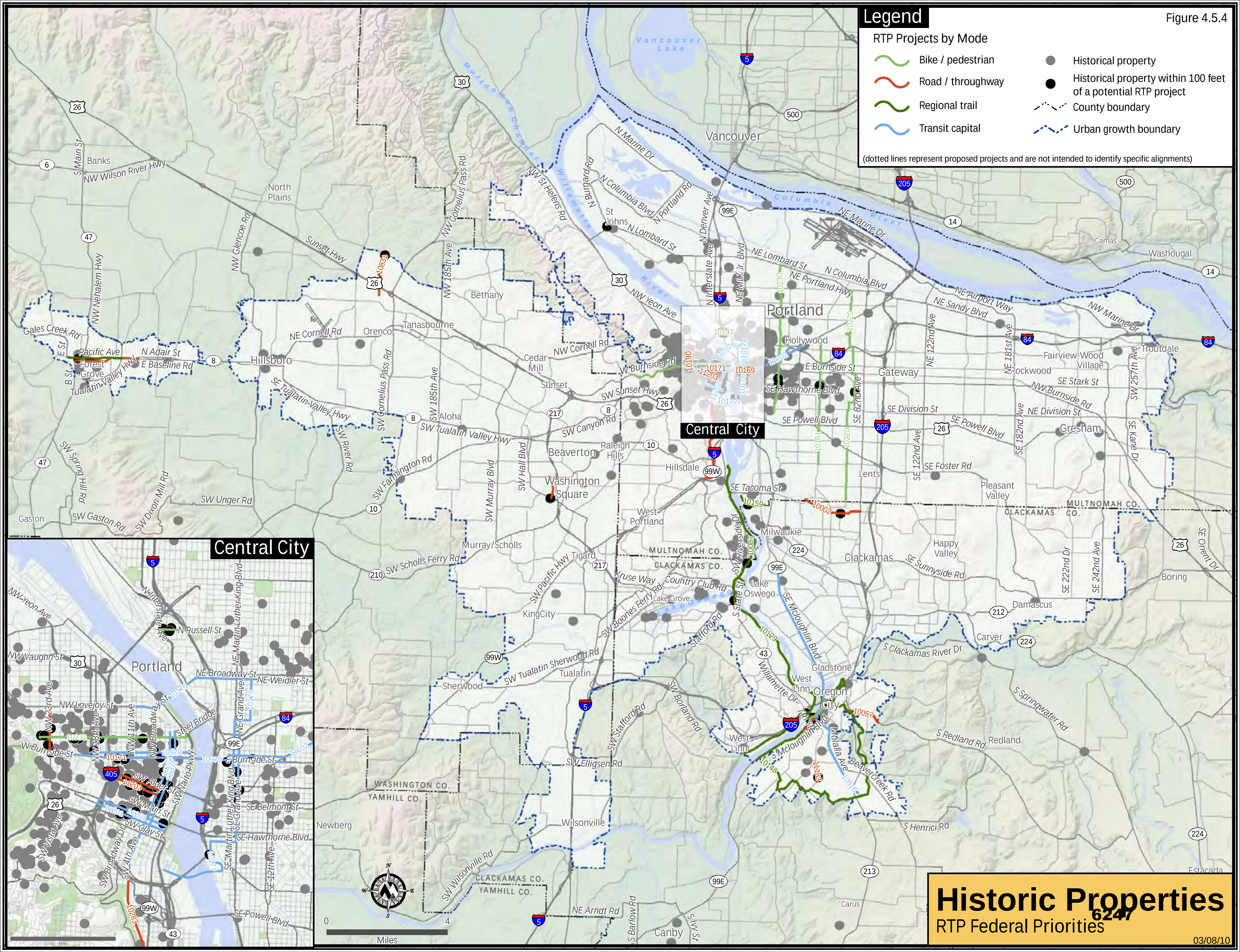


Figure 4.5.3
Legend
RTP Projects by Mode
Bike / pedestrian
Road / throughway
Regional trail
Transit capital
Historical property
Historical property within 100 feet of a potential RTP project
County boundary
Urban growth boundary
(dotted lines represent proposed projects and are not intended to identify specific alignments)
Central City
Historic Properties
RTP Investment Strategy
6246
03/08/10
Vancouver
Portland
Central City
Gateway
Gresham
Troutdale
Fairview-Wood Village
Rockwood
Hillsboro
Forest Grove
Cornelius
Banks
North Plains
Bethany
Tanasbourne
Orenco
Cedar Mill
Sunset
Aloha
Beaverton
Raleigh Hills
Hillsdale
Washington Square
West Portland
Murray/Scholls
Tigard
King City
Tualatin
Sherwood
Wilsonville
Lake Oswego
Lake Grove
Milwaukie
Clackamas
Happy Valley
Damascus
Carver
Gladstone
Oregon City
West Linn
Lents
Pleasant Valley
Boring
Camas
Washougal
Gaston
Newberg
Canby
Estacada
St Johns
Hollywood
MULTNOMAH CO.
CLACKAMAS CO.
WASHINGTON CO.
YAMHILL CO.
Columbia River
Willamette River
Multnomah Channel
Vancouver Lake
0
4
Miles



Legend
Figure 4.5.4
RTP Projects by Mode
Bike / pedestrian
Road / throughway
Regional trail
Transit capital
Historical property
Historical property within 100 feet of a potential RTP project
County boundary
Urban growth boundary
(dotted lines represent proposed projects and are not intended to identify specific alignments)
Central City
Vancouver
Portland
Hillsboro
Beaverton
Gresham
Tigard
Tualatin
Sherwood
Wilsonville
Lake Oswego
Milwaukie
Oregon City
West Linn
Gladstone
Clackamas
Happy Valley
Damascus
Troutdale
Fairview-Wood Village
Forest Grove
Cornelius
Banks
North Plains
Gaston
Canby
Newberg
Boring
Washougal
Camas
MULTNOMAH CO.
CLACKAMAS CO.
WASHINGTON CO.
YAMHILL CO.
Columbia River
Willamette River
0
4
Miles
Historic Properties
RTP Federal Priorities
6247
03/08/10

V. Air Quality Analysis

Metro estimated future carbon monoxide, precursors of smog (volatile organic compounds and oxides of nitrogen) and carbon dioxide emissions from cars and trucks operating within the greater Portland air shed to the year 2035 using EMME/2 modeling software and Mobile 6.2, the latest model approved by the U.S. Environmental Protection Agency. Metro has demonstrated that the region, with the additional transportation investments included in the 2035 Regional Transportation Plan Federal Priorities will meet federal and state air quality standards. See Metro website for the full air quality conformity document.

Further, the region has estimated that other pollutants, for which there are not federal or state regulations, but which nevertheless can have health or environmental concerns, will be reduced in the future. The amount of air toxics and ozone generated from on-road transportation sources are estimated by Metro on a voluntary basis and reported on Metro's website. Both air toxics and ozone are estimated to decreases substantially in the future to the year 2035, the furthest year analyzed. A table showing these pollutants for the region is available on Metro's website.

VI. Tribal Lands Analysis

There is no federally recognized Indian reservation within or adjacent to the Metro planning area.

VII. Environmental Justice Analysis

Title VI of the Civil Rights Act of 1964 mandates, "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."[7]As the designated Metropolitan Planning Organization (MPO) for the Portland metropolitan region, Metro is responsible for transportation planning and implementation of transportation projects, and is thus required to comply with this law.

In 1994, President Clinton enacted Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" to reinforce Title VI of the Civil Rights Act of 1964. The order states that the duty of each public agency is to identify and address "disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."[8]

As an entity utilizing federal funds, Metro is responsible to successfully integrate environmental justice standards into its transportation program and planning activities. Any program or activity receiving federal financial assistance cannot discriminate against people based on race, color, national origin, age, sex, disability, religion or income status.

E.O. 12898 expands upon the law set forth in Title VI, and three main actions that Metro and public agencies receiving federal financial assistance need to address:

- "Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects on minority populations and low-income populations"

[7] United States Department of Justice. (1964). Title VI of the 1964 Civil Rights Act. Retrieved July 12, 2006 from http://www.usdoj.gov/crt/cor/coord/titlevistat.htm.
[8] Clinton, William J. (1994). Executive Order 12898: Federal Actions to Address Environmental Justice in Minority and Low-Income Communities. Retrieved July 12, 2006 from http://www.fs.fed.us/land/envjust.html.

- "Ensure the full and fair participation by all potentially affected communities in the transportation decision-making process"
- "Prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority populations and low-income populations"

In a memorandum dated October 7, 1999, the Federal Highway Administration and the Federal Transit Administration describe the procedure for assuring state and metropolitan agency's compliance with Title VI requirements. The memorandum states that it is important for agencies to complete the following actions[9]:

- Develop a demographic profile of the metropolitan planning area that identifies the locations of socio-economic groups.
- Identify the transportation needs of low-income and minority populations.
- Assess the regional benefits and burdens of transportation system investments in the RTP and TIP for different socio-economic groups.
- Have a public involvement strategy for engaging minority and low-income populations in transportation decision-making.

Data from the 2000 Decennial Census was used to overlay RTP projects with identified environmental justice populations in the Portland metropolitan region. Table 5 explains each population analyzed and its definition and source within the Census.

Table 5: Census 2000 Data Sources and Definitions

Demographic Category	Definition	Source Table(s) within the 2000 Census
White Alone	Persons who identified themselves as only White (no other racial category)	Summary File 1, P7: Race (Total Population)
Minority	All persons who did not self-identify as White, non-Hispanic	Summary File 1, P7: Race (Total Population) and P4: Hispanic or Latino, and Not Hispanic or Latino by Race (Total Population)
Black Alone	Persons who identified themselves as only Black (no other racial category)	Summary File 1, P7: Race (Total Population)
American Indian or Alaska Native Alone	Persons who identified themselves as only American Indian or Alaska Native (no other racial category)	Summary File 1, P7: Race (Total Population)
Asian Alone	Persons who identified themselves as only Asian (no other racial category)	Summary File 1, P7: Race (Total Population)
Hawaiian or Pacific Islander Alone	Persons who identified themselves as only Hawaiian or Pacific Islander (no other racial category)	Summary File 1, P7: Race (Total Population)
Hispanic	Persons of any racial group who identified as Hispanic	Summary File 1, P4: Hispanic or Latino, and Not Hispanic or Latino by Race (Total Population)
Non-English-Speaking	Persons who stated that they didn't speak any English at all in 2000	Summary File 3, P19: Age by Language Spoken at Home by Ability to Speak English for the Population 5+ Years
Very Low-Income	Persons who earned between 0 and .99	Summary File 3, P88: Ratio of Income in 1999

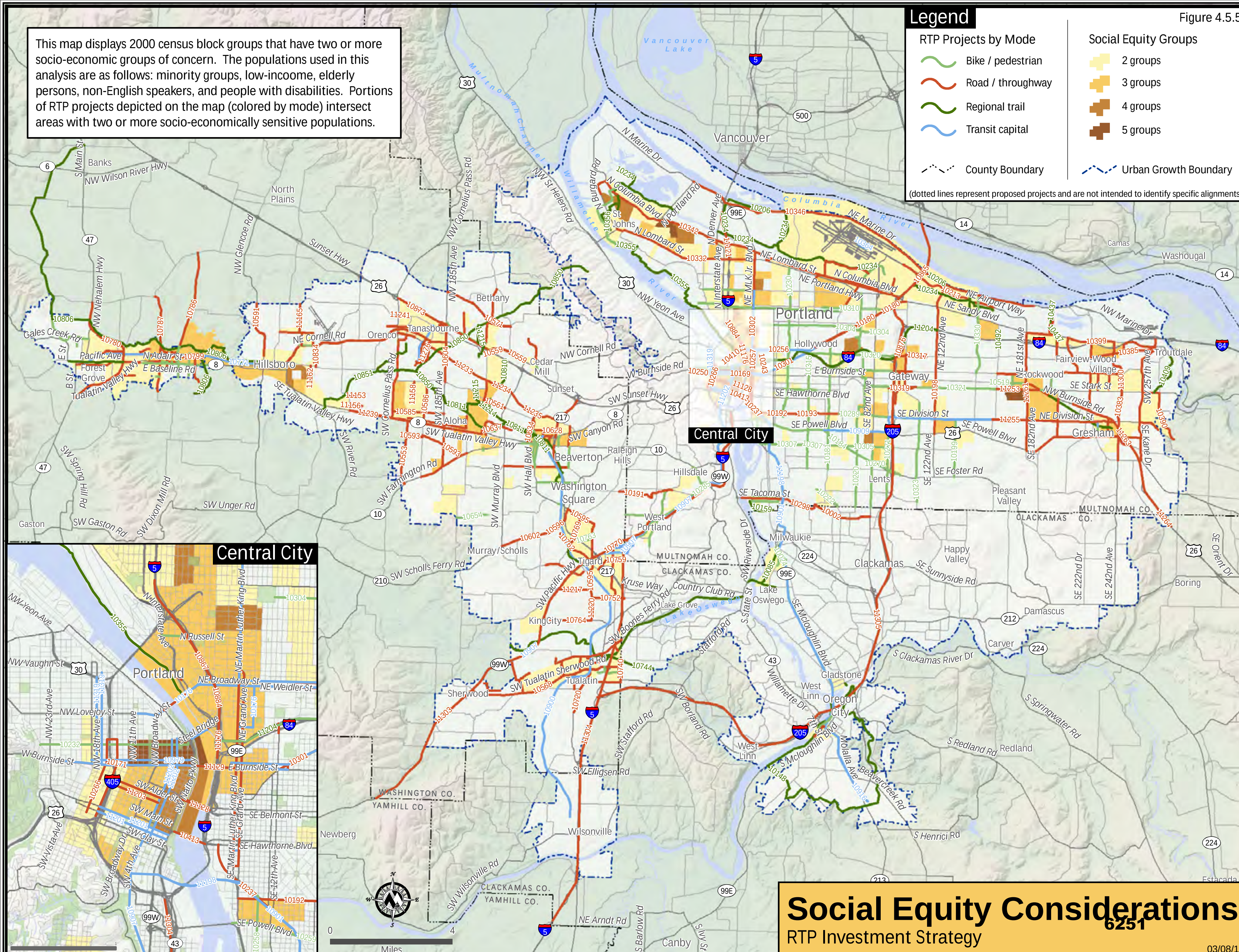
[9] FHWA and FTA. (1999). Action: Implementing Title VI Requirements in Metropolitan and Statewide Planning. Accessed July 12, 2006 from http://www.fhwa.dot.gov/environment/ejustice/ej-10-7.htm

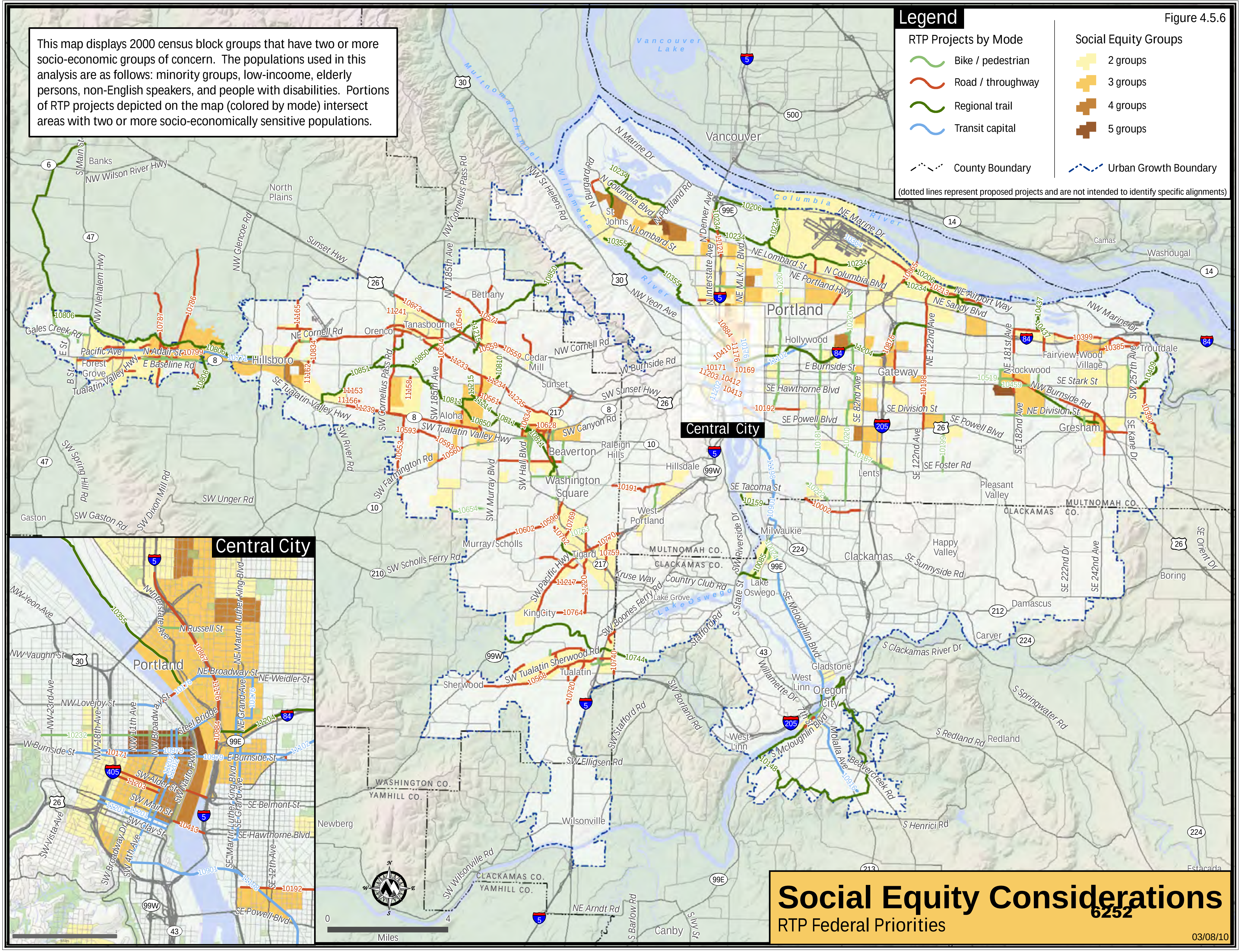
Demographic Category	Definition	Source Table(s) within the 2000 Census
	times the federal Poverty Level in 1999	to Poverty Level and P151A: Household Income in 1999 (White Alone Householder)
Low-Income	Persons who earned between 1 and 1.99 times the federal Poverty Level in 1999	Summary File 3, P88: Ratio of Income in 1999 to Poverty Level and P151A: Household Income in 1999 (White Alone Householder)
Total Low-Income	Persons who earned between 0 and 1.99 times the federal Poverty Level in 1999	Summary File 3, P88: Ratio of Income in 1999 to Poverty Level and P151A: Household Income in 1999 (White Alone Householder)
Disabled	All persons 5 years or older with any type of disability: sensory, physical, mental, self-care, go-outside-the-home, or employment.	Summary File 3, P41: Age by Types of Disability for the Civilian Noninstitutionalized Population 5+ Years with Disabilities
Elderly	Persons 65 years of age or older in 2000	Summary File 1, P12: Sex by Age (Total Population)
Total Population	All persons residing within the census-defined area in 2000	Summary File 1, P1: Total Population

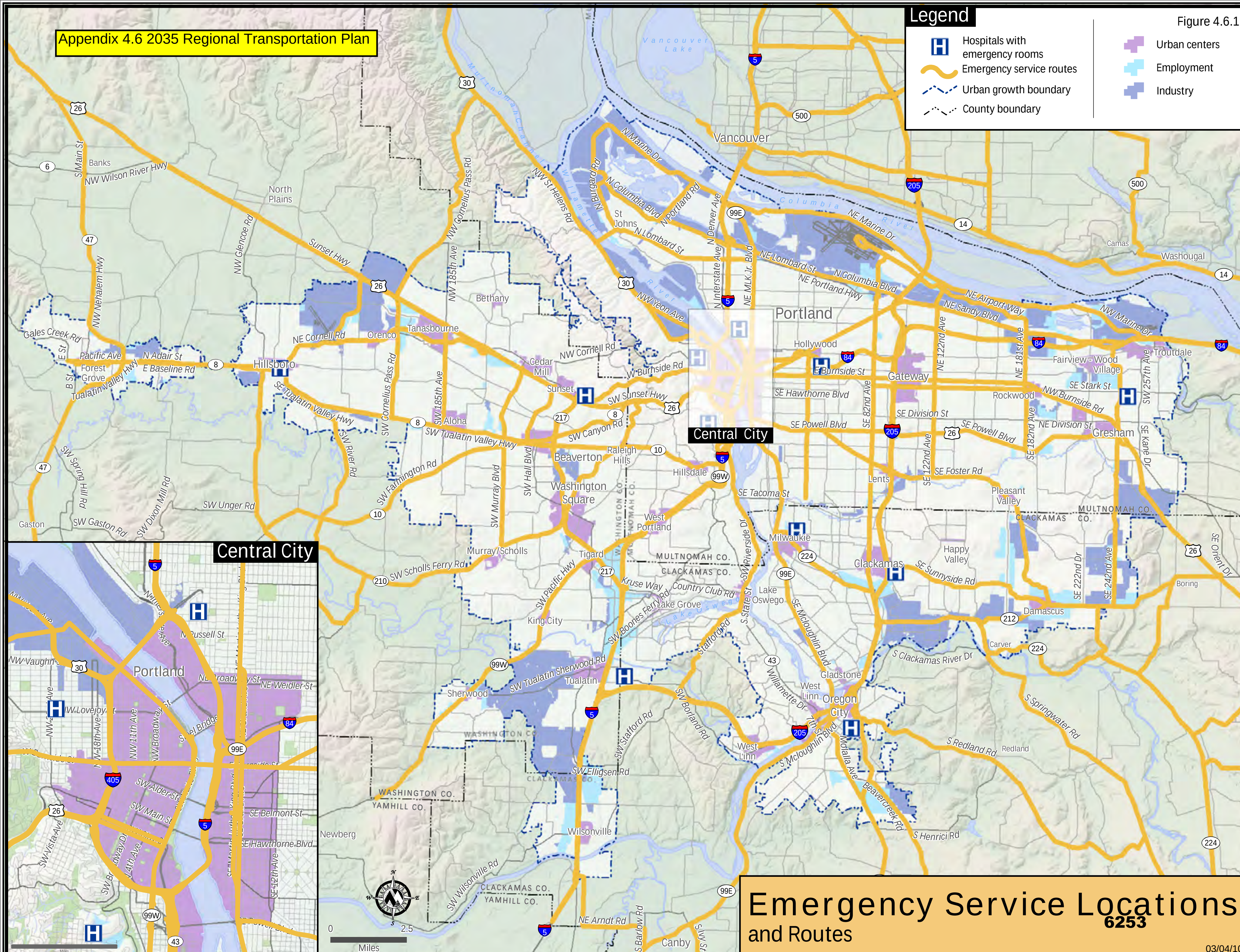
Source: U.S. Census Bureau, 2000

Figures 5 and 6 display RTP projects (colored by mode) intersected with identified Environmental Justice Target Areas - 2000 census block groups with two or more socio-economically sensitive populations.

Metro has recognized the need to enhance the region's commitment to better address equity and federal Environmental Justice requirements. Prior to the next RTP update, Metro staff should research and recommend improved evaluation tools and criteria for policy-making and priority-setting in order to better understand how low-income, minority, disabled and elderly populations are being served by transportation policies and investment decisions.


This map displays 2000 census block groups that have two or more socio-economic groups of concern. The populations used in this analysis are as follows: minority groups, low-incoome, elderly persons, non-English speakers, and people with disabilities. Portions of RTP projects depicted on the map (colored by mode) intersect areas with two or more socio-economically sensitive populations.
Legend
Figure 4.5.5
RTP Projects by Mode
Bike / pedestrian
Road / throughway
Regional trail
Transit capital
County Boundary
Social Equity Groups
2 groups
3 groups
4 groups
5 groups
Urban Growth Boundary
(dotted lines represent proposed projects and are not intended to identify specific alignments)
Central City
Portland
Vancouver
Beaverton
Hillsboro
Gresham
Tigard
Lake Oswego
Oregon City
Tualatin
Wilsonville
Miles
Social Equity Considerations
RTP Investment Strategy
6251
03/08/10


This map displays 2000 census block groups that have two or more socio-economic groups of concern. The populations used in this analysis are as follows: minority groups, low-incoome, elderly persons, non-English speakers, and people with disabilities. Portions of RTP projects depicted on the map (colored by mode) intersect areas with two or more socio-economically sensitive populations.
Legend
Figure 4.5.6
RTP Projects by Mode
Bike / pedestrian
Road / throughway
Regional trail
Transit capital
County Boundary
Social Equity Groups
2 groups
3 groups
4 groups
5 groups
Urban Growth Boundary
(dotted lines represent proposed projects and are not intended to identify specific alignments)
Central City
Central City
Portland
Vancouver
Hillsboro
Beaverton
Gresham
Tigard
Tualatin
Oregon City
Milwaukie
Lake Oswego
Wilsonville
Sherwood
Troutdale
Gateway
Clackamas
MULTNOMAH CO.
CLACKAMAS CO.
WASHINGTON CO.
YAMHILL CO.
0
4
Miles
Social Equity Considerations
6252
RTP Federal Priorities
03/08/10



Appendix 4.6 2035 Regional Transportation Plan
Legend
Hospitals with emergency rooms
Emergency service routes
Urban growth boundary
County boundary
Figure 4.6.1
Urban centers
Employment
Industry
Central City
Emergency Service Locations
and Routes
6253
03/04/10
Portland
Vancouver
Hillsboro
Beaverton
Gresham
Tigard
Tualatin
Lake Oswego
Milwaukie
Oregon City
West Linn
Wilsonville
Sherwood
Forest Grove
Cornelius
Troutdale
Fairview - Wood Village
Happy Valley
Clackamas
Gateway
Hollywood
Lents
Rockwood
Pleasant Valley
Damascus
Washington Square
Cedar Mill
Sunset
Bethany
Tanasbourne
Orenco
Aloha
Raleigh Hills
Hillsdale
West Portland
Murray/Scholls
King City
Gladstone
Canby
Newberg
Banks
North Plains
Gaston
Boring
Carver
Camas
Washougal
Redland
St Johns
Lake Grove
MULTNOMAH CO.
CLACKAMAS CO.
WASHINGTON CO.
YAMHILL CO.
Miles
0
2.5

METRO

Appendix 5.1 2035 Regional Transportation Plan
Findings of Compliance with State Requirements

Exhibit I to Ordinance No. 10-1241B
Findings

Oregon Statewide Planning Consistency

Oregon Statewide Planning Law	Corresponding RFP policy/RTP policy/OTP/OHP consistency requirement	Finding
Goal 1: Citizen Involvement	**RFP Policy 1.13: Participation of Citizens** **RTP Policy: Goal 10, Deliver Accountability** Objective 10.1 - Meaningful Input Opportunities	Metro undertook an extensive public involvement process involving public opinion research, workshops, hearings, advisory committees, interactive web opportunities and other techniques over several years, consistent with Metro's adopted "Public Involvement Policy for Transportation Planning." The Staff Report of June 10, 2010, makes reference to documents in the record that describe these efforts in detail.
Goal 2: Land Use Planning: Coordination and Implementation	**RFP Policy 1.14: School and Local Government Plan and Policy Coordination**	The 2035 RTP is a component of Metro's Regional Framework Plan (RFP). The fundamental underpinning of the RFP is its coordination of land use planning and transportation planning. The 2040 Growth Concept calls for high-density, mixed-use, pedestrian-friendly and transit supportive centers and corridors connected by a high-capacity, multi-modal transportation system. It fully meets the coordination requirement of Goal 2. Metro undertook an extensive coordination effort, with an emphasis on local governments and service districts, such as TriMet, during the several years spent developing the 2035 RTP. Metro worked with each local government within Metro's jurisdiction with a TSP to gauge the status of TSPs and determine a schedule for revisions to TSPs to be consistent with requirements of the RTFP. The most intensive efforts were through JPACT, TPAC. MPAC and MTAC, all composed primarily of representatives of local governments and service districts. The Staff Report of June 10, 2010, describes this effort in detail. The Comment Log shows that the RTP accommodates the concerns

		expressed by local governments, service districts and state agencies as much as possible. The RTFP attaches the schedule for updates to city and county TSPs. The RTP enhances implementation of its goals and objectives by updating and codifying the RTFP for the first time. The RTPF contains requirements for local TSPs and, in Title 6, compliance procedures that will ensure implementation.
Goal 3: Agricultural Lands		The RTP applies only within Metro's UGB. Goal 3 does not apply.
Goal 4: Forest Lands		The RTP applies only within Metro's UGB. Goal 4 does not apply.
Goal 5: Natural Resources, Scenic and Historic Areas, and Open Spaces	**RTP Policy: Goal 6, Promote Environmental Stewardship** Objective 6.1 - Natural Environment Objective 6.5 – Climate Change **RFP Policy 3.2.6 : Avoid fragmentation and degradation by new transportation projects**	The RTP describes programs, such as the Livable Streets, Trees for Green Streets and Green Streets programs, that aim to protect natural resources (pp 1-33-1-34. Title 1 of the RTFP connects these programs to street design requirements for local TSPs (section 3.08.110). Title 1 also subjects street design to the requirements of Title 13 (Nature in Neighborhoods) of Metro's Urban Growth Management Functional Plan (UGMFP). Land use decisions specifying the general locations of planned transportation facilities and improvements will be made by cities and counties in their TSPs and other decisions. All these decisions are subject to their Goal 5 programs which have been found to comply with Titles 3 (Water Quality and Flood Management) and 13
Goal 6: Air, Land and Water Resources Quality	**RTP Policy: Goal 6, Promote Environmental Stewardship** Objective 6.2 – Clean Air Objective 6.3 – Water Quality and Quantity	The RTP describes programs, such as the Livable Streets and Green Streets programs, that aim to protect natural resources (pp 1-33 to 1-34). Title 1 of the RTFP connects these programs to street design requirements for local TSPs (section 3.08.110). Title 1 also subjects street design to the requirements of Titles 3 and 13 of the UGMFP (3.08.110D). The conformity determination

		prepared for the RTP demonstrates the plan meets the Clean Air Act and other state and federal air quality requirements.
Goal 7: Areas Subject to Natural Disasters and Hazards	**RTP Policy: Goal 5, Enhance Safety and Security** Objective 5.3 - Terrorism, Natural Disasters and Hazardous Material Incidents	Safety issues and activities are summarized in Section 1.6 of the RTP. In addition, the policy framework in Section 2.3 of the RTP includes, "Goal 5: Enhance Safety and Security," and specific safety and security objectives to increase safety of the transportation system for all users. The RTP includes a number of investments and actions aimed at further improving safety in the region, including: • Investments targeted to address known safety deficiencies and high-crash locations. • Completing gaps in regional bicycle and pedestrian systems. • Retrofits of existing streets in downtowns and along main streets to include on-street parking, street trees marked street crossings and other designs to slow traffic speeds to follow posted speed limits. • Intersection changes and ITS strategies, including signal timing and real-time traveler information on road conditions and hazards. The RTP is a systems level plan; transportation improvements in the plan are contingent upon local action to include improvements in local comprehensive plans. Statewide planning Goal 7 applies to these local decisions. Security and emergency management activities are summarized in Section 2.4.7.4 of the RTP. The RTP directs Metro to work with local, state and regional agencies to identify critical infrastructure in the region, assess security vulnerabilities and develop coordinated emergency response and evacuation plans. This work is being led by the Regional Emergency

		Management Group (REMG), with Metro's participation. Title 2 of the RTFP requires cities and counties to establish performance measures and monitoring programs to ensure safe transportation systems (subsection 3.08.230D). The RTP calls for a regional safety planning work program developed with local governments and agencies (Chapter 6, Implementation, section 6.7.17).
Goal 8: Recreational Needs	**RTP Policy: Goal 7, Enhance Human Health**	Chapter 2 of the RTP prescribes a network vision for regional bicycle and pedestrian and trail and greenways systems (pp. 2-63 to 2.76). The RTP includes a system map for each system (Figures 1.17. 1.18, 2.22, 2.25 and 4.5). The RTP calls for an Active Transportation Action Plan to be developed with regional leaders (Chapter 6, Implementation, section 6.7.14).
Goal 9: Economic Development	**RFP Policy 1.4.3: Services to RSIAs** **RTP Policy: Goal 2, Sustain Economic Competitiveness and Prosperity**	The policy component of the RTP is structured around the implementation of the Region 2040 Growth Concept through strategic transportation improvements. As the economic engines of the region's economy, the Portland central city, six regional centers, the region's industrial areas and intermodal facilities are identified as the primary areas for transportation investments (RTP Section 2.2 and Table 2.1). Transportation improvements in these primary components of the 2040 Growth Concept are also guided by a set of functional maps that establish a series of efficient, high-quality motor vehicle, freight, transit, bicycle and pedestrian systems that are similarly designed to reinforce the Growth Concept (RTP Section 2.5). The RTP considers the importance of transportation, particularly the movement of freight, in the region's economy (pp. 1-12 to 1-21).

		This means ensuring reliable and efficient connections between intermodal facilities and destinations in, beyond, and through the region to promote the region's function as a gateway for trade and tourism. The regional freight network vision and policies are described in Section 2.5.4 of the RTP based upon recommendations of Metro's Regional Freight and Goods Movement Task Force. The region's first Regional Freight Plan, as implemented through Section 2.5.4, guided the development of freight-oriented projects shown in Appendix 1.1. The plan is illustrated in Regional Freight Network (Figure 2.20). Chapter 4 of the RTP establishes a mobility corridor strategy that identifies needs (network gaps and deficiencies) of the freight system.. The plan focuses on using a system approach to plan for and manage the freight network, reducing delay, increasing reliability, protecting industrial lands and freight investments, and expanding multi-modal freight transportation options and green technologies and practices.. In addition, other elements of the 2035 RTP include: • RTP policies that are linked to land use strategies that promote economic development (Goal 1 and Goal 2). • Highway LOS policy tailored to protect key freight corridors. (Table 2.4) • RTP recognizes need for freight linkages to destinations beyond the region by all freight modes. (Sections 1.3 and 2.5.4) The RTFP requires local TSPs to include a freight element with improvements that will reduce delay and increase reliability (section 3.08.150).
<u>Goal 10:</u> Housing	**RFP Policy 1.3.4: Parking Management for Affordable Housing** **RTP Policy: Goal 1, Foster Vibrant Communities**	The RTP links transportation to land use planning in a joint strategy to reduce household costs for housing and transportation (see Objective 8.3, p.2-

	and Efficient Urban Form Objective 1.2 - Parking Management Objective 1.3 - Affordable Housing **RTP Policy: Goal 8, Ensure Equity** Objective 8.3 - Housing Diversity Objective 8.4 - Reduce household income share to transportation	11). Simply stated, the strategy is to provide multi-modal transportation opportunities to portions of the region with high numbers of cost-burdened households, and to ensure land use regulations allow types and densities of housing along high-frequency transit services. The RTFP requires local TSPs to bring their street designs, bicycle and pedestrian systems, and transit area plans up to standards set forth in the RTFP (section 3.08.110 – 160). The RTFP also requires parking management plans aimed to reduce reliance on the auto and encourage the use of transit, cycling and pedestrian travel (Title 4).
<u>Goal 11:</u> Public Facilities and Services	**RTP Policy: Goal 9. Ensure Fiscal Stewardship** Objective 9.1 - Asset Management Objective 9.2 - Maximize return on public investment	The objectives of statewide planning Goal 11 with respect to transportation are more fully articulated by Goal 12. Please refer to findings under Goal 12.
<u>Goal 12:</u> Transportation	**RFP Policy: 1.2.1, Balanced Transportation System** **RFP Policy: 1.10.2, Development Patterns to Encourage Non-SOV Travel Modes** **RTP Policy: Goals 1 through 10**	The RTP, with all of its components, is intended to comply with Goal 12 and OAR 660 Division 12 (TPR). The fundamental requirement of Goal 12 and the TPR is that the RTP provide a transportation system that is adequate to served planned land uses. A second basic requirement of the TPR is that the RTP be consistent with adopted state transportation plans. These findings show how the 2035 RTP meets these basic requirements. The attached Supplement addresses the detailed requirements of the TPR.
<u>Goal 13:</u> Energy Conservation	**RTP Policy: Goal 6, Promote Environmental Stewardship** Objective 6.4 - Energy and Land Consumption	The RTP will help achieve Goal 13 by planning, requiring local planning for, and investing in transportation systems that reduce reliance on the auto and increase use of other modes. Adoption of new RTP policies and implementation of them through the RTFP and other mechanisms will contribute to changes in travel behavior by giving priority to completion of regional transit, bicycle and pedestrian systems. The RTFP requires local TSPs to do their part in meeting regional needs

		implemented through system design standards in Title 1.
Goal 15: Willamette River Greenway	**RTP Policy: Goal 6, Promote Environmental Stewardship**	RTP Goal 6 is achieved through Title 1 of the RTFP (3.08.110D) and by implementation of Titles 3 (Water Quality and Floodplains) and 13 (Nature in Neighborhoods). Much of the Willamette Greenway in the UGB has been designated "Habitat Conservation Area", subject to Title 13 protections.

Regional Framework Plan Consistency

Regional Framework plan Policy	Relevant RTP policy/Regional Transportation Functional Plan (RTFP) requirement	Finding
Policy 1.1.1b: Urban Form – Centers and Corridors at pedestrian scale Policy 1.2.1e: Built Environment – balanced transportation system Policy 1.3.8: integrate land use planning and transportation planning	**RTP Policy: Goal 1, Foster Vibrant Communities and Efficient Urban Form** Objective 1 - Compact Urban Form and Design	The RTP will help achieve these policies by planning, requiring local planning for, and investing in transportation systems that reduce reliance on the auto and increase use of other modes. Adoption of new RTP policies and implementation of them through the RTFP and other mechanisms will contribute to changes in travel behavior by giving priority to completion of regional transit, bicycle and pedestrian systems.
Policy 1.3.2c: service to Centers and Corridors to support affordable housing	**RTP Policy: Goal 1, Foster Vibrant Communities and Efficient Urban Form** Objective 1.3 - Affordable Housing **RTP Policy: Goal 8, Ensure Equity** Objective 8.3 - Housing Diversity Objective 8.4 - Reduce household income share to transportation	The RTP contains an essential strategy to accomplish RFP Policy 1.3.2c: investment in non-auto modes of transportation in portions of the region with higher numbers of cost-burdened households. The process in the Regional High-Capacity Transit System Plan for selection of investments in high-capacity transit includes criteria that address equity and housing affordability. A result of application of the criteria to potential HCT corridors is that several top tier projects run through areas of high numbers of cost-burdened households. See finding for statewide planning Goal 10.

Policy 1.10.1: Urban Design-mixed-use pattern in relation to transit system	**RTP Policy: Goal 1, Foster Vibrant Communities and Efficient Urban Form**	See finding for statewide planning Goal 12.

Oregon Transportation Plan Consistency

Oregon Transportation Plan Policy	Relevant RTP policy/Regional Transportation Functional Plan (RTFP) requirement	Finding
Policy 1.1: Development of an Integrated Multimodal System	**RTP Policy: Goal 3, Expand Transportation Choices** Objective 3.1 – Travel Choices Objective 3.3 – Equitable Access Objective 3.4 – Shipping Choices	The RTP establishes integrated modal systems for motor vehicles, transit, freight, bicycles and pedestrians through a series of functional classification maps and accompanying visions (RTP Section 2.5). New RTP policies and implementation of them through the RTFP and other mechanisms establishes the entire system as multi-modal and gives priority to completion of regional transit, bicycle and pedestrian systems. The RTP contains visions for each system network – the Arterial and Throughway Network; the Regional Transit Network; the Regional Freight Network; the Regional Bicycle Network; the Regional Pedestrian Network Vision; and Transportation System Management and Operations (Chapter 2). The street design classifications (RTP Section 2.5.1) serve as the policy tool for integrating these modal systems, and linking them to the 2040 land use components. The design classifications establish a modal-orientation on detailed segments of the major street system, reflecting future travel demand that is expected for individual 2040 land use components. In compact, mixed-use areas, the street design classifications emphasize transit, bicycle and pedestrian elements, as well as calmed motor vehicle travel speeds and on-street parking that supports storefront development. In industrial and employment areas, the street design classifications

		emphasize motor vehicle travel, including freight, with an emphasis on motor-vehicle mobility. However, all of these classifications are multi-modal in design, and embrace the principle that all streets should serve all modes of travel in some manner. The RTFP requires local TSPs to do their part in meeting these policies by setting: • Street System Design standards (3.08.110); • Transit System Design Standards (3.08.120); • Pedestrian System Design standards (3.08.130); • Bicycle System Design Standards (3.08.140); • Freight System Design standards (3.08.150); and • Transportation System Management and Operations specifications (3.08.160).
Policy 1.2: Equity, Efficiency and Travel Choices	**RTP Policy: Goal 3, Expand Transportation Choices** Objective 3.3 – Equitable Access **RTP Policy: Goal 8. Ensure Equity** Objective 8.1 – Environmental Justice Objective 8.4 Reduce household income share to transportation	See findings for statewide planning Goal 10 and RFP Policy 1.3.2c. The RTFP requires cities and counties to consider the needs of youth, seniors, people with disabilities and environmental justice populations within the city or county, including minorities and low-income families when determining their transportation needs (3.08.210A).
Policy 1.3: Relationship of Interurban and Urban Mobility	**RTP Policy: Goal 2, Sustain Economic Competitiveness and Prosperity** Objective 2.3 Metropolitan Mobility	The RTP includes strategies for 24 mobility corridors. These corridors are the principal interurban connections in the region. See Figure 4.1; Table 2.2. The strategies explain the function of each corridor in the 2040 Growth Concept and movement of freight and general traffic into and out of the region. The strategies identify transportation needs and projects to address the needs in each corridor. The RTFP sets forth the role of cities and counties on designs for street, freight, transit, bicycle and pedestrian systems and TSMO actions to make each corridor multi-modal and accomplish the strategy for the corridor (Title 1).

Policy 2.2: Management of Assets	**RTP Policy: Goal 9, Ensure Fiscal Stewardship** Objective 9.1 - Asset Mgmt Objective 9.2 – Maximize Return on Public Investment Objective 9.3 – Stable and Innovative Funding	For the first time, the RTP contains a Regional Transportation Systems Management and Operations Plan with an action plan focused on region-wide and mobility corridor-focused investments. A principal objective of the TSMO plan is more efficient use of the region's transportation assets. RTFP section 3.08.220A requires local governments to consider non-auto capacity improvements and strategies prior to motor vehicle capacity improvements to address transportation needs.
Policy 3.1: Integrated and Efficient Freight System	**RTP Policy: Goal 2, Sustain Economic Competitiveness and Prosperity** Objective 2.3 – Metropolitan Mobility Objective 2.4 – Freight Reliability Objective 2.5 – Job Retention and Creation **RTP Policy: Goal 3, Expand Transportation Choices** Objective 3.4 – Shipping Choices	The region completed a study of congestion and published "Cost of Congestion to the Economy of the Portland Region" in 2005. In response to the study, the RTP contains, for the first time, a Regional Freight Plan, based upon studies of freight movement in the region (see RTP, p. 2, footnote 1) and work by the Regional Freight and Goods Movement Task Force. The Freight Plan contains an action plan (pp. 49-58). The plan links land use and transportation to accomplish one of its most important objectives, the protection of multi-modal and intermodal facilities (pp. 45-46; 54). The link is to Title 4 of the Urban Growth Management Function Plan (Industrial and Employment Areas), which protects these areas and facilities from conflicting uses. The RTFP sets forth the actions required of cities and counties in their TSPs to implement the Freight Plan (section 3.08.150 Freight System Design), including a list of improvements to increase freight movement reliability. The RTP establishes a freight reliability performance target: reduce vehicle hours of delay (truck trips) by 10 percent by 2035. (Table 2.3, p. 2-13; Table 5.1, p. 5-4; Table 5.2, p. 5-5). See findings for statewide planning goal 9.
Policy 3.2: Moving People to Support Economic Vitality	**RTP Policy: Goal 2, Sustain Economic Competitiveness and Prosperity**	A principal goal of the RTP is more efficient movement of people to support quality of life, for

	Objective 2.1 – Reliable and Efficient Travel and Market Area Access Objective 2.2 – Regional Passenger Connectivity Objective 2.3 – Metropolitan Mobility **RTP Policy: Goal 3, Expand Transportation Choices** Objective 3.1 – Travel Choices	which a critical ingredient is economic vitality. See findings for statewide planning Goal 12 and OTP Policy 1.1. An element of systems design required in city and county TSPs is system completion to provide connectivity for all modes of travel (3.08.110, 3.08.120, 3.08.130, 3.08.150) and optimize the existing system (3.08.160). The analysis of system gaps and deficiencies required by Title 1 informs the identification of transportation needs (section 3.08.210). TSPs must develop solutions to meet identified needs; the solutions must help achieve system performance targets and standards, one of which is the demand/capacity standards in Table 3.08-2 (sections 3.08.220 and 230). See findings for statewide planning goal 9.
Policy 3.3: Downtowns and Economic Development	**RTP Policy : Goal 1, Foster Vibrant Communities and Efficient Urban Form** Objective 1.1 – Compact Urban Form and Design **RTP Policy: Goal 2, Sustain Economic Competitiveness and Prosperity** Section 2.5 Regional System Concepts o Community Building Concept ▪ Centers and Main streets Section 2.5.1 Regional System Design and Placemaking Concept	Downtowns are a principal focus of the region's combine land use-transportation 2040 Growth Concept. The Growth Concept is to concentrate mixed uses and high densities in centers and link them with one another by transit. Metro's Urban Growth Management Functional Plan sets forth the roles for cities and counties to accomplish the land use part of the concept; the RTFP sets forth the roles for cities and counties to accomplish the transportation part of the concept, in support of the planned land uses. See findings for statewide planning Goals 9 and 12 and RFP Policies 1.1 and 1.3.2c.
Policy 3.4: Development of the Transportation Industry	**RTP Policy: Goal 2. Sustain Economic Competitiveness and Prosperity** Objective 2.5 – Job Retention and Creation	The RTP emphasizes a multi-modal and well-connected transportation system. This strategy is contributing to the rise of new transportation industries in the region, such as the bicycle industry
Policy 4.1: Environmentally Responsible Transportation System	**RTP Policy: Goal 6, Promote Environmental Stewardship** Objective 6.1 - Natural Environment Objective 6.2 – Clean Air Objective 6.3 – Water Quality and Quantity Objective 6.4 – Energy and Land	See findings for statewide planning Goals 5, 6 and 13 and RFP Policy 1.1.

	Consumption Objective 6.5 – Climate Change	
Policy 4.2: Energy Supply	**RTP Policy: Goal 6, Promote Environmental Stewardship** Objective 6.4 Energy and Land Consumption	See findings for statewide planning Goals, 13 and RFP Policy 1.1.
Policy 4.3: Creating Communities	**RTP Policy: Goal 1, Foster Vibrant Communities and Efficient Urban Form**	See findings for statewide planning Goal 12 and RFP Policies 1.1 and 1.3.2c. The RTP recognizes and advances the critical role the transportation system, and investments in it, can play in building communities that achieve the objectives of the 2040 Growth Concept. The RTP establishes two investment tracks: the "Regional Mobility Corridor Concept" and the "Community Building Concept" (pp. 2-23 to 2-85). These concepts are merged in the mobility corridor strategies in Chapter 4 of the RTP.
Policy 5.1: Safety	**RTP Policy: Goal 5, Enhance Safety and Security** Objective 5.1 – Operational and Public Safety Objective 5.2 – Crime Objective 5.3 – Terrorism, Natural Disasters and Hazardous Material Incidents	See finding for statewide planning Goal 7. Metro will work with local governments and agencies, including ODOT, the TransPort subcommittee to TPAC and the Regional Safety Work Group, to develop a safety work program (RTP, pp. 6-34 to 6-35).
Policy 5.2: Security	**RTP Policy: Goal 5, Enhance Safety and Security** Objective 5.1 – Operational and Public Safety Objective 5.2 – Crime Objective 5.3 – Terrorism, Natural Disasters and Hazardous Material Incidents	See finding for OTP Policy 5.1.
Policy 6.1: Funding Structure	**RTP Policy: Goal 9, Ensure Fiscal Stewardship** Objective 9.3 - Stable and Innovative Funding	See finding for OTP Policy 2.2. The 2035 RTP revenue forecast and financial analysis for operations and maintenance costs was based on a thorough evaluation of city and county, ODOT, TriMet and SMART cost projections (RTP Sections 3.3). The financially constrained system described in Chapter 3 of the RTP was specifically developed to

		comply with SAFETEA-LU planning requirements. The system was developed based on a forecast of expected revenues that was formulated in partnership with the Oregon Department of Transportation, cities and counties in the Metro region, TriMet and the South Metro Area Rapid Transit (SMART) district The RTP describes how current funding sources are not sufficient to meets needs (pp. 1-25 to 1-31). Chapter 3 (Investment Strategy) then sets forth the funding structure to pay for the transportation improvements in the plan. The revenues for the "financially constrained" system are set forth on pages 3-10 to 3-14; for the "state" system on pages 3-15 to 3-17. Funding priorities are found on page 3-17 to 3-21. The plan recognizes that the funding structure for some of the region's bridges is inadequate and commits Metro to work with the state and local governments to develop a new structure (pp. 6-31 to 6-32).
<u>Policy 6.2</u>: Achievement of State and Local Goals		The RTP and all of its components strive to meet state, regional and local needs and goals, as the RTP itself and these findings demonstrate. Efficient use of resources is a hallmark of this RTP.
<u>Policy 6.3</u>: Public Acceptability and Understanding	**RTP Policy: Goal 9, Ensure Fiscal Responsibility** Objective 9.2 Maximize Return on Public Investment **RTP Policy: Goal 10, Deliver Accountability** Objective 10.1- Meaningful Input Opportunities Objective 10.2 – Coordination and Cooperation	For efforts to improve public understanding, see finding for state-wide planning Goal 10. Metro undertook a major, multi-year effort to coordinate development of the RTP with local governments and state agencies. Because the RTP implements a land use and transportation blueprint , Metro engaged not only its traditional planning partners, through JPACT and TPAC, but also engaged MPAC and MTAC. A Regional Freight and Goods Movement Task Force and technical advisory committee and High Capacity Transit Subcommittee and Think Tank guided preparation of those components of the RTP. Many meetings of these committees molded the RTP to the region's needs and aspirations. Metro maintained a full accounting of comment from its

		partners and responses to the comment (Comment Log). Three formal public comment periods were held in addition to presentations to stakeholder groups and the regular Metro advisory committee meetings as described in the June 10, 2010, staff report.
Policy 6.4: Beneficiary Responsibilities (Tolling, etc.)	**RTP Policy: Goal 4, Emphasize Effective and Efficient Management of the Transportation System** Objective 4.5 - Value Pricing	In addition to the traditional sources of funding transportation improvements (see Chapter 3), the RTP calls for consideration of value pricing in the region to better manage capacity and peak use of the throughway system (p. 2-9, Goal 4, Objective 4.5). For example, the plan anticipates that tolling will provide 36-49 percent of the funding for the Columbia River Crossing by I-5 (p. 3-14). Metro is participating in a congestion pricing pilot, in conjunction with ODOT. The RTP also lists current development-based sources of revenue, such as traffic impact fees and systems development charges, to contribute to overall revenues (pp. 3-8 to 3-9).
Policy 6.5: Triage in the Event of Insufficient Revenue	**RTP Policy: Goal 9, Ensure Fiscal Stewardship**	See finding for OTP Policy 6.1 for the explanation for the funding strategy in the 2035 RTP. The “financially-constrained” list of projects and the priorities set forth on pages 3-17 to 3-21 will guide the choice of transportation projects in the event of unanticipated reductions in revenue sources.
Policy 7.1: Coordinated Transportation System	**RTP Policy: Goal 10, Deliver Accountability**	See findings for statewide planning Goals 2 and 12 and OTP Policies 1.1; 1.3; and 3.1.
Policy 7.2: Public/Private Partnerships	**RTP Policy: Goal 9, Ensure Fiscal Stewardship** Objective 9.3 Stable and Innovative Funding	See finding for OTP Policy 6.1. The RTP explores public and private funding partnerships on pages 3-7 to 3-9.
Policy 7.3: Public Involvement and Consultation	**RTP Policy: Goal 10, Deliver Accountability** Objective 10.1 Meaningful Input Opportunities Objective 10.2 – Coordination and Cooperation	See findings for statewide planning Goal 1 and OTP Policy 6.3.
Policy 7.4: Environmental Justice	**RTP Policy: Goal 3. Expand Transportation Choices** Objective 3.3 – Equitable Access	See findings for statewide planning Goal 10 and OTP Policies 1.2 and 1.3.2c.

	RTP Policy: Goal 8, Ensure Equity Objective 8.3 Housing Diversity Objective 8.4 Reduce household income share to transportation	

Exhibit I to Ordinance No. 10-1241B
Findings

Oregon Highway Plan Consistency

Oregon Highway Plan Policy	Relevant RTP policy/Regional Transportation Functional Plan requirement	Finding
Policy 1B – Land use and Transportation	**RTP Policy: Goal 1, Foster Vibrant Communities and Efficient Urban Form** Objective 1.1 – Compact Urban Form and Design Objective 1.3 - Affordable Housing **RTP Policy: Goal 2, Sustain Economic Competitiveness and Prosperity** Objective 2.2 – Regional Passenger Connectivity Objective 2.3 Metropolitan Mobility	The acknowledged 2040 Growth Concept provides the land use context for the 2035 RTP, and is shown in Figure 2.1. The Growth Concept establishes compact development as a guiding principle. The Growth Concept also embraces a multi-modal solution to transportation, and links land use designations to specific transportation strategies. A discussion of how the plan implements the Growth Concept is shown in Section 2.2 and Table 2.6 of the RTP. The project list contained in Appendix 1.1 was developed consistent with these policies.
Policy 1C – State Highway Freight System	**RTP Policy: Goal 2, Sustain Economic Competitiveness and Prosperity** Objective 2.3 – Metropolitan Mobility Objective 2.4 – Freight Reliability Objective 2.5 – Job Retention and Creation **RTP Policy: Goal 3. Expand Transportation Choices** Objective 3.4 – Shipping Choices	See findings for statewide planning Goal 9, OTP Policies 1.1, 3.1 and 3.2.
Policy 1F – Highway Mobility Standards	**RTP Policy: Goal 2, Sustain Economic Competitiveness and Prosperity** Objective 2.1 – Reliable and Efficient Travel and Market Area Access Objective 2.2 – Regional Passenger Connectivity Objective 2.3 – Metropolitan Mobility Objective 2.4 – Freight Reliability Objective 2.5 – Job Retention and Creation	The attached Supplement contains a full explanation of compliance of the 2035 RTP with state highway mobility standards in OHP Policy 1F.
Policy 1G – Major Improvements	**RTP Policy: Goal 4, Emphasize Effective and Efficient Management of the Transportation System** **RTP Policy: Goal 9, Ensure Fiscal Stewardship** Objective 9.1 - Asset Management	The RTP highlights the mismatch between needs and resources and prioritizes maintenance and maximization of operational efficiencies of existing transportation facilities (pp. 1-25 to 1-31). The mobility policy described in Table 2.4 establishes

	Objective 9.2 - Maximize return on public investment	one measure for identifying deficiencies in the regional transportation system that is complemented by a broader set of measures and system completion policies. The RTP and RTFP call for a well-connected network of complete streets. The RTFP requires local TSPs to do their part in meeting these policies by setting: • Street System Design standards (3.08.110); • Transit System Design Standards (3.08.120); • Pedestrian System Design standards (3.08.130); • Bicycle System Design Standards (3.08.140); • Freight System Design standards (3.08.150); and • Transportation System Management and Operations specifications (3.08.160). The RTFP gives priority to non-SOV solutions to transportation needs over addition of motor vehicle capacity improvements (3.08.220A).
<u>Policy 3A</u> – Classification and Spacing Standards	**RTP Policy: Goal 2, Sustain Economic Competitiveness and Prosperity** Objective 2.2 – Regional Passenger Connectivity **RTP Policy: Goal 4, Emphasize Effective and Efficient Management of the Transportation System** Objective 4.1 - Traffic Management	The street design classifications in Table 2.6 and illustrated in Figure 2.10 correlate access policies to implementation of the 2040 Growth Concept. Designs for Throughways (shown in Figure 2.12) correlate to the Interstate and Statewide highway designations in the Oregon Highway Plan, and are consistent with OHP policies for access management and the use of grade-separated intersections. Designs for Arterials (shown in Figure 2.12) address access management for arterial streets in the metropolitan area, and correlate to the District Highway designation in the 1999 Oregon Highway Plan. Access management strategies for driveway and intersection design in these classifications are consistent with the OHP policies. The RTP and RTFP call for a well-connected network of complete streets and strategies to manage access and demand on the system.

		• Section 3.08.110 Street System Design o C. Arterial connectivity o D., E. and F. Local connectivity o G. Access management • Section 3.08.160 Transportation System Management and Operations The exact location of medians, driveways and street intersections is determined at the project development phase.

Supplement to Exhibit I to Ordinance No. 10-1241B
Findings

I. Goal 12 and OAR Division 12 (Transportation Planning Rule)

The 2035 Regional Transportation Plan (RTP), with all of its components, is intended to comply with Goal 12 and OAR 660 Division 12 (TPR). The fundamental requirement of Goal 12 and the TPR is that the RTP provide a transportation system that is adequate to served planned land uses. The RTP, together with the local transportation systems in city and county transportation system plans (TSPs), is aimed to serve the land uses planned by the region's 25 cities (Damascus has not yet adopted a comprehensive plan) and metro portions of Clackamas, Multnomah and Washington counties. The Regional Transportation Functional Plan (RTFP) component of the RTP directs how local governments will implement the RTP. The RTP includes a schedule for city and county action, if necessary, to bring their TSPs into compliance with the RTP. The schedule has been coordinated with the local governments and reflects their own planning work programs and the availability of funds for the work.

Unlike past RTPs, the 2035 RTP establishes an outcomes-based framework that includes policies, objectives and actions that direct future planning and investment decisions to consider economic, equity and environmental objectives. The plan includes a broad set of ambitious performance targets that are tied to the outcomes that the RTP is trying achieve. The targets and other performance measures included in the plan continue the region's shift away from reliance upon level-of-service as the primary measure for determining transportation needs and success of the plan's strategies. In addition, the RTP commits Metro and its regional partners to continue developing a regional data collection and performance monitoring system to better understand the benefits and impacts of actions called for in the RTP and RTFP. Through performance evaluation and monitoring the region can be a responsible steward of public funds and be more accountable and transparent about local and regional planning and investment choices.

Finally, the 2035 RTP has three new system component plans: a Regional Transportation System Management and Operations Plan (Exhibit B); a Regional Freight Plan (Exhibit C); and a Regional High Capacity Transit System Plan (Exhibit D). These plans more fully articulate the integrated multi-modal regional transportation system and prioritize investments to improve the operations and efficiency of the existing transportation, improve freight reliability and strategically expand the HCT system to support 2040 Growth Concept implementation and meet other goals of the RTP. The RTFP links these component plans with city and county TSPs to ensure local actions to implement them (Exhibit E, sections 3.08.110 and 3.08.220).

TPR 0015: Preparation and Coordination of Transportation System Plans
Findings of consistency of the 2035 RTP with the Oregon Transportation Plan and the Oregon Highway Plan are set forth in Exhibit I and part II of this Supplement.

TPR 0016: Coordination with Federally Required Regional Transportation Plan
The RTP is also the federally-recognized metropolitan plan for the Portland metropolitan region. The Federal Priorities system of projects is eligible for federal transportation funding. Findings of compliance of the 2035 RTP with federal requirements are set forth in part III of this Supplement.

TPR 0020: Elements of Transportation System Plans
The RTP is the "transportation system plan" for the metropolitan region, implementing the LCDC-acknowledged 2040 Growth Concept, and serving as the federal metropolitan transportation plan for the region. The plan establishes a regional network of facilities and services (Chapter 2) to meet overall regional transportation needs (Chapter 4), and contains policies (Chapter 2, Goals and Objectives),

strategies (Chapter 4), projects (Appendix 1.1) and implementing land use regulations for cities and counties (RTFP).

In 2005, a household and employment growth forecast was prepared by Metro and reviewed by local governments to serve as the basis for the analysis conducted for the 2035 RTP. The forecast was prepared using MetroScope and is summarized in Appendix 1.3 and 1.4. The land use assumptions used in this forecast are based on the LCDC-acknowledged 2040 Growth Concept, estimating a modest expansion of the regional urban growth boundary over the planning period that follows the existing state hierarchy for priority lands. The forecast followed basic legal and policy direction that results in future urban growth boundary (UGB) expansions on exception lands located primarily along the southern and eastern portions of the urban area. The region is in the process of designating urban and rural reserves and preparing a new analysis for residential and employment needs that will inform future urban growth boundary decisions. This work will lead to the development of an updated household and employment forecast that will be reviewed by local governments in 2011. The new forecast will be developed in consultation with the region's cities and counties, and once finalized, will be available for Metro and local governments to use for planning purposes, including the next RTP update in 2012.

The RTP identifies transportation needs (Chapter 4, Regional Mobility Strategies) and all feasible solutions (Appendix 1.1) based on the expected land use and travel patterns and level of funding assumed for planning period of 2005 to 2035.

First, the plan contains two levels of investments to the components of the overall transportation system:

1. The Federal Priorities set of investments (also known as the "financially constrained" list) for which funding over the planning period is "reasonably anticipated to be available." This set of investments will serve as the basis for complying with federal law and air quality regulations.
2. The RTP Investment Strategy (also known as the "state" RTP list) includes the Federal Priorities projects plus additional investments that the region is committed to funding if new or expanded revenue sources are secured. The region has deemed this list of investments as "reasonably likely to be funded" under state law. If these improvements are made, the system will support the region's land use plans and improve system performance as much as feasible. This set of investments is the basis for findings of consistency with the Statewide Planning Goal 12, the Oregon Transportation Planning Rule and the Oregon Transportation Plan and its components.

Second, and more important, through adoption of new policies and implementation of them through the RTFP and other mechanisms, the RTP will contribute to changes in travel behavior by re-conceiving the entire system as multi-modal and giving priority to implementation of system management and operational strategies, completion of regional transit, bicycle and pedestrian systems and creating a well-connected arterial, collector and local street network. Third, the RTFP requires local TSPs to do their part in meeting regional and state needs implemented through system design standards in Title 1 and considering regional needs identified in Chapter 4 of the RTP during local TSP updates.

Chapter 4 of the RTP sets forth overall regional needs and strategies for 24 transportation corridors (see Figure 4.1, p. 4-1, and Table 4.1, p. 4-2). These corridors are subareas of the region that include the principal interurban connections in the region and supporting multimodal facilities and services. The strategies explain the function of each corridor in the 2040 Growth Concept and in movement of freight and general traffic into and out of the region. The strategies (and System Maps in Chapter 2 of the RTP: Figure 2.12, Figure 2.15, Figure 2.20, Figure 2.22 and Figure 2.25) identify the general location of existing and new regional transportation facilities and the 2040 land uses that are served by these facilities. The strategies identify transportation needs, projects (by mode) and other necessary actions to address the needs in each corridor.

Chapter 1 and Chapter 2 of the RTP contains an inventory and assessment of existing facilities in the road, freight, transit, bicycle, trail and pedestrian systems, system management and operations, demand management and regional bridges (Figure 2.12, p. 2-35, Figure 2.20, p. 2-60; Figure 2.15, p. 2-42; Figure 1.17, p. 1-53; Figure 1.18, p. 1.54; Figure 1.19, p. 1-55; Figure 1.13, p. 1-47; Figure 1.14, p. 1-48; Figure 1.7, p. 1-30). As noted above, the plan includes two sets of planned facilities and improvements, the Federal Priorities set of investments and the state RTP Investment Strategy. The analysis of these facilities, existing and planned, tells how the entire system performs when measured against the region's mobility standards and modal targets (Chapter 5).

Roads

The RTP has an arterial and throughway network (Figure 2.12, p. 2-35) and a vision (p. 2-32) that calls for a well-connected network of throughway, arterial, collector and local streets, with regional design classifications (Figure 2.30, p. 2-28) and design concepts (Table 2.6, p. 2-29). It emphasizes multimodal "complete streets," connectivity of the arterial and local street systems and efficient operations (see Section 2.5.2, pp. 2-32 to 2-39). Title 1 of the RTFP sets forth the role of cities and counties in designs of arterial, collector and local street systems in TSPs (3.08.110) and integration of transit, bicycle, pedestrian and freight systems into the street systems (3.08.120, 130, 140 and 150). The RTFP specifies street design standards (3.08.110A through 110G; 3.08.120B; 3.08.130B and 130C;and 3.08.310A) and connectivity standards (see Section 2.5.2, pp. 2-32 to 2-39; RTFP 3.08.110C through 110G; 3.08.410F).

Public Transportation

The RTP has a public transportation network (Figure 2.15, p. 2-42) and a vision for public transit (pp. 2-40 to 2-47) and a design concept (Figure 2.14, p. 2-41) that emanates from the 2040 Growth Concept in the Regional Framework Plan. The concept connects the Central City with Regional Centers by high-capacity transit, and Town Centers with these centers by frequent transit service. This public transportation system serves 2040 centers and corridors and helps build these centers and corridors into successful communities. For the first time, the RTP includes a Regional High Capacity Transit System Plan. The HCT plan establishes a process and criteria for selecting projects and a timetable for selected HCT projects. Title 1 of the RTFP sets forth the role of cities and counties in designs of and providing access to the public transportation system in TSPs (3.08.120).

Bicycles

The RTP has a bicycle network (Figure 2.22, p. 2-65) and a vision for a regional system (pp. 2-65 to 2-69) and network design concepts (Figure 2.21, p. 2-64; Figure 2.23, p. 2-69) that emphasizes access and connectivity (pp. 2-63 and 2-68). Title 1 of the RTFP sets forth the role of cities and counties in design of the bicycle system in TSPs (3.08.130).

Pedestrians

The RTP has a pedestrian network (Figure 2.25, p. 2-74) and a vision for a regional system (pp. 2-70 to 2-76) and a network design concept (Figure 2.24, p. 2-73) that emphasizes access and connectivity (pp. 2-72 and 2-75). Title 1 of the RTFP sets forth the role of cities and counties in design of the pedestrian system in TSPs (3.08.140).

Freight Movement – Air, Rail, Water and Pipelines

The RTP has a freight network (Figure 2.20, p. 2-60) and a vision for a regional freight system (pp. 2-57 to 2-62) and a freight network design concept (Figure 2.19, p. 2-59) that includes an interconnected network of roads and railroad lines serving marine, rail, pipeline and airport facilities. The vision emphasizes travel reliability and reduction of delay (p. 2-59). For the first time, the RTP contains a Regional Freight Plan to implement the vision and concept. The Freight Plan was a response to the "Cost of Congestion to the Economy of the Portland Region", a regional study of congestion and published in 2005, and to recommendations by the Regional Freight and Goods Movement Task Force.

Title 1 of the RTFP sets forth the role of cities and counties in design of the freight system in TSPs (3.08.150).

Transportation System and Demand Management

The RTP has a vision for "transportation system management and operations" (TSMO) (pp. 2-77 to 2-84) with examples of strategies (Table 2.9, p. 2-79). For the first time, the RTP contains a Regional Transportation System Management and Operations (TSMO) Plan to implement the vision. Title 1 of the RTFP sets forth the role of cities and counties in implementing TSMO strategies in TSPs (3.08.160).

Parking

The TPR requires a parking plan as an element of the RTP. The plan must provide for a 10 percent reduction in the number of parking spaces per capita or require cities and counties to adopt land use regulations to manage parking to reduce reliance on the auto. The region has chosen to work with cities and counties to manage parking to reduce reliance on the auto. Goal 1 of the RTP (Foster Vibrant Communities and Efficient Urban Form) includes Objective 1.2, Parking Management: "Minimize the amount and promote the efficient use of land dedicated to vehicle parking." Title 4 of the RTFP (Regional Parking Management) prescribes the regulations cities and counties must adopt for management of off-street vehicle parking to achieve Objective 1.2 and the modal targets in Table 2.5. Title 4 prescribes off-street motor vehicle parking standards in Table 3.08-3 for transit and pedestrian accessible areas, which includes centers and other mixed-use areas in the region. The minimum-maximum ratios in Table 3.08-3 significantly reduce off-street parking minimums from those that were in place in 1990. Title 4 provides for the designation of residential parking districts (3.08.410E), and requires cities and counties to allow on-street parking, long-term lease parking and shared parking (3.08.410I). New to this RTFP are requirements for parking for freight delivery trucks and bicycles in specified locations (3.08.410G and 3.08.410H, respectively). Title 4 also sets forth the role of cities and counties in the design of parking lots greater than three acres, requiring street-like features be provided to facilitate walking and bicycling (3.08.410F). Title 4 allows cities and counties to exempt structured parking and on-street parking from maximums and count adjacent on-street parking spaces and shared parking spaces toward the required parking minimums (3.08.410C). New to this RTFP is a requirement to adopt parking management plans in centers and station communities that include an inventory of parking supply and usage and a range of strategies that can be implemented over time (3.08.410I).

Financing Program

Chapter 3 (Investment Strategy) of the RTP details the revenues assumed for the plan period, and prescribes a budget for transportation investments. The plan contains two levels of investment to address overall regional transportation system needs. Investment priorities were identified within this "budget" (p. 3-17) to produce the federal "financially-constrained" and the "state" lists of projects.

1. The Federal Priorities set of investments (also known as the "financially constrained" list) for which funding over the planning period is "reasonably anticipated to be available" under federal law. This set of investments will serve as the basis for complying with federal planning and air quality regulations.
2. The RTP Investment Strategy (also known as the ("state" RTP list) includes the Federal Priorities projects plus additional investments that the region is committed to funding if new or expanded revenue sources are secured. The region has deemed this list of investments as "reasonably likely" to be funded under state law. If these improvements are made, the system will support the uses in the region's land use plans and improve system performance as much as feasible. This set of investments is the basis for findings of consistency with the Statewide Planning Goal 12, the Oregon Transportation Planning Rule and the Oregon Transportation Plan and its components.

The projects follow one of two tracks, investments in mobility or in community-building (Table 3.6, p. 3-19). Chapter 3 further characterizes the projects by mode and shares of revenue sources (Figure 3.6, p.3-20; Figure 3.9, p. 3-22; Tables 3.7, 3.8 and 3.9, pp. 3-23 to 3-24). These projects, with cost estimates, may be found in RTP Appendix 1.1. The timing of projects that rely on federal funding is determined by the Metropolitan Transportation Improvement Program (MTIP), a four-year program of investments this is updated every two years (pp. 6-17 to 6-18).

TPR 0025: Refinement Plans

The RTP identifies five mobility corridors (Table 6. 1, p. 6-6) for "refinement plans" that comprise nine of the 24 mobility corridors identified in Chapter 4. The corridor refinement plans will involve a combination of transportation and land use analysis, multiple local jurisdictions and facilities operated by multiple transportation providers. Metro or ODOT will initiate and lead necessary refinement planning in coordination with other affected local, regional, state and federal agencies. The refinement plans will more thoroughly define the need, mode, function and general location of transportation improvements and programs in the corridor, and consider a range of solutions and strategies to address identified needs (Chapter 4). Chapter 6 describes each of the five corridors, sets forth the transportation needs (from Chapter 4) that require further work on need, mode, function and general location, and explains why a refinement plan is needed. Appendix 3.1 sets a timeline for completion of the refinement plans.

TPR 0030: Transportation Needs

The determination of transportation needs included in the RTP is appropriate and sufficient for the level of decision-making provided in the plan. The needs analysis is based on a 2035 population and employment forecast described in Appendix 1.3 and 1.4 and projected traffic volumes compared to capacity of road network and gaps and deficiency analysis for each mode. The forecast drives the determination of future needs, but the determination itself involves examination of the components of the overall system (roads, transit, etc.) in light of the goals and objectives of the RTP.

As part of the RTP update, Metro published the Atlas of Mobility Corridors, the first of its kind created for this region (Appendix 7.0). The atlas presents current land use and multi-modal transportation data for each of the region's 24 mobility corridors to help planners and decision-makers understand existing system conditions, identify needs and prioritize mobility investments. For each corridor, the atlas provides a general overview that includes location in the region, primary transportation facilities and land use patterns, and an assessment of gaps and deficiencies by travel mode. This information was used to help identify the most cost-effective strategies and investment priorities for each corridor and will serve as a framework for monitoring how well different strategies are working in each corridor over time. The Atlas of Mobility Corridors served as the foundation for the development of mobility corridor strategies for all 24 mobility corridors included in Chapter 4 of the RTP.

The RTP organizes the needs by mobility corridor in Chapter 4 and identifies strategies to address the needs. The RTP addresses the needs of the transportation-disadvantaged by emphasizing facilities for transit riders, pedestrians and bicyclists. State transportation needs identified in the state TSP are included in the region's needs, as are needs for the movement of goods and services to support industrial and commercial development planned by cities and counties pursuant to OAR 660-09 and Goal 9 (Economic Development). The RTP, and Regional Freight Plan and TSMO plan components, address the needs for the movement of goods and services by establishing a regional freight network, addressing freight reliability and shipping choices in RTP Goals 2, 3 and 4, and prioritizing investments that optimize the existing transportation system and provide access to centers and employments areas (including industrial areas and freight intermodal facilities).

TPR 0035: System Alternatives
Since adoption by Metro of the 2040 Growth Concept in 1995, the region has aggressively pursued implementation of the land use and transportation vision for this region. The concept calls for higher densities and mixed-use, pedestrian friendly, transit supportive development patterns. The Regional Framework Plan and its component functional plans have implemented the state-acknowledged 2040 Growth Concept. In the 15 years following adoption of the Growth Concept, cities and counties have amended plans and land use regulations to allow mixed-use and higher density development to the point that, today, the region allows more such development than the market can absorb in the 2035 planning period (2009 Urban Growth Report). The region has added three new light rail lines to the high-capacity transit system since adoption of the Growth Concept and frequent service bus lines connecting the Central City and several Regional and Town Centers.

Local governments have been implementing arterial and local street connectivity, completing gaps in the bike and pedestrian system and adopted the parking ratios in Title 4. At the regional level, programs such as the Regional Travel Options (RTO) program, the Transit-Oriented Development (TOD) program and coordination of the application of Intelligent Transportation Systems (ITS) have also supported the 2040 Growth Concept vision. Performance measurement indicates that implementation of the 2040 Growth Concept is yielding good results: modal shares are shifting to the transit, bicycle and pedestrian systems; ridership on bus and light-rail lines in the region increased by 45 percent between 1997 and 2007, nearly twice the percentage growth rate in population, which grew by 20 percent;VMT per capita has fallen significantly in the face of growth in population faster than the national average (pp. 1-49 to 1-58). The region remains committed to the 2040 Growth Concept. This RTP update revisited investment priorities to focus on outcomes, better leverage local aspirations and planned land uses in centers, corridors and employment areas and more aggressively optimize the existing system and implement the planned transportation system envisioned for all modes of travel.

In 2008, a No Build and series of four alternative motor vehicle and transit systems were developed and evaluated for their ability to serve forecast 2035 population and employment growth and support the 2040 Growth Concept (Appendix 1.8 and 7.0). Each of the four scenarios was based on a policy-theme from the 2035 RTP, resulting in a distinct mix and level of transit service, motor vehicle system investments and system management strategies in each scenario. Each scenario was initiated by a "what if" question:

- *Concept A* - What if the region focused investments on increasing connectivity for all modes of travel?
- *Concept B* - What if the region focused investments to build out the high capacity transit connections identified in the 2040 Growth Concept and to expand regional transit service to complement the new HCT connections?
- *Concept C* - What if the region focused investments on adding new capacity and connections to the region's throughway system?
- *Concept D* - What if the region focused investments on optimizing the existing system and managing demand?

The analysis considered land use, transportation, environmental and economic impacts and served as a starting point for developing the recommended "state" system of transportation investments and strategies. Building on this information, Metro solicited projects and funding strategies from the region's 25 cities, three counties, TriMet, South Metro Area Rapid Transit (SMART), Port of Portland and the Oregon Department of Transportation (ODOT) – the region's transportation providers. On June 15, 2009, the Metro Council, in conjunction with JPACT and MPAC, issued a "call for projects" to refine RTP investment priorities. The RTP goals, performance targets and refinement criteria provided policy direction for investment priorities to be brought forward for consideration in the final 2035 RTP.

JPACT-ENDORSED CRITERIA TO REFINE INVESTMENT PRIORITIES:

- Make multi-modal travel safe and reliable
- Target investments to support local aspiration and the 2040 Growth Concept
- Provide multi-modal freight mobility and access
- Expand transit coverage and frequency
- Expand active transportation options
- Reduce transportation-related greenhouse gas emissions
- Address transportation needs of underserved communities

Projects were solicited from county coordinating committees, the city of Portland, TriMet, SMART, the Port of Portland and ODOT. Each project sponsor was requested to identify investment priorities consistent with the draft RTP performance targets and criteria, and within the funding target established by JPACT. Projects and programs were requested to come from plans or studies that had been developed through a public process. The solicitation resulted in more than 1,000 proposed projects with a total estimated cost of $20 billion.

The 2035 RTP continues to prioritize investment in connectivity of systems and multi-modality and defines a system of investments that is reasonably expected to meet identified needs in a safe manner and at a reasonable cost with available technology, strategies and actions. RTP Goal 1 (p. 2-8) emphasizes a compact urban form, which encourages the use of transit, bicycles and pedestrian systems. Goal 2 (p. 2-8) calls for freight reliability and intermodal connectivity for people and goods, which also encourages the use of transit, bicycles and pedestrian systems. Goal 3 (p. 2-9) calls for expanded travel and shipping choices. Goal 4 (p. 2-9) emphasizes better management of existing systems and value pricing to yield efficiencies to optimize capacity, improve system reliability and reduce emissions. Goal 9 (p. 2-12) calls for maximizing return on investment. All of these goals are implemented through regional investments in the RTP, Regional Flexible Funds process and the requirements for city and county transportation planning in the RTFP. Section 3.08.220A requires cities and counties to consider first those transportation solutions that do not involve new road capacity for motor vehicles.

TPR 0045: Implementation

Section 0045 aims principally at cities and counties, the local governments that adopt and apply comprehensive plans, zoning and land division ordinances, building codes and other land use regulations. The RTFP implements the RTP, but it also prescribes standards and criteria for city and county TSPs and land use regulations.

TPR 0050: Project Development

RTP Goal 10 (p.2-12) calls for meaningful public input opportunities for interested and affected stakeholders in plan development and review, including people who have traditionally been underrepresented in the transportation planning process. RTP Section 6.3.1, Section 6.3.2 and Section 6.6 provide a process for coordinated corridor refinement planning and project development among affected local governments. In addition, Metro's "Public Involvement Policy for Transportation Planning" (last updated October, 2009) provides policies and procedures for citizen involvement that Metro is expected to follow in the development of plans and projects, including Metro-administered funding, and Metro-led corridor refinement plans and project development activities.

Cities and counties are generally responsible for transportation project development to implement the regional TSP by determining the precise location, alignment, and preliminary design of improvements included in the regional TSP. Title 3 (Transportation Project Development) of the RTFP requires cities and counties to specify the general locations and facility parameters of planned transportation facilities.

ODOT is responsible for project development activities of state-owned facilities pursuant to OAR 731 Division 15. The specifications must be consistent with the RTP (3.08.310A).

TPR 0055: Timing of Adoption and Update of TSPs
Table 3.08-4 specifies a work plan and compliance schedule for local TSP updates to be consistent with the RTP.

TPR 0070 - Exceptions for Transportation Improvements on Rural Lands
The RTP and supporting transportation analysis does not include any improvements on rural lands. The I-5/99W connector study recommended three arterials, in addition to other improvements, to address identified transportation needs in this part of the region. Two of the three arterials recommended are located in Metro's UGB (Appendix 3.4). The "southern arterial" project indicated by a text box in Figures 2.10 and 2.12 (pp. 2-30 and 2-35) is a placeholder and is not part of the RTP until all project conditions are met: including integration with land use plans for UGB expansion areas and Urban Reserves; conducting the I-5 South Corridor Refinement Plan, including Mobility Corridors 2, 3 and 20; resolution of access between I-5 and southern arterial with no negative impacts to I-5 and I-205 beyond the forecast No-Build condition; addressing NEPA to determine the preferred alignment and addressing any conditions associated with a land use goal exception for the southern arterial; and adoption of an exception from the applicable statewide planning goals by the county or counties with planning responsibility for the area where the improvement would be located. The City of Tualatin will re-evaluate potential solutions in lieu of the Northern Arterial as part of the city's next TSP update. If the Tualatin TSP does not identify project(s) to adequately address connectivity needs in this area, then the RTP will be amended to direct the Corridor Refinement Plan effort for Corridors 2, 3 and 20 (pp. 6-6 to 6-9) or the next RTP update to address connectivity needs in this area. Specific improvements may be proposed through corridor refinements plans for mobility Corridors 2, 3 and 20, and project development activities or TSPs. Compliance with the TPR provisions will be addressed at that time.

II. Oregon Highway Plan Policy 1F: Mobility Standards
The 2000 RTP included alternative volume-to-capacity-based mobility standards that were approved by the Oregon Transportation Commission and incorporated into the OHP in 2002. See RTP Table 2.4. The 2000 RTP also contained targets for mode shares for non-SOV modes as an alternative measure to the per capita vehicle miles traveled reduction target to measure of the success of the regional transportation system. See Table 2.5. Chapter 5 of the 2035 RTP establishes a system for measurement of the performance of the regional transportation system and evaluates the system using the measures (pp. 5-1 to 5-5). The region's congestion management process will also monitor the region's mobility corridors (Appendix 4.4).

The Chapter 5 evaluation finds that most state highway segments in the system will not meet the mobility standards in OHP Table 7 under Policy 1F.1 of the OHP by 2035, even with the investments to the system proposed in the 2035 RTP (pp. 5-6 to 5-31). In this situation, OHP Policy 1F.5 establishes a different performance standard for the 2035 RTP:

> "For purposed of preparing…transportation system plans, in situation where the volume to capacity ratio for a highway segment is above the standards in…Table 7…and transportation improvements are not planned within the planning horizon to bring performance to standard because of severe environmental, land use or financial constraints, the performance standard for the highway segment shall be to improve performance as much as feasible and to avoid further degradation of performance where no performance improvements are feasible."

The RTP and RTFP require a demonstration of progress toward achievement of standards and targets "to improve performance of state highways…as much as feasible and avoid their further degradation."

The region has identified many more needs (Chapter 4) than there is funding available to address (Chapter 1, pp. 1-25 to 1-31, Chapter 3, pp. 3-15 to 3-24). The RTP improves performance as much as feasible and implements a number of projects, strategies and actions to avoid their further degradation. The region is not able to fully implement all the projects, strategies and actions called for in the RTP due to significant financial constraints and a lack of public support for more aggressive implementation of strategies, such as tolling, in the region.

The system management policies in the RTP (2035 RTP Section 2.5.7) and resulting projects and programs are intended to maximize the use of existing facilities. The regional congestion management process (CMP) also requires local jurisdictions to consider system management solutions before adding roadway capacity to the regional system (2035 RTP Section 6.4). These provisions are implemented through Goals 4 and 5 in Chapter 2 of the RTP, Title 1 Section 3.08.160 and 3.08.220 of the Regional Transportation Functional Plan, the Regional Transportation System Management and Operations Plan that is adopted as a component of the 2035 RTP, and a number of projects and programs recommended in the updated RTP, which are listed in Appendix 1.1 of the 2035 RTP. The plan also calls for consideration of value pricing in the region to better manage capacity and peak use of the throughway system. While this tool has been successfully applied in other parts of the U.S., it has not been applied in the Portland region to date. The 2009 Legislature directed ODOT to research the application of this tool in the Portland region, and identify a pilot project to further test this strategy (pp. 2-79 to 2-81). More work is needed to gain public acceptance of this tool and approval from the Oregon Transportation Commission to implement this strategy in the Metro region.

The RTP includes nearly $20 billion in investments, representing the level of investment the region's policymakers' willingness and commitment to raise new revenue, and as a result are "reasonably likely" to be available during the planning period. As a result of ODOT's limited resources, the RTP includes significant local funding contributions to projects of importance to cities and counties on both the interstate and arterial part of the ODOT system (including regional and district highway). More than 50 percent of the planned improvements in the RTP Investment Strategy are assumed to be funded through local revenue sources. State revenues only account for 22 percent of the planned system (Chapter 3, p. 3-16), with the majority of that funding assumed for the Columbia River Crossing Project. Federal revenues account for 25 percent of the funding assumed in the plan. TriMet will implement transit service expansion through the agency's Five-Year Transit Improvement Plan as transit-supportive land uses are implemented, demand exists and funding allows. RTP projects in Appendix 1.1 represent a comprehensive strategy for managing congestion and improving performance as much as feasible. The projects include many system management projects along regional mobility corridors and the supporting arterial system (including access management, improved incident detection, real-time traveler information, and signal timing), implementation of demand management programs such as Transportation Management Associations and the Drive Less Save More Campaign, transit-oriented development projects to encourage transit use, connectivity and retrofits projects for all modes of travel and widening of arterial and highway facilities in the region.

Chapter 4 provides a list of the unfunded projects (e.g., projects not included in the Federal Priorities list or State RTP Investment Strategy) within each of the mobility corridors. The total of unfunded projects is approximately $7.7 billion, most of which are projects located on state-owned facilities, particularly the interstate system.

The RTFP requires each city and county to take the actions prescribed in 3.08.230E to help demonstrate that the RTP is consistent with Action 1F.5 of the OHP and to be eligible for a 30 percent trip reduction credit for plan amendments:

1. Parking minimum and maximum ratios in Centers and Station Communities (3.08.410A)
2. Designs for street, transit, bicycle, freight and pedestrian systems consistent with Title 1; and
3. TSMO projects and strategies, including localized TDM, safety, operational and access management improvements (3.08.160); and
4. Land use actions pursuant to OAR 660-012-0035(2).

Appendix 5.2 documents research findings and recommendations for the 30 percent trip reduction credit allowed pursuant to 3.08.510B.

More specific examples of all feasible actions included in the RTP and RTFP pursuant to OHP Policy 1.F5 include:

- Providing a network of local streets, collectors and arterials to relieve traffic demand on state highways and to provide convenient pedestrian and bicycle ways (RTP Chapter 2; RTFP Sections 3.08.110, 3.08.130, 3.08.140 and 3.08.220);
- Managing access and traffic operations to minimize traffic accidents, avoid traffic backups on freeway ramps, and make the most efficient use of highway capacity [RTP Chapter 2, Regional TSMO plan and RTFP Sections 3.08.110G, 3.08.160 and 3.08220A(1)];
- Managing traffic demand, where feasible, to manage peak hour traffic loads on state highways [RTP Chapter 2, Regional TSMO plan and RTFP Sections 3.08.110G, 3.08.160 and 3.08220A(1)];
- Providing alternative modes of transportation [RTP Chapter 2 and RTFP Sections 3.08.120, 3.08.130, 3.08.140, and 3.08.160, 3.08.220A(2)]; and
- Managing land use to limit vehicular demand on state highways consistent with the Land Use and Transportation Policy (1B) [RTFP Section 3.08.220A(4) and 2040 Growth Concept implementation through the Urban Growth Management Functional Plan]

More specific examples of TSMO actions that can be taken pursuant to 3.08.160 include the following:

- Reconfigure highway and side-street accesses to minimize traffic conflicts at intersections;
- Limit parking near signalized intersections to increase intersection capacity;
- Coordinate and operate traffic signals to improve traffic progression;
- Relocate driveways and improve local road connections to direct traffic away from overburdened intersections and intersections where side-street capacity is limited in order to optimize traffic progression on the state highway.

The Chapter 5 evaluation also finds that the proposed investments will bring the region much closer to the modal targets in the RTP than the “no build” system (pp. 5-32 to 5-35). Finally, the evaluation finds that the proposed investments significantly reduce traffic delay on the regional freight network (pp. 5-6 to 5-7) and the overall number of congested network miles of congestion (p. 5-23). In light of this evaluation, the RTFP sets mobility and modal share standards and targets for city and county TSPs (3.08.230). More important than these proposed investments toward meeting the Policy 1F.5 performance standards, however, is the region’s past and continued effort to develop a system of compact, mixed-use, pedestrian and transit-supportive communities linked by a multi-modal transportation system. This growth strategy is proving more successful in shifting trips from SOV to non-SOV modes than efforts in other parts of the U.S.

Building upon the region’s atlas of mobility corridors (Appendix 7.0), mobility corridor strategies (Chapter 4) and the performance measures (Chapter 5) in the RTP, the region’s congestion management process (Appendix 4.4) will provide a framework for future data collection and plan monitoring for system performance. The data will be used to help assess various strategies for managing congestion in each of the region’s mobility corridors. The region’s partner agencies and local governments then look for ways to implement appropriate strategies through on-going or new projects in those corridors. As strategies are implemented, a follow-up assessment will be conducted to determine the effectiveness of the improvements.

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Appendix 5.2 2035 Regional Transportation Plan
Phase 1 Motor Vehicle Trip Generation Rates Adjustment Research and Findings

1.0 INTRODUCTION

With infrastructure costs increasing beyond budgets and climate change forcing more sustainable, smart growth actions, it is integral to understand how the built environment (e.g., both land use and transportation) influences travel behavior (number of trips, trip length, mode choice), and whether different policies and programs reduce trip-related impacts and associated costs to the transportation infrastructure system. Current ITE rates represent travel behavior for single lots and uses, primarily measured in low-density suburban areas. Despite years of independent research that indicates a more compact urban form with access to transit and a greater mix of uses generates fewer and shorter vehicle trips, local governments primarily use current ITE trip generation rates to evaluate transportation impacts, determine parking ratios, calculate transportation system development charges (SDCs), and make key planning and infrastructure decisions. Under the Oregon Transportation Planning Rule, section -0060, and Oregon Highway Plan, Policy 1.F.6, local governments are required to demonstrate that plan amendments and zoning changes cause no further degradation to state-owned facilities or mitigate the degradation anticipated from the proposed amendment. Thus, it is integral to understand how the built environment influences travel behavior, and calculate trip rates that reflect the entire activity spectrum of different development typologies.

This alternative approach is extremely important in determining the impact of different development types on the transportation system to: 1) avoid over-planning the infrastructure system for the surrounding land uses; 2) suggest strategies and investment priorities to encourage more compact, mixed-use areas with more transportation choices and 3) avoid creating regulatory and/or financial barriers to compact form envisioned by local, regional and statewide plans (i.e. uniform TSDCs can result in lower impact development paying the same rates, and thus subsidizing development with higher impact costs to the transportation system).

The first phase of the research centers on research conducted over the last ten years into trip generation rates in mixed-use, pedestrian-friendly and transit supportive development. Collective research on trip generation rates shows areas with compact urban form, access to transit and a greater mix of uses generates shorter vehicle trips and a 20-50% reduction in vehicular trips, confirming ITE trip generation rates tend to overestimate automobile trips for compact, mixed-use development patterns.

Recent data collection in areas with these development characteristics within the Portland region showed an average reduction of 40 percent between the ITE vehicle trip rates and observed trips.

These consistent findings and local data provide the reasonable nexus for allowing local governments in the region to apply a 30 percent motor vehicle trip reduction credit when conducting a traffic impact analysis on plan amendments that will result in mixed-use, pedestrian-friendly and transit supportive development located in 2040 centers, main streets, station communities and corridors served by high-quality transit. The 30 percent trip reduction credit is allowed pursuant to Section 3.08.510B of the Regional Transportation Functional Plan (RTFP), contingent on approval of Title 6 of the Urban Growth Management Functional Plan in December 2010.

The second phase of this research will focus on evaluating more data points for the full set of 2040 land uses and development characteristics to establish additional statistical correlations for this region. Metro has applied for an Oregon Transportation Research and Education Consortium (OTREC) grant to complete the second phase of this work by October 2011. Other trip generation and reduction research by the Transportation Research Board (TRB), Institute of Transportation Engineers' (ITE) and other researchers will also support this effort.

This document is organized into the following sections:

1.1 Background and Problem Statement

1.2 Relevant Trip Generation and Reduction Research

1.3 Investment Toolkit: System Development Charges Report

1.4 Summary and Recommendations for Future Research

1.1 BACKGROUND AND PROBLEM STATEMENT

During land use review and development permitting processes, public agencies commonly require estimates of vehicle travel impacts associated with proposed land use projects, assessments of their potential contribution to traffic congestion, and identification of appropriate mitigation strategies. These strategies often include mitigation fees such as system development charges and traffic impact fees, private developer contributions, and specific facility improvements to address traffic impacts.

The Institute of Transportation Engineers' (ITE) *Trip Generation* Manual has been the definitive guide and continues to be the primary source for estimating vehicle traffic impacts associated with proposed land use projects. In preparing traffic and transportation impact analyses, planners and engineers often rely on the ITE published trip generation rates for different types of land uses (e.g., institutional, residential, commercial, industrial).

The *ITE Trip Generation* manual states that the trip generation data is an estimate and may not be truly representative of the trip generation characteristics of a particular land use. This is largely due to the fact that ITE data typically reflects single-use, isolated suburban development usually lacking a mix of transit-supportive uses, availability and proximity of transit service, and the existence of pedestrian and bicycle facilities.

As a result, the use of ITE trip generation rates for proposed mixed-use urban infill development projects served by transit and having good bicycle and pedestrian access could significantly over estimate vehicular traffic impacts. A growing body of research supports this over-estimation and the current *ITE Trip Generation* manual rates are not sufficient to guide the assessment of impacts of these types of proposed infill development projects. ITE advises traffic engineers to adjust average trip generation rates for areas with good public transportation however there is no standardized tool for making these adjustments, and most local jurisdictions do not have the capacity to conduct their own data collection. The research is also showing lower trip generation rates for other land use characteristics, such as compact and mixed-use development, independent of access to good public transportation. The ITE manual is currently undergoing review and is expected to include trip generation rates for mixed-use and transit-oriented development in its update.

It is the policy of the Portland metropolitan region to encourage compact, mixed-use development in 2040 centers and corridors served by high-quality transit and well-connected multi-modal streets designed to support walking and bicycling. The application of over-estimated/exaggerated/inaccurate/higher than actual trip generation rates when assessing the impact of land use changes and specific infill development proposals may have unintended consequences that will limit the region's ability to achieve the 2040 Growth Concept vision.

Infill development is defined as new development and redevelopment projects located on vacant or underutilized land within existing developed areas. Trip generation rates that more accurately reflect travel patterns of transit-oriented and mixed-use development would account for the benefits of reduced vehicle travel demand in these areas and could be applied in the following types of transportation analyses:

- Calculating transportation system development charges, private developer fees and other traffic impact fees.
- Determining whether a "significant effect" occurs from proposed plan amendments or land use changes, as required under Oregon's Transportation Planning Rule (TPR) (Section 0060).
- Demonstrating that a proposed high-capacity transit (HCT) corridor meets the 2035 RTP System Expansion Policy (SEP) framework targets.
- Setting appropriate parking ratios.
- Identifying investment needs and priorities to maximize existing infrastructure.

Quantifying motor vehicle trip reduction credits is necessary because the ITE *Trip Generation* manual developed vehicle travel rates using data from suburban areas with little or no transit service, poor pedestrian access, single-use development patterns and low densities – all conditions that facilitate greater automobile use. Recent research has indicated that behavioral response to contextual factors such as density, diversity in land use, pedestrian-friendly and street grid design, connectivity, and regional accessibility influence travelers' trip-making decisions and should be accounted for when evaluating the potential impacts of new mixed-use development proposals. [1]

The purpose of this research is to demonstrate that the 30% trip reduction included in the RTFP represents the conservative side of trip adjustment findings for mixed-use, pedestrian-friendly and transit supportive development. Phase 2 will identify alternative methods for determining trip generation rates that more accurately reflect the motor vehicle traffic impacts associated with mixed-use, pedestrian-friendly and transit supportive development. The results of Phase 2 may result in increasing adjustments to trip reductions after additional local data is collected.

1.2 LITERATURE REVIEW OF TRIP GENERATION/REDUCTION RESEARCH

A substantial body of research is devoted to understanding the impact of various land use, design, and demand management strategies on travel behavior. Much of the research conducted analyzes variables that affect travel behavior in the form of vehicle miles traveled (VMT), auto ownership, trip length, and shifts in mode share. This research over the last few decades has shown that compact, mixed-use areas have lower levels of automobile use per capita, greater use of alternative modes, and tend to generate shorter trips.

This literature review focuses specifically on research into the effects of the built environment that demonstrate that transit-oriented pedestrian friendly mixed-use development has lower vehicle trip generation rates than calculated using the standard ITE rate. This section reviews the major studies and research quantifying the trip reduction effects of various land use and programmatic strategies that will be implemented through the Urban Growth Management Functional Plan (UGMFP) and Regional Transportation Functional Plan (RTFP). The research is organized into the following strategy and policy areas:

- ”D” Factors—Density, Diversity, Design, Destinations, Distance to Rail
- Transit and Transit-oriented Development
- Transportation Demand Management and Parking Management
- Socioeconomic Status

Effects of the “D” Factors—Density, Diversity, Design, Destinations, Distance to Rail

Many studies are organized by different travel purposes (e.g. commute, non-commute, home-based, etc.), analytical methodologies (simulations, aggregate and disaggregate studies), and types of independent variable used. However, the results of these different studies are aggregated to develop typical elasticities of various explanatory variables. Perhaps the most widely cited study of this type was conducted by Ewing and Cervero in *Travel and the Built Environment* (2001). After compiling data from roughly 50 studies on travel impacts and the built environment, the authors developed travel demand elasticities influenced by variables describing the built environment such as neighborhood form, land use patterns, transportation network, and urban design.

[1] Ewing, R. and R. Cervero, 2001,*Transportation Research Record: Journal of the Transportation Research Board*, *No. 1780*, pp. 87-113

These relationships were further aggregated creating typical elasticities for vehicle trips and VMT with respect to the "4D" indicators of the built environment: Density, Diversity, Design, and Destination Accessibility. Cervero and Kockelman (1997) originally developed a 3D approach minus the 4th "D" – Destination Accessibility. However, a Destination variable (also referred to as Regional Accessibility) was introduced as a way to generate a more accurate representation of trip generation in conventional suburban development patterns. Because travel behavior is influenced differently by density, mix of uses and design in more suburban locations as compared to more urbanized locations, the destination factor accounts for the benefits of regional clustering and locating development along strategic transportation corridors. The "typical" elasticities shown in Table 1 can be used in the absence of a localized study as a way to estimate default trip reductions as the built environment changes.

Table 1 – Typical Elasticities for the 4Ds

		Vehicle Miles Traveled (VMT)
Density	Household/population density	-.04
	Job density	-.00
Diversity (Mix)	Land use mix	-.09
	Jobs-housing balance	-.02
Design	Intersection/street density	-.12
	% 4-way intersections	-.12
Destination Accessibility	Job accessibility by auto	-.20
	Job accessibility by transit	-.05
	Distance to downtown	-.22
Distance to Transit	Distance to nearest transit stop	-.05

Source: Ewing and Cervero (2001). *Travel and the Built Environment—A Meta-Analysis*

These elasticities are useful in travel forecasting and in sketch planning and are intended to be additive. Thus, the impact of the built environment on travel using each "D" variable cumulatively could contribute to a significant decrease in vehicle miles traveled. Trip generation at the nonresidential end is also influenced by density, but to a much lesser degree (Cervero, 1989, cited in Kuzmyak et. al, 2003). There are also far fewer studies investigating this relationship, and there is no comparable dataset to that of residential density. Three of the most important variables identified in the literature[2] are used to calculate the quality of the bicycle and pedestrian environment. They are as follows:

- Intersection density, which measures street connectivity. A well-connected grid (high intersection density) provides better opportunities for pedestrian travel than cul-de-sacs and "loops and lollipops" (low intersection density).
- Sidewalk completeness
- Bike network completeness

In the same way, the 1000 Friends of Oregon study (1993) produced for the Portland region's LUTRAQ

[2] See, for example, Dill (2003); Parsons Brinkerhoff (1993); Kuzmyak et al. (2003); Ewing & Cervero (2001); and Ewing (1999).

effort found that factors which enhance the pedestrian environment, significantly influence mode choice. Pedestrian zones with high pedestrian environment factors (e.g. factors that are synonymous with good urban design), tended to observe more transit, pedestrian and walk trips and fewer vehicle trips.

The "D" factor approach is gaining increased confidence as a reliable estimator for trip reduction. For example, in the Urban Land Institute's *Growing Cooler* report (2008), the significant effects of compact development on travel behavior were shown to reduce vehicle miles traveled by 20 to 40 percent. The Report's findings summarize nearly 100 studies that looked at the issue from varying angles, but all show that residents of compact, mixed-use, transit-served communities drive less:

- Research that compares overall travel patterns among regions and neighborhoods of varying compactness and auto orientation;
- Studies that follow the travel behavior of individual households in various settings; and
- Models that simulate and compare the effects on travel of different future development scenarios at the regional and project levels[3].

Similar research from Reid Ewing used data from six large, diverse US metropolitan regions to develop a new methodology for more accurately predicting the traffic impacts of mixed-use developments. The regions selected were Atlanta, Boston, Houston, Portland, Sacramento and Seattle. On average, the research found that a total of 29 percent of the total trip ends generated by mixed-use developments put no strain on the external street network, generate very few vehicle miles traveled, and should be deducted from ITE trip rates for stand-alone developments[4]. In the Portland region, the Reid Ewing research showed a decrease in VMT of X and trip length of Y.

Irrespective of the type of research approach used, the findings remain the same: mixed-use, pedestrian-friendly and transit supportive development reduces the number of trips and the miles that residents drive.

Effects of Transit & Transit Oriented Development

Transit-supportive environments play a significant role in mode choice and trip generation as well. Nelson\Nygaard developed a Transit-Orientation Index (1997) that determined relative orientation towards transit and potential ridership per acre for the Portland Metro region. The independent variables used in a regression analysis to determine potential ridership included employment per acre, retail employment per acre and housing per acre. In the end, these variables explained 81 percent of the variance in ridership per acre.

More recently, TCRP Report 128 looked at the effects of transit-oriented development on trip generation among other independent variables (Cervero and Arrington, 2008). This study builds upon previous comprehensive studies that linked rates of transit use, and reduced vehicular trips, with

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[3] Urban Land Institute, *Growing Cooler: The Evidence on Urban Development and Climate Change. p. 11.*
[4] Ewing, Reid et al., *Traffic Generated by Mixed-Use Developments – A Six-Region Study Using Consistent Built Environmental Measures.*

working and living near transit stops (Lund, Cervero and Wilson, 2004). The study found that observed vehicle trips in four metropolitan areas (Washington, D.C., Philadelphia/New Jersey, San Francisco, and Portland) were far below the average ITE trip generation rates for each land use. Furthermore, the 17 TODs studied averaged 47 percent fewer vehicle trips than ITE Trip Generation estimates, demonstrating that the conventional method of estimating trip impacts greatly overestimates trip generation rates for transit-supportive environments.

The Institute of Traffic Engineers (ITE) Manual currently states that TOD-style housing generates an average of 6.67 trips per unit per day. The TCRP research took detailed counts of 17 independent TOD-style housing developments in four U.S. cities, which showed a trip count of 3.55 trips per unit per day, a decrease of 47 percent. The Portland Metro Region was represented in the study with five local TOD developments projects with 90 to 711 units each. **The results of those five locations showed an average difference of 40 percent between the ITE vehicle trip rates and observed trips.** The results from the Portland locations can be seen in the Table 2.

Table 2 – Portland Metro Region Transit-Supportive Infill Developments

TOD SITE	OBSERVED TRIP RATE	ITE TRIP RATE	TOD RATE AS A PERCENT OF ITE RATE	PERCENT DIFFERENCE
Center Commons (City of Portland)	4.79	6.72	71.30%	-28.70%
Collins Circle (City of Portland)	0.88	6.72	13.08%	-86.92%
Gresham Central (City of Gresham)	5.91	6.72	87.95%	-12.05%
Merrick Apts. (City of Portland)	2.01	6.72	29.84%	-70.16%
Quatama Crossing (Beaverton)	6.34	6.72	94.38%	-5.62%
Average	**3.99**	**6.72**	**59.31%**	**-40.69%**

Source: TCRP Study (2010)

Table 3 shows basic characteristics about each of the TOD sites in the Portland Metropolitan region.

Table 3 – Background on Case Study TOD Housing Projects

TOD Site	Housing Type	# of Stories	# of Units	# of On-Site Parking Spaces	# of Driveways	Nearest Rail Station	Shortest Walking Distance from Project to Nearest Station (feet)
Center Commons	Apartments	4	288	150	2	60th Ave. MAX	450
Collins Circle	Apartments	6	124	93	1	Goose Hollow MAX	525
Gresham Central	Apartments	3	90	135	2	Gresham Central MAX	620
Merrick	Apartments	6	185	218	1	Convention Center MAX	700
Quatama Crossing	Apartments	3	711		3	Quatama MAX	2000

Source: TCRP Study (2010)

Metro's current TOD program focuses its efforts in areas with High Capacity Transit accessibility and/or Frequent Bus Service, two types of transit that occur almost exclusively in Metro-designated 2040 Centers and Corridors. TOD style development has been embraced by local jurisdictions in their own 2040 Centers and Corridors, indicating that local governments intend to implement this type of development as they implement the 2040 Growth Concept in their local plans.

The policy value of transit-oriented development projects in centers and corridors is well understood. **With an expanding inventory of TOD projects around the country, there is growing evidence about the value of compact, transit-oriented housing and its impact on trip generation in centers and corridors. The TCRP research clearly shows that TOD projects produce fewer automobile trips than more "traditional" lower-density, single use development patterns – on average 40 percent less.**

Effects of TDM and Parking Management

Transportation demand management (TDM) refers to the trip reduction potential of strategies that manage or influence how residents and employees use the transportation system. The following subsections summarize the research behind the trip reduction savings attributed to various TDM strategies.

Parking Management

TDM programs have been shown to reduce employee vehicle trips by up to 38 percent, with the largest reductions achieved through parking pricing[5]. Donald Shoup expands upon cash out programs finding that single occupancy vehicle trips declined by 17 percent and other modes increased significantly (carpooling by 64 percent, transit by 50 percent, and walking/biking by 33 percent) after a parking cash-out program was introduced at various urban and suburban worksites with varying levels of transit service[6]. Another study of City of Pleasanton (CA) employees saw a doubling of participation between 1993 and 2004 and an annualized reduction of 20,625 commuter vehicle trips[7].

Parking supply is another key indicator of trip generation. Research shows that there is an indirect link between reduced minimum parking requirements and a decline in vehicle trips. Setting minimum parking requirements and not imposing parking maximums often results in lower parking prices, as the supply of parking exceeds demand, which in turn increases vehicle ownership and the propensity to use a vehicle for work trips.

Studies reveal that the elasticity of vehicle ownership with respect to price is typically -0.4 to -1.0, hence a 10 percent increase in total vehicle costs reduces vehicle ownership 4 –10 percent[8].Average income households spend an average of $3,800 annually per vehicle[9]. Assuming that residential parking spaces have an annualized cost of $800 per year, parking costs add 21 percent to vehicle costs for an average income household. Assuming a vehicle price elasticity of –0.7 (Table 4), minimum parking requirements that exceed the actual demand for parking increase vehicle ownership about 15 percent. The resulting increase in vehicle ownership produces more vehicle trips. Conversely, decreasing both minimum and maximum parking requirements and eliminating minimum parking requirements would result in a proportionate reduction in residential vehicle trips[10].

Table 4 - Vehicle Ownership Reductions from Residential Parking Pricing

Annual (Monthly) Fee	-0.4 Elasticity	-0.7 Elasticity	-1.0 Elasticity
$300 ($25)	4%	6%	8%
$600 ($50)	8%	11%	15%
$900 ($75)	11%	17%	23%
$1,200 ($100)	15%	23%	30%
$1,500 ($125)	19%	28%	38%

Source: Nelson\Nygaard (2010), Santa Monica LUCE Trip Reduction Impacts Analysis

Subsidized Transit Passes

Free transit pass programs have been shown to increase transit ridership by 50-79 percent (City of Boulder, undated; Caltrans, 2002), and reduce vehicle trips by 19 percent (Shoup, 1999). Likewise, Todd Litman of the Victoria Transport Policy Institute confirms the trip reduction benefits of transit subsidies by workplace setting. Figure X below depicts the potential trip impacts of a transit pass program.

[5] Shoup & Willson (1980); Comsis (1993); Valk & Wasch (1998); Pratt (2000).
[6] Donald C. Shoup, *Evaluating the Effects of Cashing Out Employer-Paid Parking: Eight Case Studies*, http://www.arb.ca.gov/research/apr/past/93-308a.pdf.
[7] U.S. Environmental Protection Agency (2005), *Parking Cash Out: Implementing Commuter Benefits as One of the Nation's Best Workplaces for Commuters*, http://www.bestworkplaces.org/pdf/ParkingCashout_07.pdf
[8] Victoria Transport Policy Institute (2009), Transportation Elasticities, http://www.vtpi.org/tdm/tdm11.htm
[9] Bureau of Labor Statistics (2003), Consumer Expenditure Survey, 2002, www.bls.gov.
[10] From Nelson\Nygaard (2010) Santa Monica LUCE Trip Reduction Impacts Analysis.

Table 5 - Vehicle Trip Reduction by Workplace Setting and Daily Transit Subsidy

	Daily Transit Subsidy			
Worksite Setting	**$0.75**	**$1.49**	**$2.98**	**$5.96**
Low density suburb, rideshare oriented	0.1%	0.2%	0.6%	1.9%
Low density suburb, mode neutral	1.5%	3.3%	7.9%	21.7%
Low density suburb, transit oriented	2.0%	4.2%	9.9%	23.2%
Activity center, rideshare oriented	1.1%	2.4%	5.8%	16.5%
Activity center, mode neutral	3.4%	7.3%	16.4%	38.7%
Activity center, transit oriented	5.2%	10.9%	23.5%	49.7%
Regional CBD/Corridor, rideshare oriented	2.2%	4.7%	10.9%	28.3%
Regional CBD/Corridor, mode neutral	6.2%	12.9%	26.9%	54.3%
Regional CBD/Corridor, transit oriented	9.1%	18.1%	35.5%	64.0%

Source: Victoria Transport Policy Institute (2008), *Transportation Elasticities*, http://www.vtpi.org/elasticities.pdf

Carpooling and Rideshare

Research indicates that ridesharing programs typically attract 5-15 percent of commute trips if they offer only information and encouragement, and 10-30 percent if they also offer financial incentives such as parking cash out or vanpool subsidies. Rideshare programs that include incentives such as HOV priority and parking cash-out often reduce affected commute trips by 10-30 percent[11]. If implemented without such incentives travel impacts are usually smaller. A study conducted by Reid Ewing concluded that ridesharing programs can reduce daily vehicle commute trips to specific worksites by 5-15 percent, and up to 20 percent or more if implemented with parking pricing[12].

Carsharing

Trip reduction benefits documentation for carsharing is gaining momentum. According to TCRP Report 108, each car-sharing vehicle takes nearly 15 private cars off the road – a net reduction of almost 14 vehicles[13]. A UC Berkeley study of San Francisco's City CarShare found that members drive nearly 50 percent less after joining. The research also indicates nearly three-quarters of the vehicle trips made by members were for running errands, visiting friends and other social activities, meaning that only roughly one-quarter of trips were for commuting to work.

Alternative Work Schedules

Compressed work weeks and telecommuting are TDM strategies that eliminate vehicle trips by decreasing the number of work days while maintaining the level of work hours (i.e. working four 10-hour days per week) and shifting the worksite to an employee's home, respectively. Research by Apogee (1994) demonstrated that compressed work weeks can reduce VMT by up to 0.6 percent and vehicle trips by up to 0.5 percent in a region. However, two other studies showed that compressed work weeks may provide more modest reductions in total vehicle travel, in part because participants

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[11] Philip Winters and Daniel Rudge (1995), *Commute Alternatives Educational Outreach*, www.cutr.eng.usf.edu.
[12] Reid Ewing (1993), *TDM, Growth Management, and the Other Four Out of Five Trips.*
[13] Transportation Research Board (2005), *Car-Sharing: Where and How it Succeeds*, Transit Cooperative Research Program Report 108. http://onlinepubs.trb.org/Onlinepubs/tcrp/tcrp_rpt_108.pdf

make additional trips during their non-work days.[14]Compressed work weeks may also encourage some employees to move further from worksites or to drive rather than rideshare.

The most important TDM strategies include parking and financial incentives for alternative modes of transportation, using these can result in a trip reduction of up to 19%, independent of other land use characteristics.

Effects of Socioeconomic Status

The likely effects of demographic factors on trip generation are largely ignored in many studies. A trip generation analysis must resolve how much trip reduction can be attributed to policies and strategies compared to socioeconomic indicators like income. Research indicates that socioeconomic factors such as household income, household size and auto ownership have an even greater effect on trip generation than the 4Ds[15].

The affordable/senior housing mitigation strategy assumes that those living in subsidized units are more likely to commute to work or make non-commute trips using alternative modes of transportation. This is based on research verifying that low-income families and senior citizens tend to own fewer vehicles and drive less. In one San Francisco Bay Area study, households earning under $25,000 per year make 5.5 vehicle trips per day, compared to a regional average of 7.6. High income households (earning more than $75,000 per year) make an average of 10.5 trips[16]. **Further work will need to explore existing research efforts into documenting the socioeconomic effects on trip generation rates in Phase 2.**

1.3 COMMUNITY INVESTMENT TOOLKIT: SYSTEM DEVELOPMENT CHARGES REPORT

Galardi Consulting, LLC was authorized by Metro in January 2007 to perform a review of system development charge (SDC)[17] approaches used by jurisdictions throughout North America that promote real cost recovery of infrastructure and sustainable development patterns and to evaluate the applicability of these approaches to jurisdictions in the Metro area[18]. The findings and recommendations of the study are summarized in the report: *Promoting Vibrant Communities through SDCs,* published in July 2007 (the "Study").

The Study covered all SDCs collected in Oregon, including TSDCs. TSDC methodologies were found to be calculated almost exclusively through the use of ITE trip generation rates and from TSP project lists, which base their project needs on anticipated demand as quantified in the ITE trip generation rates. As established, ITE trip generation rates are generated from and thus, only reflect low density, single use auto-dominated development types. With a more diverse urban landscape, and a focus on compact, mixed-use urban form as envisioned by the 2040 Growth Concept, one of the true cost and cost

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[14] See Ho and Stewart (1992) and Giuliano (1995).
[15] See Kockelman (1995) and Ewing and Cervero (2001)
[16] See Russo (2001); Holtzclaw et al. al. (2002)
[17] System development charges and "impact fees" are used interchangeably in this memorandum.
[18] For purposes of this study, 'real' cost recovery is intended to reflect both full cost recovery (costs related to both the array of facility and cost types needed to provide capacity for growth generally and specifically related to implementing the 2040 Growth Concept are included), as well as recognition of potential cost variations among developments, with respect to specific development characteristics like density, location, and configuration.

recovery questions of the Study was whether or not these development types had different trip generation rates than those established in ITE and thus, variable SDC fees. To answer this question, the Study analyzed whether SDC fee systems have been implemented as a result of finding different development types had different trip generation rates and thus, variable rates of demands and costs to the system. As summarized in the full Study, industry information suggests that development characteristics may generally impact system demands for transportation as follows:

> ***Transportation:*** *Service units are trips and vehicle miles traveled (VMT), so cost of service is influenced by household and building type and size, as well as location, density and configuration. Development type and size are potential indicators of motor vehicle trip generation rates. Density has a strong influence on mode choice to destinations and distance to destinations. Location, to the extent that it relates to proximity to public transit may also be significant factor related to system impact, as is development configuration; when living-working-shopping-services are all nearby, fewer car trips are needed and the distance traveled is reduced.*

The development characteristics found to impact transportation system demands in the Study mirror those outlined above (in Section 1.2): Density, Diversity, Design, Destinations, Distance to Rail, local transit service, and transit-oriented development patterns. Based on the findings, the Study recommended variable SDC fees in order to reflect the different trip generation rates and associated system costs of different development patterns. The Study also recommended local travel demand data and modeling beyond the use of ITE rates in order to support efficient system planning and establish a variable SDC methodology.

National and regional data sources from the Study related to transportation system impacts for 'smart growth' development (compact mixed-use, transit-oriented infill development)are provided below.

1.4.1 Consideration of Smart Growth Principles

The Oregon Department of Transportation (ODOT) TSP guidelines discuss evaluation of land use alternatives as a means of addressing future system capacity needs. A detailed discussion of the TSP Step: *Develop & Evaluate System Alternatives that Eliminate Deficiencies and Meet Needs*, specifically addresses how land use characteristics may impact transportation system needs, through reduced automobile trip generation, shorter trips, and mode choice:

> *At the community level, land use planning should focus on both residential and employment centers and their impact on trip generation, length and mode choice. Density, location and size of residential and employment centers influence these measures of transportation performance. In addition, the balance between jobs and housing may impact travel. At the smaller neighborhood or project level, the diversity of land uses within walking or bicycling distance and the design of the built environment may influence mode choice and trip length. In this context, mode choice refers to the ability and willingness of travelers to make trips using non-motorized modes, thus reducing the number of trips on local streets and arterials. [ODOT, TSP Guidelines, pgs 36-37).*

In recent years, considerable research has been conducted to isolate the effects of 'smart growth factors' on transportation demand. Specifically, the research effort focused on factors directly attributable to the physical characteristics of development projects: density, diversity, design, and destinations ("the 4Ds"). The research has documented the potential effects of incorporating smart growth factors in vehicle trip forecasts, and has developed adjustment factors that can be applied directly to vehicle trips or vehicle miles traveled. The following sections discuss how transportation planning models and standard trip generation rates may be modified to incorporate smart growth factors.

1.4.1.1 Trip Generation Surveys

Trip generation rates for individual land use types are typically derived from on-site surveys. The Institute of Transportation Engineers (ITE) Trip Generation report is the most comprehensive compilation of such data, although agencies may substitute locally-generated data where available. The ITE data were collected by counting vehicles entering and leaving a particular development site. Most were collected in suburban areas that had separate parking facilities for the particular development. As such, the data do not fully represent trip generation at more urban forms of development or smart growth practices.

Some SDC programs (e.g. City of Olympia, Washington) have utilized trip generation adjustments to account for more urbanized development patterns. These adjustments include lower vehicle trip generation rates based upon activity center travel surveys (primary source: NCHRP Report 323, 'Travel Characteristics at Large-Scale Suburban Activity Centers, 1988), reduced trip lengths based on regional household travel surveys and travel model output, and higher 'pass-by' trip rates to account for the potential of mixed use sites. **These adjustments have produced reductions in SDC rates in the range of 20 to 50 percent (see case studies at the end of this section).**

More recent adjustments to ITE trip rates for smart growth practices have been documented through research related to air quality management.[19] A national air quality model URBEMIS has been used to estimate trip reduction credits for development projects based on their location and other physical characteristics.

Many SDC demand schedules rely on two variables to estimate vehicle trips (VT) for each development: ITE trip generation rate per unit (assigned by land use) and number of units attributable to the development (generally, 1,000 square feet of floor area or other measure). The limitation of this approach is that there is no recognition of other variables, like density and location that may impact VT generation, and therefore, transportation system impact. The purpose of the URBEMIS mitigation component is to provide a tool for adjusting ITE trip rates to recognize such variables, for use in charging impact fees, among other purposes

The URBEMIS model is available to the public for free and may be accessed at www.urbemis.com. A paper by Nelson\Nygaard Consulting Associates: *Crediting Low-Traffic Developments Adjusting Site-Level Vehicle Trip Generation Using URBEMIS* (August 2005), provides formulas that may be used to adjust ITE

[19] Nelson\Nygaard Consulting Associates, *Crediting Low-Traffic Developments Adjusting Site-Level Vehicle Trip Generation Using URBEMIS*, August 2005.

rates for individual developments based on a variety of physical and demand management measures. The adjustments consider how the characteristics of a specific development differ from the characteristics inherent in the ITE trip rates ("default" values). For example, in considering net residential density, **a residential development with 16 units per acre (compared to the default value of 3 units per acre) would have a trip rate reduction of 28 percent.**

Table 6 summarizes the potential trip reduction credits provided by URBEMIS.

Table 6 – Summary of URBEMIS Trip Reduction Credits

Measure	Residential (1)	Non-Residential
Net Residential Density	Up to 55%	N/A
Mix of Uses (Diversity)	Up to 9%	Up to 9%
Local-Serving Retail	2%	2%
Transit Service	Up to 15%	Up to 15%
Pedestrian/Bicycle Friendliness	Up to 9%	Up to 9%
Physical Measures subtotal	*Up to 90%*	*Up to 35%*
Demand Management Subtotal	*Up to 7.75%*	*Up to 31.65%*

Source: Nelson\Nygaard Consulting Associates

(1) For residential uses, the percentage reductions shown apply to the ITE average trip generation rate for single-family detached housing. For other residential land use types, some level of these measures is implicit in ITE average trip generation rates, and the percentage reduction will be lower.

While URBEMIS provides a tool for potentially adjusting standard trip rates for smart growth factors, the authors caution: "*It must be stressed that the trip reductions recommended here are subject to considerable uncertainty. They should be interpreted as the mid-point of a range, rather than as a single, precise value. Travel behavior is complex and difficult to predict, and the approach described here will need to be refined in future years, as more data become available."*

Another source of data for adjusting ITE trip rates is: *Getting There from Here – Measuring the Benefits of Compact Development on Vehicle Miles and Climate Change* (Jerry Walters, Fehr & Peers). This paper presents empirical data on the effects of density, diversity, walkability, regional accessibility and distance from transit on vehicle miles. The paper indicates that:

> *Research is also currently underway by several transportation planning organizations on the degree to which individual smart growth characteristics reduce vehicle trip generation of individual development projects. Preliminary results from several of these studies indicate that trip generation may be lower than the suburban trip generation rates published by the Institute of Transportation Engineers (ITE), commonly used in traffic impact analysis.*

For example, trip rates for mixed-use developments analyzed were 35 percent below ITE trip rates. Similarly, trip rates for transit-oriented development were 30-60 percent below the ITE rates. This research was prepared by ITE in partnership with the Environmental Protection Agency and is undergoing review by the ITE membership.

1.4.2 Case Studies

The following section highlights case studies that were included as part of the SDC study from cities across the country. The case studies highlight cities that have developed variable SDC methodologies or implemented SDC credits based on findings that development characteristics reduced transportation system demands through lower trip generation rates. These studies involved the analyses of local data collection, trip generation studies and adjusted travel demand models. The new SDC methodologies in these cities reflect reduced associated system costs for compact mixed-use, transit-oriented infill development, particularly in downtown areas and town centers. The variable fee for these areas was reduced by 23 – 50 percent. This was a direct result of data findings showing a trip generation reduction for these areas as compared to ITE rates and low-density, auto-dominated suburban areas.

1.4.2.1 City of Olympia

The City of Olympia has reduced the transportation impact fees for downtown commercial uses to reflect the fact that the downtown is compact and alternative modes of transportation are accessible. Consequently, the theory is that each business has less of an impact on the transportation system.

Reduced fees for the downtown area reflect the following demand characteristics:

- Reduced trip lengths based on an analysis of data from the regional planning agency's household travel survey and travel model, and the ITE Trip Generation Manual.
- Lower percent of new trips (or more "pass-by" trips) for certain land uses (walk-in bank and supermarket) based on ITE data and other national studies.
- Reduced trip lengths for both home based work trips and total trips, based on data from the regional transportation model that showed reduced average trip lengths to/from the Olympia Central Business District (CBD).

Table 7 summarizes the recommended trip rate adjustments for these downtown land uses.

TABLE 7 – Recommended Vehicle Trip Generation Rate Adjustments for Downtown Olympia

Land Use (ITE Category)	ITE Average Trip Rate (PM peak Hour)	50% of Standard Deviation (SD)	Modified Trip Rate (Average-50% SD)
Walk-in Bank (911)	33.15	14.67 **	18.48
Supermarket (850)	11.51	2.38	9.13
Fast Food (without Drive-Through Window) (883)	26.15	5.26	20.90

Land Use (ITE Category)	ITE Average Trip Rate (PM peak Hour)	50% of Standard Deviation (SD)	Modified Trip Rate (Average-50% SD)
Convenience Market (Open 15-16 Hours) (852)	34.57	8.81	25.77

** Based upon Drive-in Bank Standard Deviation (ITE Land Use 912) that is equal to 88 percent of the average rate. Calculation: 0.88*33.15= 29.34 estimated SD; 50 percent of SD=14.67

Table 8 summarizes trip length data (daily vehicle trips) for total trips and for 'Home Based Work Trips'. The total trip data are useful for looking at a range of typical trips made within the city, while the work trip data can be associated closely with office land use types.

Table 8 – Average Trip Length Comparison

Scenario	Trips to/from Olympia CBD	Average City Trips	Olympia CBD Trip Lengths compared with Average City Trips
Total Trips	2.3 mi	3.7 mi	-39%
Home Based Work Trips	2.7 mi	3.0 mi	-12%

Source: TRPC Model

The fact that downtown trip lengths are shorter than average within the city implies that a typical trip generated in downtown would have fewer impacts on the city's street system. Stated another way, downtown development creates proportionally less need for new road improvements than a land use situated elsewhere in the city.

1.4.2.2 City of Atlanta, Georgia

The City of Atlanta recognizes the reduced impact on roads because of the close proximity to rail transit. The City reduces impact fees 50 percent for developments within 1,000 feet of a rail station.

1.4.2.3 City of Tucson, Arizona

The City of Tucson adopted an impact fee methodology for roads that uses both location and dwelling unit size in assessing impact fees. The City's work found that the central city core had a reduced tendency to use private motor vehicles, shorter trip lengths and generating 77 percent of the vehicular travel demand compared to other city residents. Table 9 shows the trip variations by location.

Table 9 – Road Reduction Factor for Core Residential Development

	Central Core	Rest of City	Ratio
Percent Driving Private Motor Vehicles to Work	78.8%	90.8%	0.87
Travel Time, Non-Public Transportation (minutes)	19.1%	21.6%	0.88
Reduction in Road Impact for Residential in Central Core			0.77

Source: *Promoting Vibrant Communities through SDCs – Appendix D*

The City's work also found that the average number of vehicle trips generated per day is almost directly proportional to the number of people living in the dwelling unit which is strongly related to the size of the dwelling unit. The results based on dwelling unit size are shown in Table 9.

Table 9 – Residential Road Impact Fees by Size Category

Housing Type/Size Category	Midpoint	Peak Hour Trips	Road Fee
Less than 500 sq. ft.	375	0.48	$2,186
500 – 749 sq. ft.	625	0.60	$2,743
750 – 999 sq. ft.	875	0.69	$3,198
1000 – 1249 sq. ft.	1125	0.76	$3,462
1250 – 1499 sq. ft.	1375	0.83	$3,829
1500 – 1999 sq. ft.	1750	0.91	$4,196
2000 – 2999 sq. ft.	2500	0.95	$4,386
3000 – 3999 sq. ft.	3500	0.99	$4,562
4,000 sq. ft. or more	4500	1.03	$4,738

1.6 SUMMARY AND RECOMMENDATIONS FOR FUTURE RESEARCH

The numerous studies covered by this literature review did vary in purpose, design, location, and terminology, but came to the same conclusions regarding the land use characteristics and policy strategies that reduce trip generation rates: density, good urban design, mix of uses, destinations, TDM and parking management strategies, access to transit, and transit-oriented development. The collective research shows areas with these attributes generate shorter vehicle trips and a 20-60% reduction in vehicular trips depending on the extent to which these characteristics exist. Thus, 2040 centers, main streets, station communities and corridors, which are defined by and planned for compact urban form, access to transit and a greater mix of uses will likely experience similar reduced trip generation rates.

Trip reduction rates of 28% were uncovered for increased residential density alone at densities recommended for town centers in the Regional Framework Plan and planned for and exceeded in the regions 2040 centers and corridors. Mixed-use, pedestrian-friendly, transit supportive development, required, planned for and existing in the region's 2040 centers and corridors, experienced on average a 35% reduction in trip generation rates. Coupled with transit-oriented development and access to high-capacity transit, this rate reduction increased as high as 60%. Recent data collection in TOD areas with a mix of these development characteristics within the Portland region showed an average reduction of 40 percent between the ITE vehicle trip rates and observed trips.

Identifying more accurate traffic generation numbers to assess the traffic impacts of proposed mixed-use development and tying those to the performance of TOD has important implications on the design and long-term performance of 2040 Centers, Main Streets, Station Communities and Corridors:

- Local officials and neighborhoods may be more supportive of increases in residential densities near transit.
- Private developers of mixed-use projects are legitimately concerned about the costs and other impacts that can result from over-estimation, which can serve as a disincentive to implementing these kinds of development proposals in a community. Paying lower fees can be passed on to consumers through lower housing costs, which can help the region's effort to provide more affordable housing options.
- Accurate trip generation data will promote efficient and cost-effective use of existing infrastructure and services (including parking) and may streamline approval of mixed-use development proposals that could be delayed due to lack of funding for required mitigation improvements. This in term may cause housing and job growth to occur in less transit-accessible areas or even outside the urban growth boundary.
- Less parking, good pedestrian access to transit and high quality transit service will help increase transit ridership.
- Lower provision of this infrastructure (i.e. parking), and growth where we want it, will create an efficiency of land use and decrease impacts to the environment (GHGs)

Using ITE trip generation rates that over-estimate system impacts in compact, mixed-use areas will have significant and widespread negative impacts on the region's landscape and ability to achieve the 2040 vision. Over-estimating trip generation rates in these types of centers and corridors will cause over-planning the system for these surrounding land uses and will support strategies, funding systems and investment priorities that undermine and prevent the development of compact, mixed-use areas with more transportation choices. This directly conflicts with regional policies in the 2040 Growth Concept, as well as state and local policies, that call for development of mixed-use centers and corridors to support jobs and freight reliability, a compact urban form, and leveraging transportation investments such as high capacity transit.

Given these implications, it is extremely important to use the best trip generation data available. Consistent findings over the last ten years and recent local data collection in the region provide the reasonable nexus for allowing local governments in the region to apply a 30 percent motor vehicle trip reduction credit when conducting a traffic impact analysis on plan amendments that will result in mixed-use development designed to support walking, bicycling and transit that are located in 2040 centers, main streets, station communities and corridors served by high-quality transit. The 30 percent trip reduction credit is allowed pursuant to Section 3.08.510B of the Regional Transportation Functional Plan (RTFP), contingent on approval of Title 6 of the Urban Growth Management Functional Plan in December 2010.

Next Steps – Phase 2 OTREC research

The research conducted under this phase of the project would account for how the built environment influences travel behavior (number of trips, trip length, mode choice), for a range of land development typologies and levels of activity in the Metro region. Thus, the goal of this work will be to develop multiple new vehicle trip generation rates or other measures (e.g. ITE adjustments) that more accurately reflect the full spectrum or scale of development types and corresponding travel behavior. It will also provide data to modify the 30% adjustment factor as needed, which currently represents the conservative side of trip adjustment findings for transit-oriented centers and corridors. The research will:

- Document local trip generation rates and how they differ from current ITE rates through local case studies and other tools
- Support the findings of the SDC Study, which identified the challenge to implementing SDCs that reflect real cost recovery due to a lack of local travel demand data to support a variable SDC methodology.
- Make suggestions on how to better align local and regional infrastructure investments, funding systems, and growth management efforts
- Inform local and regional policies and investment priorities, including high capacity transit plan implementation
- Inform policy changes needed to achieve mode share targets, greenhouse gas emissions reduction targets and other outcomes the region is trying to achieve
- Be applicable to current and future communities
- Be transferable to other communities, locally and nationally

Outputs and outcomes anticipated include:

- Data guide for local jurisdictions: a statistical breakdown of the relationship between transportation behavior and specific land use patterns and characteristics
- Formula tying development typologies and land use characteristics to proportional rates based on the impact of each development typology, which will determine the different fee tiers of TSDCs in a local jurisdiction.
- Documentation of the effect on a local city's TSP and TSDCs through a case study of the project's research findings.
- Recommendations for additional research needed, including informing the next regional household travel behavior survey conducted by Metro and potential modifications to how we design and analyze future surveys.
- Recommendations for application of these rates within the Metro region and needed land use and transportation policy changes.
- Support from the transportation, land use, and engineering communities.

METRO

Appendix 6.0 Regional Transportation Plan
Active Transportation Program and Demonstration Projects Background

The Active Transportation Program
The Active Transportation program was initiated to implement the recommendations of the Blue Ribbon Committee for Trails and support the Executive Council for Active Transportation. In coordination with regional partners, the Active Transportation Program will increase the region's effectiveness in securing funding at the federal, state and local level to complete a regional network of on-street and off-street bikeways and walkways integrated with transit and supported by educational programs. Demonstration projects that would take bike and pedestrian travel to new levels would show the potential of an integrated approach to active transportation.

The Blue Ribbon Committee for Trails
In May 2008, as part of the larger Intertwine initiative, Metro convened the Blue Ribbon Committee for Trails (BRC), a group of civic, business and elected leaders to think big about regional trails. The BRC met monthly through October 2008, discussing the regional trails system and its benefits. The members were asked to determine whether the current level of investment in the regional trails system, which would take nearly 200 years to complete, was adequate. The BRC determined that development of the trail system should be accelerated, and that it must be done as part of a larger strategy to support active transportation – including well integrated and mutually supportive bike, pedestrian and transit networks. The BRC's final report, "The Case for Active Transportation," identifies a four pronged strategy: 1) Organize Leadership, 2) Demonstrate Potential, 3) Reduce Costs, and 4) Develop the System.

Organize Leadership – The Executive Council for Active Transportation
In support to the first element of the BRC strategy, "Organize Leadership," over half of the BRC members elected to reconvene as the Executive Council for Active Transportation. The Executive Council is not appointed by the Metro Council but is supported by Metro staff. The Executive Council's mission is to champion and implement the region's strategy to complete the regional active transportation network. The Council is comprised of health care providers, business owners, corporate executives, elected officials and non-profit representatives and continues to grow in membership.

Demonstrate Potential - Active Transportation Corridor Demonstration Projects
A major focus of Metro's Active Transportation Program is to facilitate the "Demonstrate Potential," element of the BRC strategy. Metro hosted a workshop in April 2009 to brainstorm ideas for Active Transportation Corridors and demonstration projects with trail, bicycle, pedestrian, transit and transportation planners and advocates. The corridor concept was developed at the workshop, a key element that identifies Active Transportation Corridors as a set of routes, facilities and programs that provide seamless, complete, safe and green bicycle and pedestrian trips with connections to transit.

In July 2009, Metro built upon the momentum from the workshop by issuing a "Call for Demonstration Projects". Regional partners submitted proposals for Active Transportation Corridor projects that address non-motorized travel in three different environments: urban, suburban, and urban-to-nature. The main intent of the "Call for Projects" was to develop a portfolio of strong Active Transportation Corridors that illustrate a set of principles for active transportation as federal, state and local funding become available. In addition, the "Call for Projects "provided an opportunity for applicants to add elements of their projects to the Regional Transportation Plan (making them eligible for federal funding) and to discuss their project with experts from Denmark and Holland during the September 2009 Transatlantic Active Transportation Workshop.

Principles for Active Transportation

The BRC identified a set of principles that would be used to guide the development of proposed and built active transportation corridors. Metro convened a regional working group that further developed the principles and identified areas and specific data that need to be addressed in a future **Regional Active Transportation Action Plan**. The principles will serve as the basis for developing and prioritizing Active Transportation Corridors and projects:

- The travel experience is seamless.
- Routes are direct and accessible.
- Travel is safe.
- Routes are intuitive.
- Routes are easy to use.
- Routes are attractive and travel is enjoyable.
- The system is designed with nature.
- The system is designed to relieve the strain on other transportation systems.

Principles specific to urban-to-nature routes

- Routes are park-like.
- Routes serve recreation and transportation functions.
- Routes include spectacular views and destinations.
- Routes avoid habitats of concern.
- Routes preserve and restore habitats.
- Riparian views are coordinated with habitat and restoration concerns.
- Routes provide amenities.
- Some routes are designed as loops
- A variety of trip lengths are possible.

Reduce the Cost of Building Trails and Other Bicycle and Pedestrian Facilities

Federal and state standards for the construction of off-street biking and walking trails can add an estimated 30% or more to the cost of construction for bicycle and pedestrian projects, especially trails. A key element of the active transportation strategy is to bring these costs into line.

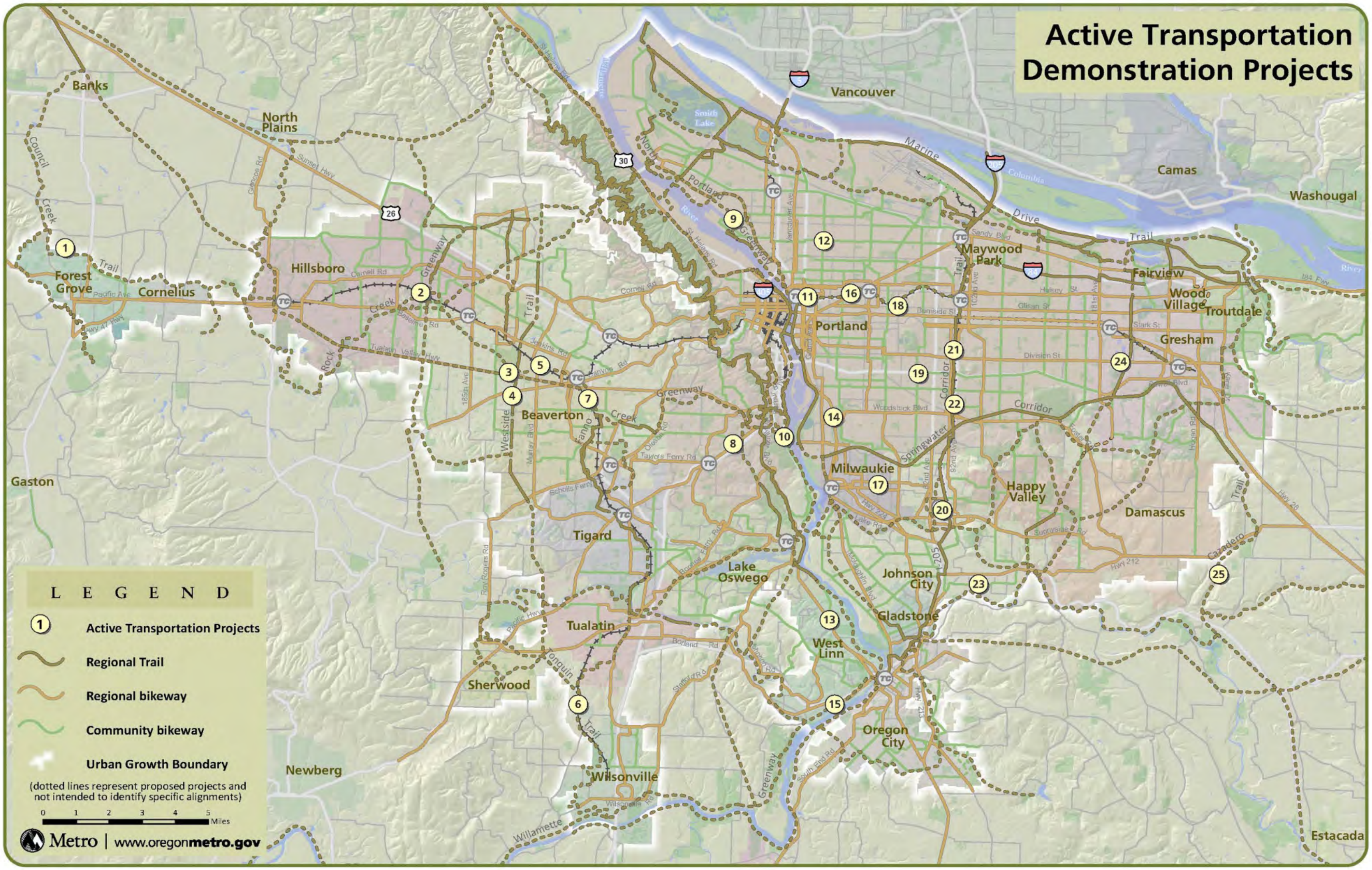
Develop the System

This element of the BRC strategy is focused on developing and strengthening the bicycling and pedestrian elements of the region's transportation plans. Developing the System includes:

- Refining and reaching regional agreement on the principles for active transportation;
- Identifying and including bicycling and pedestrian projects in the Regional Transportation Plan to qualify for federal funding;
- Work with the Oregon Department of Transportation to create a "safe crossings" initiative that addresses bicycle and pedestrian crossings. Areas where trails cross arterials or highways are particularly challenging.
- Outline a broad strategy for funding active transportation, including identifying a target amount to be raised at the local, regional, state and federal levels and suggesting sources and a time frame for these amounts.

The active transportation demonstration projects, as well as the new RTP policy concepts developed in response to the BRC (e.g. Regional Bicycle Parkways), will inform a future **Regional Active Transportation Action Plan**. Many of the demonstration projects include facilities consistent with the Parkway concept. Metro will evaluate demonstration projects in 2010 and work with applicants to further develop their projects and to help them to incorporate all of the BRC's active transportation principles. Figure 6.0.1 displays general locations of the Active Transportation Corridors. For more information on the demonstration projects, visit Metro's website: www.oregonmetro.gov/activetransport.

Figure 6.0.1 Active Transportation Demonstration Projects



1. Council Creek Regional Trail
2. Hillsboro Multi-Modal Corridors
3. Aloha Bike Blvd Corridor Connector
4. Crescent Connection
5. Crescent Connection
6. Tonquin Trail
7. Crescent Connection
8. SW Barbur Blvd & Feeder Routes
9. North Portland Willamette Greenway
10. Lake Oswego to Portland
11. Holladay Green Street
12. North/Northeast Portland Bicycle Demonstration Project
13. Hwy 43 Corridor-Lake Oswego, West Linn, Milwaukie
14. Bike & Ped Improvements in Portland to Milwaukie Light Rail Corridor
15. Willamette Falls Drive
16. Sullivan's Gulch
17. Kind Road Area AT corridor
18. 60th St Light Rail
19. International Connections
20. Clackamas Regional Center
21. I-205 Bike & Ped Path
22. Lents Demonstration Project
23. Jennifer Street Employment Corridor
24. Division St Multimodal Pilot project
25. Mt Hood Connections

Appendix 7.0 2035 Regional Transportation Plan
Index of Other Supporting Technical Reports and Publications

The following list of documents records other publications and background reports prepared during the 2035 Regional Transportation Plan (RTP) update that have not been included in the technical appendix. The documents are listed in chronological order and are available to download from Metro's website at www.oregonmetro.gov/rtp (Click on "2035 RTP Publications").

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Federal Component (2006-2008)

Regional Transportation Forum Summary (May 2, 2006, 14 pages)
This document summarizes the April 20, 2006 forum discussion about the future of transportation in the Portland metropolitan region and the 2035 Regional Transportation Plan update. The input from this forum was used to develop the work program and public participation plan for the 2035 RTP update.

2035 Regional Transportation Plan (RTP) Update – Background Documents Review (May 5, 2006, 20 pages)
This document summarizes recent plans and regulatory changes that have implications for the update to the Regional Transportation Plan. The document is organized by federal, state, regional and local planning effort or legislation. This information was used to develop the 2035 RTP update work program and public participation plan and provides guidance for updating the RTP policies, projects and implementation strategies.

2035 Regional Transportation Plan work program (May 31, 2006, 45 pages)
This document is a work program for 2035 RTP update. It describes the new outcomes based approach to addressing transportation problems. It includes a technical and policy development component as well as a stakeholder engagement and outreach component that were used to inform development, evaluation and adoption of an updated 2035 RTP.

Age-Related Shifts in Housing and Transportation Demand (August 14, 2006, 68 pages)
This report, by Portland State University's Institute on Aging, examined the impact age-related shifts on housing and transportation demand. The literature reviewed and the analyses presented are intended to inform Metro's Regional Forecast and modeling assumptions and to stimulate policy discussions pertaining to managing the region's land supply and investing in transportation infrastructure. The report includes four main section: "The Demographic Imperative: Trends in Population Aging," "Housing and Spatial Location Patterns," "Transportation Patterns and Preferences," and "Key Policy Issues Influencing Future Housing and Transportation Demand By Older Adults."

Environmental justice in Metro's transportation planning process (September 18, 2006, 30 pages)
The purpose of this report is to provide information and guidance on ways in which federal environmental justice regulations can be integrated into the planning processes of the 2035 Regional Transportation Plan (RTP) update and the 2008-11 Metropolitan Transportation Improvement Program (MTIP).

Metropolitan mobility the smart way (October 15, 2006, 20 pages)
This report presents a series of case study fact sheets, each describing how an ITS application has supported system management around the Portland metropolitan region. The goals of the report are to increase awareness and understanding among the region's decision makers regarding ITS and the ways in which it can help transportation agencies in the Portland metropolitan area manage congestion and improve safety in a cost-effective manner, and to focus attention on the benefits of collaboratively implementing system management strategies and intelligent transportation systems.

Portland and Vancouver International and Domestic Trade Capacity Analysis (December 2006, 133 pages)
This report provides an analysis of trade patterns affecting the Portland/ Vancouver region. It was commissioned by a consortium of regional partners to provide regional decision makers with technical information to support decisions regarding the management of the region's land supply and the identification transportation priorities, particularly as it relates to international and domestic trade.

Preliminary financial analysis to support the 2035 Regional Transportation Plan (December 5, 2006, 160 pages)
This report describes future costs and funding for regional transportation projects and programs. It is part of the 2035 update of the Regional Transportation Plan (RTP). It was prepared by ECONorthwest, with assistance from Kittelson and Associates. It compiles information that can be used to estimate the level of funding reasonably available for transportation needs in the Portland region through the planning period for the RTP.

Profile of the regional freight transportation system (January 19, 2007, 92 pages)
This report provides background information on the Portland-Vancouver region's freight transportation system in order to provide context for the Regional Freight and Goods Movement Action Plan (RFGM Action Plan), an element of the 2035 RTP Update. The four key topics in the report include: Economic and industry trends and their opportunities and effects on freight movement, both nationally and regionally; An inventory and description of the regional multimodal freight transportation system and services; The public policy context that governs the public's investments in freight mobility systems; and a review of logistics practices utilized by shippers to ensure that the products shipped by suppliers to their facilities, and the finished products shipped to customers, are delivered according to desired delivery schedules.

Profile of regional trends and travel characteristics (February 14, 2007, 25 pages)
This paper provides an overview of important transportation trends and travel characteristics within the Portland metropolitan region. It is one of a series of papers that provide background research and analysis to guide RTP update policy discussions. The papers describe trends affecting the regional transportation system, current regional transportation planning policies and regulatory requirements, a profile of performance of the existing transportation system and policy implications to be addressed in the RTP to respond to identified policy gaps and key findings of the background research.

Profile of safety in the Portland metropolitan region (February 14, 2007, 22 pages)
The purpose of this memo is to explore safety from a regional perspective and examine safety-related data in the Portland metropolitan region. This paper is one of a series of papers that provide background research and analysis to guide Regional Transportation Plan (RTP) update policy discussions. The papers describe trends affecting the regional transportation system, current regional transportation planning policies and regulatory requirements, a profile of performance of the existing transportation system and policy implications to be addressed in the RTP to respond to identified policy gaps and key findings of the background research. The papers conclude with a list of key findings and policy recommendations to be considered during the RTP update process.

Profile of security in the Portland metropolitan region (February 14, 2007, 13 pages)
The purpose of this memo is to provide background information regarding transportation security in the Portland metropolitan region. It includes a description of the federal legislation relevant to transportation security as well as current and ongoing security planning initiatives in the Portland metropolitan region. This paper is one of a series

of papers that provide background research and analysis to guide Regional Transportation Plan (RTP) update policy discussions. The papers describe trends affecting the regional transportation system, current regional transportation planning policies and regulatory requirements, a profile of performance of the existing transportation system and policy implications to be addressed in the RTP to respond to identified policy gaps and key findings of the background research. The papers conclude with a list of key findings and policy recommendations to be considered during the RTP update process.

Profile of the regional bicycle system (February 14, 2007, 25 pages)
This paper provides a profile of the regional bicycle system in the Portland metropolitan region. It is one of a series of papers that provide background research and analysis to guide Regional Transportation Plan (RTP) update policy discussions. The papers describe trends and research affecting the regional transportation system, current regional transportation planning policies and regulatory requirements, a profile of the existing transportation system and policy implications to be addressed in the RTP to respond to identified policy gaps and key findings of the background research. The papers conclude with a list of key findings and policy recommendations to be considered during the RTP update process.

Profile of the regional transit system (February 14, 2007, 34 pages)
This paper provides a profile of the regional transit system in the Portland Metropolitan region. It is one of a series of papers that provide background research and analysis to guide Regional Transportation Plan (RTP) update policy discussions. The papers describe trends and research affecting the regional transportation system, current regional transportation planning policies and regulatory requirements, a profile of the existing transportation system and policy implications to be addressed in the RTP to respond to identified policy gaps and key findings of the background research. The papers conclude with a list of key findings and policy recommendations to be considered during the RTP update process.

Profile of the regional pedestrian system (February 14, 2007, 29 pages)
This paper provides a profile of the regional pedestrian system in the Portland metropolitan region. is one of a series of papers that provide background research and analysis to guide Regional Transportation Plan (RTP) update policy discussions. The papers describe trends and research affecting the regional transportation system, current regional transportation planning policies and regulatory requirements, a profile of the existing transportation system and policy implications to be addressed in the RTP to respond to identified policy gaps and key findings of the background research. The papers conclude with a list of key findings and policy recommendations to be considered during the RTP update process.

Profile of regional travel options and parking management systems (February 14, 2007, 45 pages)
This paper provides a profile of the regional travel options and parking management systems in the Portland metropolitan region. This paper is one of a series of papers that provide background research and analysis to guide Regional Transportation Plan (RTP) update policy discussions. The papers describe trends and research affecting the regional transportation system, current regional transportation planning policies and regulatory requirements, a profile of the existing transportation system and policy implications to be addressed in the RTP to respond to identified policy gaps and key findings of the background research. The papers conclude with a list of key findings and policy recommendations to be considered during the RTP update process.

Key environmental issues and Metro mitigation-related activities (February 14, 2007, 37 pages)
This paper provides a profile of environmental issues in the Portland metropolitan region. It summarizes key environmental trends, describes existing environmental planning and mitigation activities and compiles inventories for cultural and natural resources in the region. This research will be used to identify future environmental mitigation activities for RTP projects to support regional goals for protecting the environment. This paper is one of a series of papers that provide background research and analysis to guide Regional Transportation Plan (RTP) update policy discussions. The papers describe trends and research affecting the regional transportation system, current regional transportation planning policies and regulatory requirements, a profile of the existing

transportation system and policy implications to be addressed in the RTP to respond to identified policy gaps and key findings of the background research.

Portland Freight Data Collection Project Phase II Summary Report (March 2007, 145 pages)
This report summarizes the second phase of a two-stage, comprehensive freight data collection and analysis for the Portland metropolitan region. This summary report provides an overview of the data collection methodologies and findings for the various collection efforts undertaken in this project including motor carrier surveys, terminal gate surveys, roadside intercept surveys, truck following, and vehicle count and classification. The data and findings were critical to the development of the Regional Freight Plan.

Profile of the regional street and throughway system (April 20, 2007, 74 pages)
This paper provides a profile of the regional street and throughway system in the Portland metropolitan region. This paper is one of a series of papers that provide background research and analysis to guide Regional Transportation Plan (RTP) update policy discussions. The papers describe trends and research affecting the regional transportation system, current regional transportation planning policies and regulatory requirements, a profile of the existing transportation system and policy implications to be addressed in the RTP to respond to identified policy gaps and key findings of the background research. The papers conclude with a list of key findings and policy recommendations to be considered during the RTP update process.

Ten things you need to know about the region's transportation system (June 2007, 1 page)
This brochure provides key facts about the region's transportation system including some of the factors that will impact the system, such as population growth, the region's economy, public desires, geopolitical instability and financial realities.

Stakeholder engagement report (July 5, 2007, 38 pages)
This is a report from the Metropolitan Group (MG) to Metro summarizing the results of stakeholder meetings conducted by MG for Metro in the fall of 2006. The stakeholder meetings were part of Metro's larger public involvement strategy for the 2035 Regional Transportation Plan (RTP) update. The larger strategy called for engaging community and public interests through community forums, scientific public opinion research, comment cards and web feedback, business and community group presentations, ongoing Metro advisory committee meetings, public review and comment periods, and targeted stakeholder meetings. The primary goal of the stakeholder meetings was to gather information from community interest groups and individuals to inform development of an updated RTP policy framework that would be used to guide development of the rest of the plan. The meetings were also designed to actively engage people who historically have not been well represented in transportation planning and decision-making in the Portland metropolitan region.

Results of a 2006 opinion survey on the Regional Transportation Plan (October 11, 2007, 54 pages)
This memo contains results of a telephone survey of adult residents (age 18+) of the Metro Service District. A total of 600 interviews were conducted, January 13-17, 2007. The questions focus on transportation issues.

Public Comment Report (November 16, 2007, 360 pages)
This report presents a summary of outreach activities employed during the federal component of the update and a compilation of comments received from October 15 through November 15, 2007, on a public review draft of the 2035 RTP.

Air Quality Conformity Determination for 2035 Regional Transportation Plan and 2008-11 Metropolitan Transportation Improvement Program (February 2008, 78 pages)
This report analyses the 2035 Regional Transportation Plan (RTP) Financially Constrained System and reanalyzes the 2008-2011 Metropolitan Transportation Improvement Program (MTIP), estimating the future air quality conditions and comparing those with the motor vehicle emission budgets, or maximum amounts of regulated pollutants generated by on road vehicles. The analysis, using best available information and Environmental

Protection Agency (EPA), USDOT and Oregon Department of Environmental Quality (DEQ) approved methods, demonstrates that the 2035 RTP and 2008-2011 MTIP, and the proposed transportation improvements contained within them, meet federal and state air quality standards.

Analysis of Environmental Considerations (February 4, 2008, 36 pages)
This memorandum summarizes the systems level environmental analysis of the 2035 Regional Transportation Plan (RTP) project list. Analysis was done for the projects in both the 2035 RTP Investment Pool and the 2035 RTP Financially Constrained System. The analysis responds to federal SAFETEA-LU requirements for the RTP to discuss potential environmental mitigation activities and potential areas to carry out these activities, and to consult with appropriate resource agencies. This analysis of the 2035 RTP Investment Pool was the basis for consultation with Collaborative Environmental and Transportation Agreement for Streamlining (CETAS) on October 16, 2007.

State Component (2008-2010)

2035 Regional Transportation Plan work program and appendix – State Component (April 9, 2008, 39 pages)
This document is the work program for the state component of the 2035 RTP update. It describes the new outcomes based approach to addressing transportation problems. It includes a technical and policy development component as well as a stakeholder engagement and outreach component that were used to inform development, evaluation and adoption of an updated 2035 RTP. The work program was approved by the Land Conservation and Development Commission on May 1, 2008.

"Cause and Effect" Transportation Investment Scenarios Analysis for the 2035 RTP: Modeling Assumptions (October 2008, 45 pages)
This document provides an overview of the regional models and network assumptions used in the 2035 Regional Transportation Plan (RTP) Investment Scenarios Analysis. This analysis is for research purposes only. *The scenarios do not represent future Metro Council, Oregon Transportation Commission (OTC) or TriMet policy intentions.* The analysis examined a series of four conceptual motor vehicle and transit systems for their ability to serve forecast 2035 population and employment growth and support the 2040 Growth Concept. Each of the four scenarios is based on a "What if" policy-theme focus from the 2035 RTP, resulting in a distinct mix and level of transit service, motor vehicle system investments and system management strategies in each scenario.

Transportation Scenarios Discussion Guide (November 2008, 28 pages)
This guide summarizes the results of the transportation scenarios research, highlighting the effects of different transportation choices on finance, air quality, greenhouse gas emissions, household and job location, travel behavior, congestion and mobility. The guide (along with a companion Land Use Scenarios Discussion guide) intends to inform the discussion and decision-making process to develop and refine strategies to achieve the region's goals and local aspirations.

Regional High Capacity Transit Plan Evaluation Report (April 2009, 235 pages)
This technical report documents the evaluation of 15 corridors that were adopted by Metro Council in February 2009 as top candidates for new HCT investments over the next 30 years. Each corridor is evaluated against a set of evaluation measures developed during an earlier phase of the study and adopted by the Metro Council. The technical evaluation work document in this report is designed to assist regional policy makers and the Metro Council in prioritizing regional HCT investments.

Regional High Capacity Transit System Plan Public Involvement Summary and Attachments (May 2009, 188 pages)
This document summarizes the outreach efforts that informed key decision points during development of the HCT system plan.

2035 Regional Transportation Plan Public Comment Report (October 2009, 732 pages)
This report presents a summary of outreach activities employed during the state component of the update and a compilation of comments received on the draft RTP from September 15 to October 15, 2009. The RTP comment package was released as part of the Making the Greatest Place effort and Metro's Chief Operating Officer's recommendation titled "Strategies for a sustainable and prosperous region." The Metro Council considered the public comments received prior to accepting the draft RTP and directing staff to incorporate amendments that responded to comments received and to complete the final system analysis and hearings in Spring 2010.

2035 Regional Transportation Plan Final Public Comment Report (May 2010, 186 pages)
This report presents a summary of outreach activities employed during the federal and state components of the update and a compilation of comments received from March 22 through May 6, 2010, on the final draft RTP.

Air Quality Conformity Determination for 2035 Regional Transportation Plan and 2010-2013 Metropolitan Transportation Improvement Program (May 14, 2010, 142 pages)
This report analyses the 2035 Regional Transportation Plan (RTP) Financially Constrained System and reanalyzes the 2010-2013 Metropolitan Transportation Improvement Program (MTIP), estimating the future air quality conditions and comparing those with the motor vehicle emission budgets, or maximum amounts of regulated pollutants generated by on road vehicles. The analysis, using best available information and Environmental Protection Agency (EPA), USDOT and Oregon Department of Environmental Quality (DEQ) approved methods, demonstrates that the 2035 RTP and 2010-2013 MTIP, and the proposed transportation improvements contained within them, meet federal and state air quality standards.

Regional Transportation System Management & Operations Action Plan (June 2010, 139 pages)
The Regional TSMO Plan is a road map to guide transportation management solutions for the next 10 years. It builds upon previously completed Intelligent Transportation System (ITS) plans completed by ODOT and local transportation agencies, and the 2008-2013 RTO Strategic Plan. The plan includes strategies that support many regional transportation goals such as travel time reliability, crash reduction, improved transit on-time performance, reduced travel delay, reduced fuel use and reduced air pollution and greenhouse gas emissions. The Regional TSMO plan identifies four functional areas of investment:

- multimodal traffic management
- traveler information
- traffic incident management
- transportation demand management

Regional High Capacity Transit System Plan Summary Report (June 2010, 118 pages)
The High Capacity Transit System plan is a 30-year plan to guide investments in light rail, commuter rail, bus rapid transit and rapid streetcar in the Portland metro region. The report summarizes the results of outreach and data analysis used to prioritize transportation corridors for potential new projects and extensions to existing lines. The prioritized high capacity transit corridors and discussion of improvements to the existing system are based on planned land uses, community values, environmental benefits, economic potential and deliverability. The plan calls for a focus on three transit corridors for investment in the near-term: the corridor in the vicinity of Powell Boulevard, connecting Gresham to downtown Portland, the corridor in the vicinity of Barbur Boulevard/Highway 99, connecting downtown Portland to Tigard and possibly Sherwood, and the WES commuter rail corridor that connects Beaverton to Wilsonville, which could see WES service upgraded to all day service with trains running at 15-minute intervals.

Regional Freight Plan (June 2010, 85 pages)
The Regional Freight Plan presents policies and strategies for moving freight that complement the region's multi-modal transportation system and support regional land use goals. The plan provides a common base of knowledge about the different elements of the regional freight transportation system and identify the issues, needs and deficiencies within the system. It refines existing regional freight policies and the multimodal regional freight

network map to support the 2040 Growth Concept. It Identifies and prioritizes a multimodal freight network and facility infrastructure improvements to address mobility and access needs that respond to desired system outcomes and are consistent with financial resources. It develops strategies that address environmental and community impacts of freight movement, system management and operations, economic development opportunities and financing of freight infrastructure. It incorporates truck movement needs into existing regional street design guidelines.

Atlas of Mobility Corridors (version 1.2, July 2010, 206 pages)
In the first phase of the RTP update, regional partners identified 23 mobility corridors across the region. The mobility atlas, the first of its kind created for this region, was conceived as a way to visually present current land use and multi-modal transportation data for each of the region's major travel corridors. It is designed primarily to help planners and decision-makers understand existing system conditions, identify needs and prioritize mobility investments. For each corridor, the atlas provides a general overview that includes location in the region, primary transportation facilities and land use patterns, and an assessment of gaps and deficiencies by travel mode. This information will be used to help identify the most cost-effective strategies and investment priorities for each corridor and serve as a framework for monitoring how well different strategies are working in each corridor over time. The atlas also provides for the comparison of data between corridors and the ability to merge multiple corridors for analysis of broader travel areas. The atlas will be expanded in the future to include safety and other transportation performance data as part of the Regional Mobility Program.

NONDISCRIMINATION NOTICE TO THE PUBLIC

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Metro | *People places. Open spaces.*

Clean air and clean water do not stop at city limits or county lines. Neither does the need for jobs, a thriving economy and good transportation choices for people and businesses in our region. Voters have asked Metro to help with the challenges that cross those lines and affect the 25 cities and three counties in the Portland metropolitan area.

A regional approach simply makes sense when it comes to protecting open space, caring for parks, planning for the best use of land, managing garbage disposal and increasing recycling. Metro oversees world-class facilities such as the Oregon Zoo, which contributes to conservation and education, and the Oregon Convention Center, which benefits the region's economy.

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