

CHAPTER 5

IMPLEMENTATION:

HOW DO WE IMPLEMENT OUR STRATEGY?

5.1 FRAMEWORK FOR CHANGE: SETTING A NEW COURSE FOR TRANSPORTATION

Over the past year, Metro worked with state and local government partners as well as residents, community groups, and businesses to develop the 2014 Regional Transportation Plan. The result of that work is a plan that responds to transportation needs and demands based on our shared community values and the outcomes we are trying to achieve as a region. The policies, projects and strategies in this plan also address federal, state and regional planning requirements.

The plan sets a new course for future transportation decisions and implementation of the 2040 Growth Concept. The plan takes into account the changing circumstances and challenges we face and addresses them directly, adopting new approaches that distinguish this plan from past RTPs. Central to this plan are innovative approaches such as strong links between community aspirations and transportation investments and multi-pronged regional mobility corridor strategies to maximize operations on existing highways, roads and transit networks and strategically expand the transit and roadway system.



The RTP is moving away from a single measure of success to an outcomes based planning framework.

This RTP is moving away from a single measure of success and has adopted an outcomes-based planning framework with an emphasis on desired outcomes and measurable performance. Policies have shifted from primarily using roadway level-of-service to a broader system completion policy to define system needs.

Through its policies, projects and strategies, the 2014 RTP aims to attract jobs and housing to downtowns, main streets and employment areas. It seeks to increase the use of public transit, improve the safety, convenience and appeal of bicycling and walking, and reduce miles traveled and emissions by cars and trucks in the metropolitan region. It also seeks to increase the safety, reliability and efficiency of the roadway and transit systems for all users. When we measure our performance, we find we have some successes, but overall the RTP falls short of meeting all of the performance targets set forth in Chapter 2.

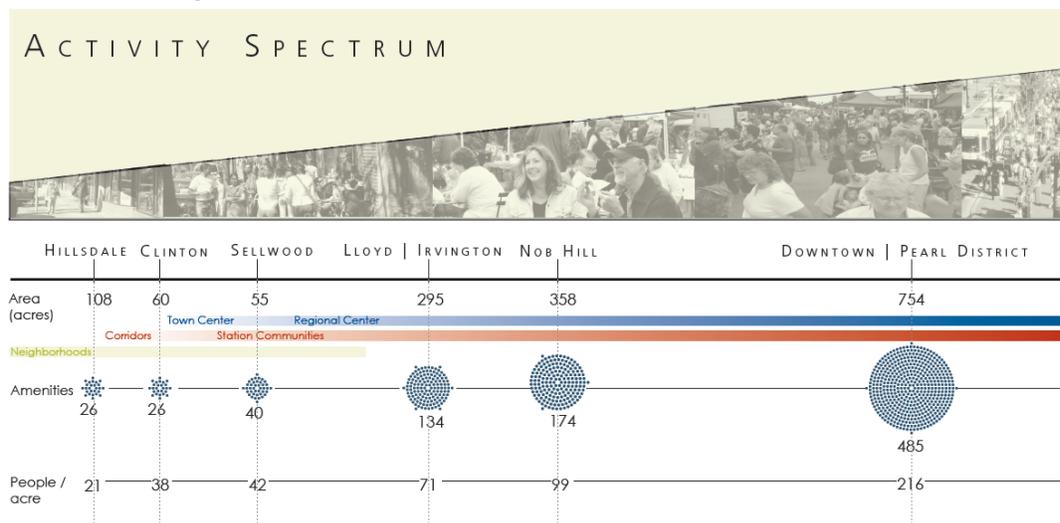
To continue making progress toward the goals and vision of the plan, the region must take additional steps. The plan will be implemented through a variety of strategies and actions at the local, regional, state and federal levels. The various jurisdictions in the region are expected to pursue policies, projects and strategies that contribute to specific elements of the vision.

Implementation of this plan will require a cooperative effort by all jurisdictions responsible for transportation planning in the region, and will involve:

- Adoption of regional policies and strategies in local plans.
- A concerted regional effort to secure needed funding to build planned transportation facilities needed to serve a growing region.
- Focusing strategic investments and system management policies that leverage 2040 Growth Concept implementation and preserve the function of the region’s mobility corridors.
- Periodic updates of the plan to respond to development trends and the associated changes in travel demand.
- Incorporating land use and transportation needs and solutions identified in each mobility corridor strategy in local plans.
- Ongoing monitoring for consistency of changes to local transportation system plans (TSPs) and local Comprehensive Plans and land use designations with the RTP and other agency plans, including the Oregon Department of Transportation's Oregon Highway Plan and four-year State Transportation Improvement Program (STIP), the Oregon Department of Land Conservation and Development’s Transportation Planning Rule (TPR), and TriMet’s Transit Implementation Plan (TIP).

5.2 Implementation of the Community Building Strategy

In an effort to better understand how and where local communities intend to grow and how the region can support them, Metro asked local cities and counties to summarize their aspirations for how their communities will develop and function over the next few decades. The aspirations reflect the communities’ priorities for redevelopment, the values that guide their decisions and the challenges and barriers they anticipate to achieving these aspirations. The activity spectrum illustrated below provided a tool for local governments to consider the type and level of activity they would like for regional and town centers, station communities, corridors and main streets in their community.



The community building strategy described in Chapter 2 recognizes the important role of transportation in placemaking to achieve the 2040 Growth Concept vision. The concept calls for cultivating great communities by investing in the community assets essential to making downtowns, main streets and employment areas better places to live and work. Typically, these are investments that help revitalize centers and main streets or provide critical access to industrial lands and freight intermodal facilities.

The activity spectrum provides a tool to identify community building investments needed to serve centers and main streets, the RTP emphasizes streetscape retrofits, building new street connections, transit, completing missing sidewalks, bicycle and trail connections in downtowns, centers and along main streets to leverage higher density mixed-use development and transit investments such as frequent bus, street car or high capacity transit.

In industrial and employment areas, the RTP emphasizes providing critical freight access to the interstate highway system and protecting interchange capacity to help the region's businesses and industry in these areas remain competitive. This means strategically adding road capacity to arterials and building new street connections in these areas, in addition to providing access to support commercial delivery activities and upgrading main line and rail yard infrastructure.

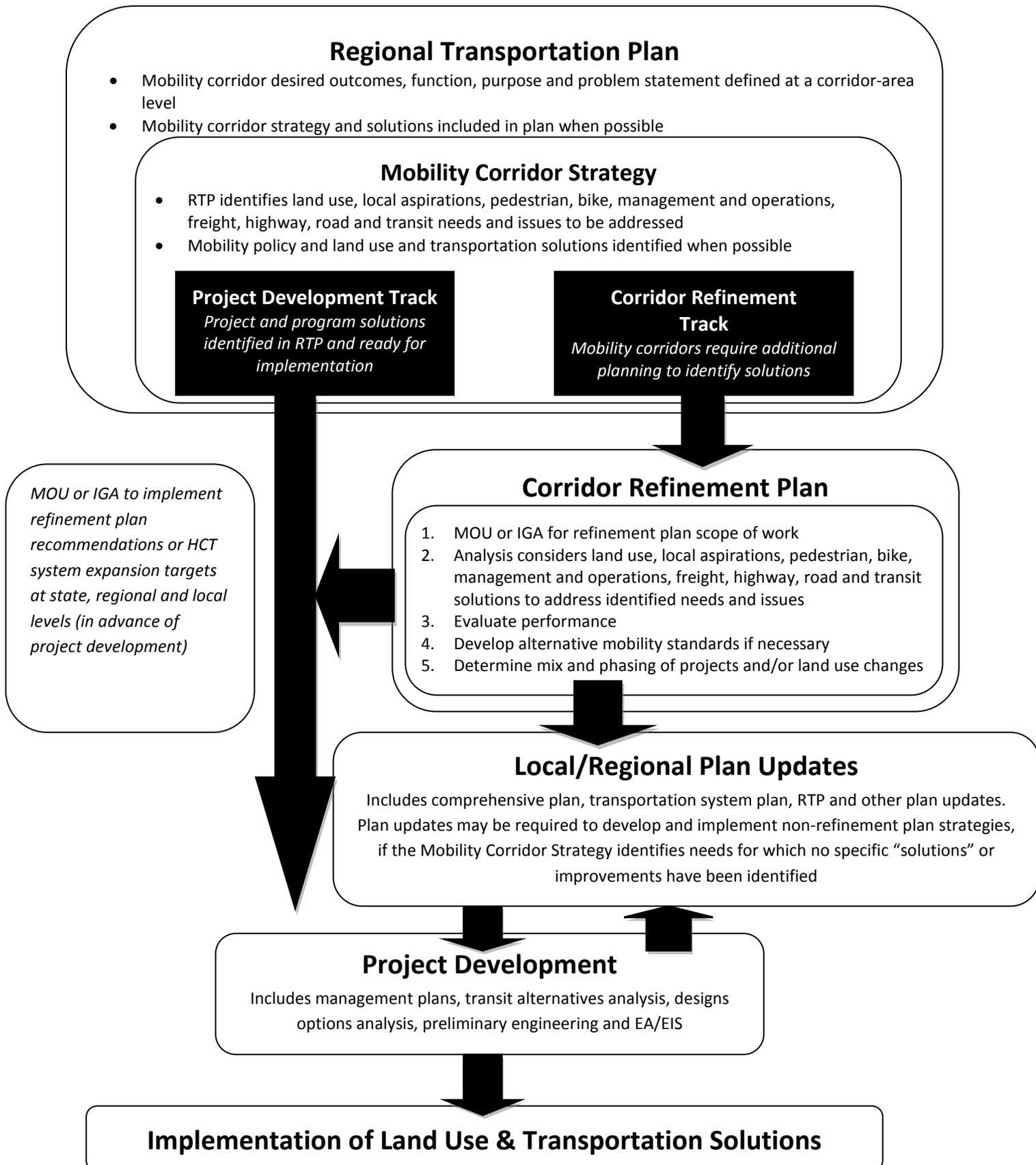
Achieving all of these aspirations requires different types and amounts of investments by local governments, Metro and the private sector in order to achieve on-the-ground results. More work is being done to better understand what is needed to fulfill these aspirations. Metro summarized the needs identified by local governments for 16 different types of investments in five community design types described in the 2040 Growth Concept: central city (Downtown Portland), corridors, employment areas (including industrial areas), town centers and regional centers in an Investment Matrix. Many of these community building investments will be defined through local transportation system plans and other local plans, connecting back to community aspirations for these areas. The Investment Matrix will inform local and regional policy and investment decisions and longer-term efforts to refine tools that assist with the achievement of these aspirations.

5.3 Implementation of the Mobility Corridor Strategy

The RTP Appendix details the needs and strategies for all 24 of the regional mobility corridors. The idea of a mobility corridor strategy emerged to better ground the outcome-based policy framework of the RTP and to demonstrate compliance with state TPR requirements. The strategies are scoping tools to document land use and transportation needs, functions for all modes, and potential solutions for each mobility corridor. Mobility corridors that have uncertainty surrounding transportation needs, modes, function and potential solutions require a corridor refinement plan.

Figure 5.1 shows the framework for how the mobility corridor strategy will be incorporated into the RTP or developed through a corridor refinement plan.

Figure 5.1 – How A Mobility Corridor Strategy Is Developed and Implemented



5.3.1 Corridor Refinement Planning

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 is the region's TSP. 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.

If a TPR determination cannot be made based on the information available, a mobility corridor would need a corridor refinement plan as defined by the TPR. 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
- Develop alternative mobility standards, if necessary
- 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.

This process represents a change in how mobility corridors are planned for and analyzed to more comprehensively consider land use, management, walking and biking solutions in addition to traditional transit and highway-focused analyses. The refinement plan will result in a wide range of strategies and projects to progress through project development and implementation at the local, regional and/or state levels.

Individual project and program solutions identified in the RTP may move forward to project development at the discretion of the facility owner/operator. The MOU or IGA from a corridor refinement plan is intended to provide more accountability and to formalize agreements across implementing jurisdictions on moving forward to implement the corridor refinement plan recommendations. This is particularly important in corridors with multiple jurisdictions.

Mobility Corridors Recommended for Future Corridor Refinement Plans

The main objective of the RTP mobility corridor work program was to gather information to help define the need, mode, function, performance standards, and general location of facilities within each mobility corridor consistent with the TPR. The needs assessment was developed based on the

RTP policy framework and was used to guide the identification of projects and programs during the RTP system development phase.

Under the mobility corridor concept framework, when determinations of needs, modes, functions, and scope and general location of solutions cannot be made, the mobility corridor needs a refinement plan. Corridor refinement plans are intended to be multi-modal evaluations of possible transportation solutions, including land use solutions.

Using the results of the mobility corridor work program, the RTP has identified a list of mobility corridors that do not meet the outcomes performance standards of the RTP and do not fully answer questions of mode, function and general location. These corridors need refinement planning and are listed in **Table 5.1**. In addition, most potential HCT Corridors identified in the Regional HCT Plan are likely to require Corridor Refinement Plans to resolve issues of changes in transit function and any associated changes in vehicular or freight rail function and performance standards of existing transportation facilities.

Table 5.1

Mobility Corridors Recommended for Future Corridor Refinement Plans

Mobility Corridors #2 and #3 - Portland Central City to Wilsonville and Sherwood, which includes I-5 South¹

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 #24 - Beaverton to Forest Grove, which includes Tualatin Valley Highway

5.3.1.1 Portland Central City to Tigard (Mobility Corridor #2)

This corridor provides access to the Central City and to neighborhoods and commercial areas in the inner southwest quadrant of the region. Barbur Boulevard is identified as a multi-modal facility with potential light rail or Rapid Bus, as well as serving a regional role for motor vehicle, bicycle and pedestrian systems. I-5 in this corridor is a Main Roadway route for freight and a Principal Arterial for motor vehicles extending southward beyond the region.

Segments of both Barbur Boulevard and I-5 in this corridor experience significant congestion and poor service levels, especially from the Terwilliger interchange northward. However, high capacity transit service along Barbur Boulevard and other expanded bus services are expected to experience promising ridership levels. Significant localized congestion occurs along the intersecting street segments of Bertha, Terwilliger and Capitol Highway/Taylor's Ferry roads. Broad street cross-sections, angled intersections and limited signalized crossing opportunities along Barbur Boulevard create traffic safety hazards and inhibit walking to local destinations and access to transit services.

A corridor refinement plan was proposed in the last RTP to address the following in coordination with corridor refinement planning for Mobility Corridor #3 and project development activities for Mobility Corridor 20:

¹ In coordination with project development activities for Mobility Corridor #20.

- Regional and local transit services and facilities needed to serve the Barbur corridor within the RTP planning horizon.
- Possible new locations or relocations for I-5 on-ramps and off-ramps and street connections across the freeway right-of-way.
- Opportunities for new or improved local street connections to Barbur Boulevard.
- Added capacity on parallel arterials, and arterial street connectivity, consistent with the regional street design concept and regional street system design concept.
- Facilities to improve bicycle and pedestrian safety along Barbur Boulevard and access to transit services and local destinations.
- Provide additional overcrossings in West Portland town center to improve local circulation and interchange access management
- Traffic management and intelligent transportation system improvements along I-5, Barbur Boulevard and other parallel arterials within the corridor.
- Potential mainline freeway improvements, including possible southbound truck climbing lanes.
- Identify and implement safety and modernization improvements to I-5 defined by the Portland Central City to Tigard Corridor Refinement Plan.

Southwest Corridor Plan

To address the potential for High Capacity Transit and other needs in this mobility corridor and the I-5/Highway 99W corridor between Tigard and Tualatin/Sherwood, Metro, in collaboration with local partners, ODOT and TriMet, developed the Southwest Corridor Plan. The Southwest Corridor Plan is a comprehensive approach to achieving community visions through integrated land use and transportation planning. The plan incorporates existing local land use visions, such as the Barbur Concept Plan, the Tigard High Capacity Transit Land Use Plan, Linking Tualatin and the Sherwood Town Center Plan.

During the summer of 2012 local partners in the Southwest Corridor Plan developed a wide range of alternatives that included improvements in roadways, transit, bicycle and pedestrian facilities, parks and natural areas, and regional trails. Later the range of alternatives was narrowed based on land use priorities and the ability to serve a high capacity transit investment in the corridor. In July 2013, the Southwest Corridor Plan Steering Committee recommended a shared investment strategy, identifying key investments in roadways, active transportation, parks, trails and natural areas, as well as specific options for high capacity transit to be studied further in the refinement phase. To better understand and refine high capacity transit in the corridor, the Southwest Corridor Plan Steering Committee directed Metro to study in more detail:

- two potential transit modes: light rail and bus rapid transit;

- between 50 and 100 percent of the bus rapid transit alignment being in exclusive right of way;
- a transit line that connects Portland to downtown Tualatin, via Tigard.

Based on the shared investment strategy, the refinement phase for potential high capacity transit connections between Portland, Tigard and Tualatin will be completed by the summer of 2014. During the refinement phase, project partners will further narrow the high capacity transit design options that came out of the initial phase of the Southwest Corridor Plan and move forward the most promising options for further study under the National Environmental Policy Act (NEPA).

5.3.1.2 Tigard to Wilsonville (Mobility Corridor #3)

This mobility corridor provides the major southern access to and from the central city. The corridor also provides important freight access, where Willamette Valley traffic enters the region at the Wilsonville “gateway,” and provides access to Washington County via OR 217.

In 2002, a joint ODOT and Wilsonville study² concluded that in 2030 widening of I-5 to eight lanes would be required to meet Oregon Highway Plan and RTP mobility standards, and that freeway access capacity would not be adequate with an improved I-5/Wilsonville Road interchange. The appropriate improvements in this corridor are unclear at this time. However, I-5 serves as a critical gateway for regional travel and commerce, and an acceptable transportation strategy in this corridor has statewide significance. Projections for I-5 indicate that growth in traffic between the Metro region and the Willamette Valley will account for as much as 80 percent of the traffic volume along the southern portion of I-5, in the Tualatin and Wilsonville area.

A corridor refinement plan is proposed to address the following in coordination with corridor refinement planning for Mobility Corridor #2 and project development activities for Mobility Corridor #20:

- Effects of widening I-205 on the I-5 South corridor
- Effects of the I-5 to 99W Connector study recommendations on the N. Wilsonville interchange and the resultant need for increased freeway access
- Effects of peak period and mid-day congestion in this area on regional freight reliability, mobility and travel patterns
- Ability of inter-city transit service, to/from neighboring cities in the Willamette Valley, including commuter rail, to slow traffic growth in the I-5 corridor
- Ability to maintain off-peak freight mobility with capacity improvements
- Potential for better coordination between the Metro region and Willamette Valley jurisdictions on land-use policies

² I-5/Wilsonville Freeway Access Study, DKS Associates, November 2002

- Effects of a planned long-term strategy for managing increased travel along I-5 in the Willamette Valley
- Effects of UGB expansion and Industrial Lands Evaluation studies on regional freight mobility
- Effects to freight mobility and local circulation due to diminished freeway access capacity in the I-5/Wilsonville corridor
- Identify and implement safety and modernization improvements to I-5 defined by the Tigard to Wilsonville Corridor Refinement Plan in phases totaling over \$600 million
- I-5/OR217 Interchange Phase 2: SB OR217/Kruse Way Exit – Complete interchange reconstruction: Braid SB OR 217 exit to I-5 with Kruse Way exit, approximately \$50 million
- I-5/OR217 Interchange Phase 3: SB OR217 to I-5 NB Flyover Ramp – Complete interchange reconstruction with new SB OR217 to NB I-5 flyover ramp - \$30 million

In addition, the following design elements should be considered as part of the corridor refinement plan:

- Peak period pricing and HOV lanes for expanded capacity
- Provide regional transit service, connecting Wilsonville to the central city
- Provide additional freeway access improvements in the I-5/Wilsonville corridor to improve freight mobility and local circulation
- Add capacity to parallel arterial routes, including 72nd Avenue, Boones Ferry, Lower Boones Ferry and Carman Drive
- Add overcrossings in vicinity of Tigard Triangle and City of Wilsonville to improve local circulation
- Extend commuter rail service from Salem to the Portland Central City, Tualatin transit center and Milwaukie, primarily along existing heavy rail tracks
- Additional I-5 mainline capacity
- Provision of auxiliary lanes between all I-5 freeway on- and off-ramps in Wilsonville.

5.3.1.3 Portland Central City Loop (Mobility Corridor #4)

In 2005, the I-5/405 Freeway Loop Advisory Group (FLAG) completed its review of the near- and long-term transportation, land use, and urban design issues regarding the I-5/405 Freeway Loop. Appointed by Mayor Vera Katz and the ODOT Director in 2003, the 24-member group developed and evaluated concepts to address identified transportation issues and needs. The concepts represented a range of options that included modest improvements within existing right-of-way, a

One-Way Loop System, and a full tunnel that would connect the Freeway Loop to I-84 and Sunset Highway. The three concepts were evaluated against the region's proposed transportation system, along with projected employment and household growth, for the year 2030.

In completing its initial review, FLAG found that additional master planning work is needed to identify, prioritize and fund specific projects, and that short-term or interim investments should move forward while the master planning work is being completed. FLAG recommended that planning on I-84/I-5 interchange and the I-5 elements of South Portland Plan contemplated in the area of the interchange of I- 405 and I-5 may proceed independent of the Master Plan with the understanding that the final plan for any such project would be consistent with the Master Plan. In addition, the study recommended advancing a corridor refinement plan to begin to identify short-term and long-term investments and a recommended scope, problem statement and set of principles:

Scope

- Develop an overall Freeway Loop Corridor Refinement Plan that will guide public investment for improvements to the I-5/405 Freeway Loop.
- Develop a phasing strategy for implementation of the Master Plan. Include the currently approved Regional Transportation Plan improvements as well as new elements.
- Identify and pursue a funding strategy.

Proposed Purpose Statement

Improvements to the I-5/4-5 Freeway Loop must address long-term transportation and land use needs in a system-wide context. Because the movement of people and goods is a vital economic function, changes must be considered in relation to local, regional, and statewide geographies. Freeway Loop improvements should enhance, not inhibit, high-quality urban development, and should function as seamless and integral parts of the community.

Proposed Principles

These objectives will guide the selection and evaluation of options in the next phase:

- Maintain or enhance transportation performance, including highway and transit performance.
- Support a multi-modal strategy for automobiles, transit, trucks, bicycles, and pedestrians.
- Support trade and freight movement to facilitate regional and state economic development.
- Support local, regional, and state land use plans.
- Ensure regional accessibility to and from the Central City to reinforce its significant statewide, regional, and national economic role.

- Support economic activities and new investments in the Central City and in adjacent industrial areas.
- Improve the quality of the built environment and connections across facilities.
- Avoid or minimize negative impacts on the natural environment.
- Evaluate facility improvement costs relative to the distribution of benefits and impacts.
- Develop strategies that can be implemented in phases.

As directed by the FLAG's recommendations, planning proceeded on the I-84/I-5 section of the Loop under the N/NE Quadrant and the I-5 Broadway-Weidler Interchange Improvement Planning process. The key recommendations from the adopted 2012 N/NE Quadrant Plan include:

- Preserving and enhancing Lower Albina by protecting the working harbor and increasing land use flexibility that promotes a mix of uses on historic Russell Street and greater employment densities;
- Protecting historic neighborhoods and cultural resources;
- Concentrating high density development in the Lloyd District, with a focus on new residential development that will add activity and vibrancy to the district;
- Providing amenities, such as parks, street improvements and green infrastructure to support and encourage new development;
- Improving regional access and local street safety and connectivity for all modes;
- Encouraging sustainable development that supports the Lloyd EcoDistrict and goals for improved environmental health;
- Future changes to zoning and building height regulations that implement the plan goals.

Key recommendations for the I-5 Broadway-Weidler Plan include:

- Adding auxiliary lanes and full-width shoulders to improve traffic weaves and allow disabled vehicles to move out of traffic lanes;
- Rebuilding structures at Broadway, Weidler, Vancouver and Williams and adding a lid over the freeway that will simplify construction, increase development potential and improve the urban environment;
- Moving the I-5 southbound on-ramp to Weidler to improve circulation and safety;

Improving conditions for pedestrian and bicycle travel by adding new connections over the freeway and safer pedestrian and bicycle facilities in the interchange area.

5.3.1.4 Clark County to I-5 via Gateway, Oregon City and Tualatin (Mobility Corridors #7, 8 and 9)

Improvements are needed in this corridor to address existing deficiencies and expected growth in travel demand in Clark, Multnomah and Clackamas counties. Transportation solutions in this corridor should address the following needs and opportunities:

- Provide for some peak period and off-peak mobility and reliability for longer trips
- Preserve freight mobility from I-5 to Clark County, with an emphasis on connections to Highway 213, Highway 224 and Sunrise Corridor
- Maintain an acceptable level of access to the Oregon City, Clackamas and Gateway regional centers and Sunrise industrial area
- Maintain acceptable levels of access to PDX, including air cargo access
- Adding general purpose lanes to I-205 should be considered to meet state and regional policies, to bring the freeway up to three through lanes in each direction in the southern section from Oregon City to I-5. Interchange improvements, auxiliary lanes and other major operational improvements such as ramp improvements and other weaving area improvements in the corridor should also be considered. Specific projects to be considered to meet identified needs include: Southbound truck climbing lanes from Willamette River to 10th St. interchange, over \$20 million; Interchange improvements at locations including: Division/Powell, Airport Way, OR213, OR 212/224, Sunrise, Johnson Creek Boulevard and others, totaling over \$250 million; Auxiliary lanes, northbound and southbound in the following locations: Airport Way to Columbia Blvd., Columbia Blvd. to I-84, I-84 to Glisan, Glisan to Division/Powell, Division/Powell to Foster, Foster to Johnson Creek Boulevard, OR 212/224 to Gladstone, Gladstone to OR 99E, averaging \$20 million each; totaling over \$200 million; Widen to 6 lanes from Stafford Interchange to Willamette River, over \$40 million; Widen Abernethy Bridge to 6 lanes plus auxiliary lanes, over \$100 million; Improvements needed on OR 213 (82nd Avenue) include bicycle/pedestrian and streetscape improvements, totaling over \$30 million.

Potential transportation and land use solutions in this corridor should evaluate the potential of the following design concepts:

- Auxiliary lanes added from Airport Way to I-84 East
- Consider express, peak period pricing or HOV lanes as a strategy for expanding capacity
- Relative value of specific ramp, overcrossing and parallel route improvements
- Eastbound HOV lane from I-5 to the Oregon City Bridge
- Truck climbing lane south of Oregon City

- Potential for rapid bus service or light rail from Oregon City to Gateway
- Potential for extension of rapid bus service or light rail north from Gateway into Clark County
- Potential for refinements to 2040 land-use assumptions in this area to expand potential employment in the sub-area and improve jobs/housing imbalance
- Potential for re-evaluating the suitability of the Beavercreek area for urban growth boundary expansion, based on ability to serve the area with adequate regional transportation infrastructure
- Provide recommendations to the Bi-State Coordination Committee prior to JPACT and Metro Council consideration of projects that have bi-state significance.

5.3.1.5 Beaverton to Forest Grove (Mobility Corridor #24)

A number of improvements are needed in this corridor to address existing deficiencies and serve increased travel demand. One primary function of this route is to provide access to and between the Beaverton and Hillsboro regional centers. Tualatin Valley Highway also serves as an access route to Highway 217 from points west along the Tualatin Valley Highway corridor. As such, the corridor is defined as extending from Highway 217 on the east to Forest Grove to the west, and from Farmington Road on the south to Baseline Road to the north. The following should be addressed as part of a corridor refinement plan:

- Develop an access management plan as part of a congestion management strategy
- Implement TSM and other interim intersection improvements at various locations between Cedar Hills Boulevard and Brookwood Avenue
- Relative trade-offs of a variety of capacity and transit improvements, including:
 - a. Improvements on parallel routes such as Farmington, Alexander, Baseline and Walker roads as an alternative to expanding Tualatin Valley Highway
 - b. Arterial improvements from Cedar Hills Boulevard or Murray Boulevard to Brookwood Avenue or Baseline Road in Hillsboro
 - c. A limited access, divided facility from Cedar Hills Boulevard or Murray Boulevard to Brookwood Avenue, with three lanes in each direction and some grade separation at major intersections
 - d. Transit service that complements both the function of Tualatin Valley Highway and the existing light rail service in the corridor
- Evaluate impacts of the principal arterial designation, and subsequent operation effects on travel within the Beaverton regional center

- Evaluate motor vehicle and street design designations of TV Highway as part of the plan to determine the most appropriate classifications for this route
- Transportation System Management – signal interconnects – from Beaverton to Aloha and Aloha to Hillsboro, over \$4 million; transit service improvements to provide frequent bus service.

The TV Highway Corridor Plan (TVCP) is a “mobility corridor refinement” plan completed in June 2013. The TVCP studied the Beaverton to Hillsboro portion of the Beaverton to Forest Grove mobility corridor between Cedar Hills Boulevard (Beaverton Regional Center) and SE 10th Avenue/Maple Street (Hillsboro Regional Center). The northern boundary of the study area was Baseline Road/Jenkins road and the southern boundary was Farmington Road, Oak Street, Davis Street and Allen Boulevard. There are still two outstanding sections of the corridor left to be studied: within Beaverton (OR 217 to SW Cedar Hills Blvd) and from Hillsboro (west of SE 10th Avenue/Maple Street) to Forest Grove.

The TVCP was a joint effort between ODOT, Metro, the City of Hillsboro, the City of Beaverton and Washington County that focused an examination of the transportation system to identify needs and improvements for all modes of transportation. A number of improvements have been identified in this corridor to address existing deficiencies and safety concerns and serve increased travel demand.

A long-term transit solution for Tualatin Valley Highway has yet to be identified. In advance of this transit study additional land area is to be preserved for Business Access Transit (BAT) / High Capacity Transit (HCT) uses. This land area is not intended to be used for general purpose through lanes. Development along Tualatin Valley Highway shall consider opportunities so as to not preclude a future Business Access and Transit lane in the westbound direction, and to not preclude Bus pullouts in the eastbound direction.

RTP Design and Functional Classifications.

Early in the project, the TVCP PG gave policy direction to maintain the design and function of TV Hwy as an urban arterial that will not exceed motorized vehicle capacity of two through travel lanes in each direction. Consistent with this decision, proposed actions along TV Hwy will be developed during subsequent refinement planning and design work to maximize the use of the typical 100 feet to 107 feet of existing right-of-way (ROW) to serve multimodal travel. Additionally, the RTP Arterial & Throughway map and System Design Classification maps are amended. TV Highway will be changed from “Principal arterial” to “Major Arterial” on the Arterial & Throughway map. It will be changed from “Throughway” to “Regional Street” on the System Design map.

The TVCP recommendations fall into 3 categories: 1) Near Term Actions, 2) Opportunistic Actions, and 3) Longer Term Refinement Planning Needs.

Near Term Actions

The proposed improvements described below will address existing needs, including multimodal system completeness and safety, and can reasonably be expected to be completed within the next 15 years with a strong commitment from one or more of the partner agencies that have jurisdiction over subject transportation facilities.

- Complete detailed multi-agency study to determine future potential for high capacity transit solutions within the Tualatin Valley Highway corridor
- Improve bus stops along Tualatin Valley Highway
- More frequent bus service
- Add street lighting on Tualatin Valley Highway
- Improve Tualatin Valley Highway pedestrian crossings
- Complete Planning and Conceptual design for a Multi-use path
- Fill gaps in sidewalks and add landscape buffers along Tualatin Valley Highway
- Add directional way finding signs
- Complete the (currently discontinuous and narrow) bike lanes on Tualatin Valley Highway
- Improve bike crossings of Tualatin Valley Highway
- Develop continuous east-west parallel bike routes north and south of Tualatin Valley Highway
- Public community rail safety education
- Support and promote employer incentive programs to reduce driving
- Improve signal timing, transit prioritization and traffic operations monitoring
- Signal prioritization for transit
- Adaptive signal control (“smart signals” that adjust timing to congestion levels)
- Improve operations at signalized intersections along Tualatin Valley Highway
- Intersection modification to address safety and mobility
- Left-turn signal improvements

Opportunistic Actions

Understanding that funding opportunities (whether public funding or public funding in combination with private sources) may arise for transportation improvements within the TVCP Project Area to work towards to meet the goals and objectives of the TVCP, while attempting to:

- Encourage private contributions by developers to implement the near term improvements, including reserving ROW for future transportation improvements (*City of Hillsboro, City of Beaverton, Washington County*).
- Acquire the ROW to develop a westbound business access transit (BAT) lane as redevelopment opportunities arise on Tualatin Valley Hwy. The City of Hillsboro may also require all half-street improvements be constructed to include the set-back curb, planter strip, and sidewalk improvement to create an amenable environment for future transit solutions on Tualatin Valley Highway. This redevelopment should be consistent with ODOT standards.
- As projects arise from appropriate categories examine whether opportunities are available to use other funds to leverage this funding (e.g., safety) (*ODOT, consulting with partners*).

- As land use and transportation system conditions change and near term improvements are completed, consider the opportunity to update this adaptive corridor management strategy (*all partners*).
- Improve existing north-south routes for all modes to reduce travel demand on Tualatin Valley Highway and congestion at intersections. Improvements to roadways such as Brookwood Avenue, Century Boulevard, Cornelius Pass Road, 209th Avenue, 198th Avenue, 185th Avenue, and 170th Avenue would provide the greatest benefit to the overall transportation system. Five improvements on 198th Avenue south of Tualatin Valley Highway are scheduled in the next five years through Washington County's Major Streets Transportation Improvement Program. The other three corridors will require a more opportunistic approach, including working with developers of South Hillsboro to help improve 209th Avenue (*City of Hillsboro, City of Beaverton, Washington County*).
- Improve east-west connectivity (such as those proposed in the upcoming South Hillsboro UGB development mitigation) in addition to the near term actions proposed in South Hillsboro such as the Kinnaman and Rosa Road extensions (*City of Hillsboro, City of Beaverton, Washington County*).
- Complete the bicycle and pedestrian system in the TVCP Project Area to increase connectivity and access.
- Examine transit service for enhancements and improvements in the near term improvements list to leverage added service or other capital enhancements. TriMet has submitted two Statewide Transportation Improvement Program (STIP) applications (Highway 8 Corridor Safety and Access to Transit) for improved safety, active transportation, access to transit and transit operations by improving bus stops, constructing landing pads, enhancing crossings, and installing signal priority on Cornell Road, Evergreen Parkway, and 229th Avenue, and on TV Hwy between 110th Avenue in Beaverton and SW 209th Avenue in Hillsboro. Specifically, for the first STIP application, TriMet intends to install concrete landing pads between the sidewalk and curbs at 50 bus stops, rapid flash beacons (RFBs) with striping at 3 non-signalized crossing locations, and transit signal priority at 3 intersections. For the second application (between 110th Avenue and SW 209th Avenue on TV Hwy), the project would build bus stop landing pads and shelters to connect bus stops to sidewalks. RFBs would be installed at non-signalized crossings near bus stops. Signal priority and operational treatments at key intersections would decrease travel times.
- Reduce vehicle turn movements to/from driveways on TV Highway. This would improve safety and mobility of pedestrians, bicyclists, and motorists on TV Hwy. Further access consolidations are recommended in conjunction with other property redevelopment.

Long Term Refinement Planning Needs

The refinement plan was unable to adequately address some longer term planning aspirations for the corridor. The following should be addressed as part of a future corridor refinement plan:

- The preferred location (e.g. on or adjacent to Tualatin Valley Highway) and most viable transit mode (e.g., bus rapid transit, express bus service, light rail, streetcar, or commuter rail) and amount of right-of-way needed for a long-term HCT solution for Tualatin Valley Highway. This transit alternative analysis study may explore enhanced signal operations for transit and/or the viability of a Business Access Transit (BAT) lane in appropriate locations.

- The location of a multi-use pathway parallel to Tualatin Valley Highway.
- The location of new local street connections, in concert with access management along Tualatin Valley Highway.
- While grade separated intersections are not included in the plan, it is recognized that in the long term, all tools should be considered to maintain acceptable intersection performance to serve future transportation and community needs.

5.3.2 Project Development

Transportation improvements where need, mode, function and general location have already been identified in the RTP and local plans for a specific alignment must be evaluated on a detailed, project development level. This evaluation is generally completed at the local jurisdictional level or jointly by affected or sponsoring agencies, in coordination with Metro. The purpose of project development planning is to consider project design details and select a project alignment, as necessary, after evaluating engineering and design alternatives, potential environmental impacts and consistency with applicable comprehensive plans and the RTP. The project need, mode, function and general location do not need to be addressed at the project level, since these findings have been previously established by the RTP.

Once the RTP or corridor refinement plans have established mode, function, general location, and identified potential solutions, project development is needed to clearly define a set of projects. The TPR defines project development as, “implementing the transportation system plan by determining the precise location, alignment and preliminary design of improvements included in the TSP based on site-specific engineering and environmental studies,” (660-012-005 (36)). Using the TPR definition the following activities would be considered project development related activities:

- Design Options Analysis (DOA)
- Management plans
- Transit Alternatives Analysis (AA)
- Environmental Impact Statement/Environmental Assessment (EIS/EA)

The mobility corridor strategies in the Appendix identify the relevant project development activities within each corridor. A summary of project development activities is provided for the following corridors for reference:

- Columbia River Crossing Project
- Sunrise Project and Sunrise Jobs and Transportation Act Project
- I-5/99W Connector Study Recommendations and Implementation (Tigard to Sherwood - Mobility Corridor #20)

- East Metro Connections Plan (Gresham/Fairview/Wood Village/Troutdale to Damascus – Mobility Corridor #15)
- TV Highway Corridor Plan (Beaverton to Forest Grove - Mobility Corridor #24)

5.3.2.1 Columbia River Crossing Project (Mobility Corridor #1 – Portland Center City 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 Project (CRC). It creates a multi-modal solution for the Interstate 5 corridor between Oregon and Washington to address the movement of people and freight across the Columbia River. 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.

More generally in the I-5 corridor, the Portland Metro region should:

- Consider the potential adverse human health impacts related to the project and existing human health impacts in the project area, including community enhancement projects to address environmental justice
- Consider managed lanes
- 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, Washington
- Maintain an acceptable level of access to freight intermodal facilities and to the Northeast Portland Highway
- Address freight rail network needs
- Develop actions to reduce through-traffic on MLK and Interstate to allow main street redevelopment
- Inform and coordinate with the Regional Transportation Council (RTC) and the Bi-State Coordination Committee prior to JPACT and Metro Council consideration of projects that have bi-state significance

5.3.2.2 Sunrise Project and Sunrise Jobs and Transportation Act Project (Mobility Corridor #12 -Clackamas to Rock Creek Junction and Mobility Corridor #13 – Rock Creek Junction to US 26)

In July 2009, the Sunrise Project’s Policy Review Committee (PRC) selected a Preferred Alternative, shown in Figure 5.2. 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).

The Federal Highway Administration (FHWA), the Oregon Department of Transportation (ODOT), and Clackamas County have completed the Final Environmental Impact Statement (FEIS) for the Sunrise Project. On February 22, 2011, the FHA signed a Record of Decision (ROD) that approves the \$1.4 billion Sunrise Corridor Preferred Alternative. The Sunrise Project mainline is an approximately five-mile, east-west oriented, limited-access highway from I-205 to the Rock Creek Junction in Clackamas County.

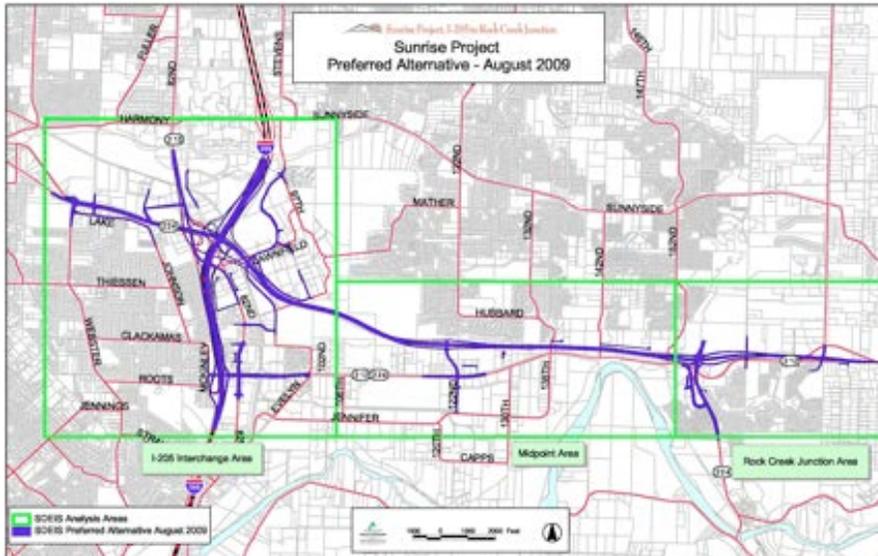
A detailed description of the Sunrise Project Preferred Alternative is included in the Appendix. The RTP includes some phases of the projects in the preferred alternative and updates **Figures 2.5 and 2.7**.

The purpose of the Sunrise Jobs and Transportation Act (JTA) Project is to address congestion and safety problems in the OR 212/224 corridor by building a new 2.5 mile road from I-205 to 122nd Avenue (as part of the larger Sunrise Project mainline) and improving local roadway connections to the Lawnfield Industrial District. The Oregon Legislature approved \$100million through the Jobs and Transportation Act (JTA) to fund this first phase of the larger Sunrise Corridor Preferred Alternative.

Construction for the JTA phase of the Sunrise Project will be completed in the summer of 2016 and includes the following elements:

- A new two-lane highway (one lane each direction) from the Milwaukie Expressway (OR 224) at I-205 to SE 122nd Avenue at OR 212/224.
- A new I-205 overcrossing to connect 82nd Drive and 82nd Avenue.
- Tolbert Road overcrossing of the UPRR from Minuteman Way to 82nd Drive
- Reconstruction of Lawnfield Road from 97th to 98th to reduce grades
- Extension of Minuteman Way from Mather Road to Lawnfield Road
- Bicycle and pedestrian improvements in the area including two separated shared use paths from I-205 to Lawnfield Road and from Mather Road to 122nd Avenue.
- Intersection improvements at 122nd Avenue and OR 212/224.
- Intersection improvements at 162nd Avenue and OR 212.

Figure 5.2
Sunrise Project Preferred Alternative



5.3.2.3 I-5/99W Connector Study Recommendations and Implementation (Tigard to Sherwood - Mobility Corridor #11)

Between 2006 and 2009, the I-5/99W Corridor Study identified a number of improvements in this corridor to support access to 2040 land uses, address existing deficiencies and serve increased travel demand. One primary function of this route is to connect the Washington Square Regional Center to the cities of Tigard, Tualatin and Sherwood, and provide access to the Tualatin/Sherwood Industrial Area and Tualatin National Wildlife Refuge. This corridor also connects Wilsonville’s industrial land with markets to the north and south via I-5. This corridor provides shortline heavy rail access to the region from the Willamette Valley and connects agricultural areas to the interstate highway system in this region. This mobility corridor also serves as a secondary gateway to the region, connecting communities in Yamhill County and the Central Oregon Coast to the Portland metropolitan region.

The study found the corridor will rely on transportation connections through north Wilsonville. These connections impact the existing system and I-5 interchanges in Wilsonville for which capacity is critical to serve the corridor, local mobility, and the region.

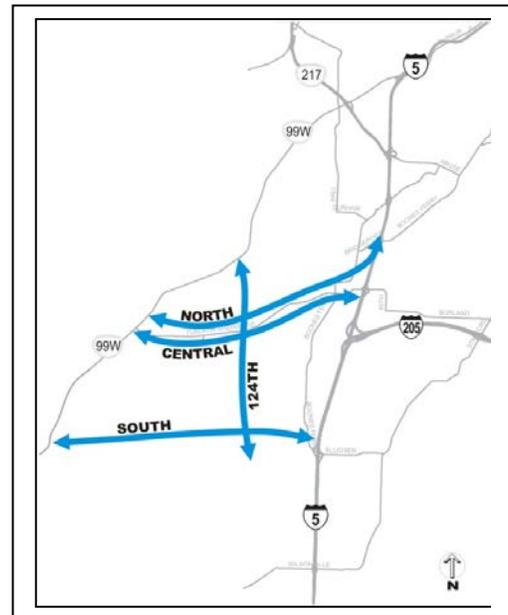
In February 2009, the I-5/99W Connector Project Steering Committee (PSC) was unable at the end of its process to reach a unanimous recommendation for the I-5/99W Corridor Study as required by the PSC Partnership Agreement in order to forward a Recommended Corridor Alternative to the RTP. However, there was unanimous agreement on some aspects of the Connector that could be reflected in the RTP:

- Identify projects for inclusion in the RTP with minimal extra conditions, particularly the extension of SW 124th from SW Tualatin Sherwood Road to the I-5/North Wilsonville Interchange,

- Identify conditions to be met before a new Southern Arterial is implemented to ensure integration with surrounding land use and transportation plans, particularly an I-5 South Corridor Study,
- Determine an incremental phasing plan to ensure the projects with the most benefit that can reasonably be built within the 20-year horizon be included in the RTP Financially Constrained list. 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.

The recommendations for the I-5/99W Corridor Study proposed for inclusion in the RTP are based upon the conclusions reached by the Project Steering Committee (PSC) as follows:

- The 3 options consisting of a new limited access expressway from I-5 to OR 99W (2 alignments north of Sherwood and 1 alignment south of Sherwood) were unacceptable due to high impact on the natural and built environment, the need for extensive improvements to I-5, and the high cost and concern about the potential for induced growth to Yamhill County.
- The option focused on expanding Tualatin-Sherwood Road was unacceptable due to the very large size it would need to be and the resulting impacts on the Tualatin and Sherwood Town Centers.
- The recommended alternative (then referred to as “Alternative 7”) is based upon the principle that it is preferable to spread the traffic across three smaller arterials rather than one large expressway. The analysis concluded this approach could effectively serve the traffic demand, would provide better service to urban land uses in the Tualatin/Sherwood area, especially industrial lands, and could be built incrementally based upon need to serve growth and revenue availability. The overall concept is structured around a Northern, Central and Southern arterial providing east-west access between OR 99W and I-5 with an extension of SW 124th providing north-south connectivity (see diagram).



The I-5/99W Corridor Study recommended a variety of transportation investments to improve the area's road, transit, bicycle, pedestrian and trail networks and to distribute traffic across a network of three arterials so that no single route would function as a defacto through "connector." The RTP places additional conditions on the "Three Arterial" recommendation and implementation.

The City of Wilsonville raised objections to the Southern Arterial component throughout this process. The City is very concerned about growing I-5 congestion and the City's dependence on

effective access to the two I-5 interchanges. The City is concerned that the Southern Arterial connecting into the I-5/North Wilsonville interchange will significantly increase traffic and impair that access.

When the PSC considered the recommendation, the Clackamas County Commission representative introduced a series of amendments to the conditions to ensure that the Southern Arterial would be examined in greater detail to:

- evaluate alignment options and their environmental impact;
- integrate the proposal with the concept plan and transportation system plan for the newly expanded UGB area and any new Urban Reserves that are designated in the area;
- address any requirements that may result from adoption of an exception to Goal 14 (if needed) for an urban facility outside the UGB;
- integrate the proposal with a Tigard to Wilsonville Corridor Study (Corridor #3) to ensure these east-west arterials and I-5 itself could effectively function together; and
- determine the most appropriate approach to connecting the Southern Arterial to I-5, including options for an interchange at the I-5/North Wilsonville interchange or consideration of extending the Southern Arterial across I-5 to Stafford Road east of I-5, thereby providing better access to I-205.

The Project Steering Committee acknowledged many significant issues to be addressed before the Southern Arterial can proceed to construction, and approved eight conditions unanimously. The detailed conditions can be found in the Appendix.

Typically, there is a need to transition from a “planning” level of detail to a “project” level of detail, which involves better definition of alignments and designs and consideration of impacts on the natural and built environment and how to mitigate those impacts. The conditions proposed by the Project Steering Committee add the need to integrate the recommendation with land use planning for recent UGB expansion areas and potential Urban Reserves (then still to be defined) and emphasize the importance of integrating the overall system for the area with an I-5 corridor strategy.

Since the completion of the I-5/99W Connector Study, Washington County led the Basalt Creek Transportation Refinement Plan along with Metro, ODOT, and the Cities of Tualatin and Wilsonville. The purpose of this refinement plan was to determine the major transportation system to serve the Basalt Creek Planning Area. The plan sets the stage for land use concept planning and comprehensive plan development for the Basalt Creek area. The need to plan for the future transportation system was driven by future growth in the Basalt Creek area itself as well as almost 1000 acres of future industrial development targeted for surrounding areas.

This plan refined the recommendations from the I-5/99W Connector Study and the Regional Transportation Plan, generally for the area between a future 124th Avenue on the west, I-5 on the east, Tualatin-Sherwood Road on the north, and the I-5/Elligsen interchange area on the south.

As a result of this planning effort, the partners unanimously agreed to a set of roadway improvements including the extension of SW 124th Avenue, a new east-west roadway between that extension and Boones Ferry Road, a new I-5 overcrossing to the east, a new overcrossing of I-5 at Day Road, and several upgrades to the existing roadway network between Tualatin and Wilsonville.

Based on these efforts the RTP places additional conditions on the “Three Arterial” recommendation and implementation, as reflected in the phasing strategy outlined below. In endorsing the 2014 RTP project list, the Washington County Coordinating Committee acknowledged that the conditions from the existing RTP regarding the I-5/99W connector still apply (January 7, 2014 Washington County letter).

Short-term phasing strategy (2008-2017)

- In 2009, the section of the Northern Arterial between Lower Boones Ferry Road and Tualatin/Herman Road over the Tualatin River and through Tualatin Community Park was removed from the RTP due to a lack of community support. Since then, Tualatin identified a series of projects to improve mobility and accessibility in northern Tualatin. All of those projects are included in this RTP and listed in this phasing strategy.
- Study impacts on the Southern Arterial due to the Northern Arterial removal and Tualatin-Sherwood mobility limitations; include impacts to the I-5 interchanges in Wilsonville and the connecting transportation system.
- Identify transit improvements, specifically east-west connections between Tualatin and Sherwood, through TriMet’s Service Enhancement Plan.
- Upgrade existing streets to two lanes with turn lanes, traffic signal timing, bike lanes and sidewalks, including Herman Road, and 95th Avenue/Boones Ferry Road (RTP Projects #10715, #10718, #11488).
- 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. (RTP Project #10872).
- Conduct more detailed project planning from Tualatin-Sherwood Road to I-5 / North Wilsonville interchange to support its operation as an industrial access route and begin construction of a two-lane extension of SW 124th Avenue (RTP Project #10736: 124th Avenue). The planning work will further consider potential impacts on the existing development and the natural environment. It will also include more detailed definition of the design and alignment to mitigate impacts and to integrate with land use and transportation plans for the area.
- Improve intersection at Tonquin Road and Grahams Ferry Road (RTP Project # 11438).
- Continue ITS improvements to Tualatin-Sherwood Road (RTP Project #11446).
- Conduct more detailed planning to meet all of the conditions (shown in Appendix) placed on the new Southern Arterial project, including:

1. Conduct the I-5 South Corridor Refinement Plan (includes I-5 from Portland to Tigard, I-5 from Tigard through Wilsonville including the I-5 Boone Bridge, and OR 99W from I-5 through Tigard and Sherwood) and land use planning for areas recently added to the urban growth boundary and any land designated as urban reserves. These planning efforts will include opportunities for further public participation and input.
2. Conduct more detailed project planning on potential Southern Arterial impacts on existing development and the natural environment to develop more detailed definition of the design and alignment to mitigate impacts and coordinate with land use and transportation plans for the area, 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 11, and resolution of access between I-5 and the 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 land use goal exception for the southern arterial. This planning effort will include opportunities for further public participation and input.

In the recommended alternative, Tualatin-Sherwood Road is sized in the recommended alternative based upon the expectation there will be a Southern Arterial and will fail due to insufficient capacity without a Southern Arterial and further expansion is incompatible with the plans for the Tualatin and Sherwood Town Centers. If the Southern Arterial is dropped through future studies, there is a major unresolved issue addressing east-west travel through this area. The RTP will need to be amended to direct the Corridor Refinement Plan effort for corridors #2, 3 and 11 to address this need. The need would go unaddressed until completion of that corridor refinement plan, or the next RTP update.

Medium-term phasing strategy (2018-2024)

- Widen existing streets to four lanes with turn lanes, traffic signal timing, bike lanes and sidewalks, including Tualatin-Sherwood Road, Roy Rogers Road and Boones Ferry Road (RTP Projects #10568, #11487, #10708).
- Widen and improve sidewalks and bike lanes on Day Road between Grahams Ferry Road and Boones Ferry Road; improve structural integrity for increased freight traffic (RTP Project # 11243).

Longer-term phasing strategy (2025-2032)

- Widen Boones Ferry Road between Lower Boones Ferry Road and Martinazzi Avenue to add capacity for vehicles as well as bikes and pedestrians across the Tualatin River (RTP Project #10712).
- Improve the roadway network in north Tualatin, including improvements to Cipole and Teton (RTP Projects #10717 and #10738).

- Realign and widen Tonquin Road between Grahams Ferry Road and Oregon Street (RTP Project # 10590).
- Widen 124th Avenue from 2-lanes to 5-lanes with bike lanes and sidewalks between Tualatin-Sherwood Road and Grahams Ferry Road (RTP Project # 11469).
- Construct a new 5-lane east-west arterial with bike lanes and sidewalks between Grahams Ferry Road and Boones Ferry Road (RTP Project # 11470).
- Construct I-5 ramp improvements at the Boones Ferry / Elligsen Road (RTP Project # 11489).
- Widen Boones Ferry Road to 5-lanes with bike lanes and sidewalks between the new east-west arterial and Day Road (RTP Project #11487)

Longer-term phasing strategy (2033-2040)

- Purchase right-of-way for the Southern Arterial (RTP Project #10598).
- Extend new 4-lane Day Road overcrossing over I-5 from Boones Ferry Road to Elligsen Road (RTP Project #11490).
- Extend new 4-lane overcrossing over I-5 from Boones Ferry Road to 65th and Stafford Road (RTP Project # 11436).

Construct the Southern Arterial between Highway 99W and 124th Avenue when all the project conditions have been met (RTP Project # 11339 and 11340 not in the Federal Fiscally Constrained Project List).

5.3.2.4 Gresham/Fairview/Wood Village/Troutdale to Damascus (Mobility Corridor #15)

The East Metro Connections Plan (EMCP) is a “mobility corridor refinement” plan which completed recommendations in June 2012. A mobility corridor refinement plan aims to better integrate land use, community and economic development, environmental and transportation goals when identifying projects along major transportation corridors. EMCP project partners include the cities of Fairview, Gresham, Troutdale and Wood Village, Multnomah County, ODOT, and Metro. Additional participating entities include Damascus, Portland, Clackamas County, the Port of Portland and TriMet.

This two year effort has analyzed present and future transportation needs and opportunities and has prioritized solutions/projects for project implementation.

Transportation Projects as Investment Packages

Proposed bundles of projects or “investment packages” have been grouped by the following three primary themes:

1. **North/south connections** - Proposed projects improve the arterial road network connecting I-84 and US 26 and provide for regional mobility needs as well as access to key

destinations in the plan area. Projects developed on designated freight routes will be developed to accommodate freight, and be designed accordingly.

2. **Downtowns and employment areas** - Proposed projects improve way-finding, mobility and access to downtowns and jobs.
3. **Regional mobility** - Proposed projects capitalize on previous investments by making the existing system smarter and more efficient through changes to signal timing, signage, enhanced transit service, and multimodal connections. Consistent with the Regional High Capacity System Plan, EMCP recommends advancing an alternative analysis for the Powell/Division transit corridor. EMCP also recommends the designation of a new regional multimodal connection between the Sandy River and the Springwater Corridor Trail.

The following summarizes the intent and overview of types of projects for each of the corridor segments based on the primary theme that they support.

1. North/south connections

181st/182nd safety corridor: 181st/182nd is an important community street. Projects will provide safety improvements in known areas of high crash rates and improve safe routes to schools in the Centennial School District. Consistent with transit analysis, this includes a recommendation to improve transit consisting of frequent service between Sandy and Powell boulevards and the elimination of the need to transfer between bus routes along this road.

182nd/190th connections to Clackamas County: Pleasant Valley is an important area for future residential and commercial development. Additionally, future population and employment growth in Clackamas County, including Happy Valley and Damascus, means that road connections to the south are important connections. Leveraging Clackamas County's 172nd/190th Corridor Project, targeted improvements to the road network in Pleasant Valley along Highland/190th will create opportunity for economic and residential development.

Eastman/223rd connections: Projects address future traffic growth with targeted north-south roadway capacity investments along 223rd/Eastman, including at Stark/223rd and Eastman and Powell. This area connects to existing industrial employment sites, including the Port of Portland's Gresham Vista (former LSI site) site. Projects will also address future needs on Glisan between 201st and Fairview Parkway. For example, projects to better coordinate the signal timing at intersections along Eastman/223rd will provide needed capacity improvements.

242nd connections to Clackamas County: Hogan/242nd is an important north/south connection from employment hubs in the Columbia Cascade River District, north central Gresham industrial, the Gresham Regional Center, and Springwater to Clackamas County and central Oregon. Projects along this arterial address future growth with additional roadway capacity, particularly south of Powell, along with opportunities for access and safety enhancements to the existing conditions. This includes intersection improvements at Glisan and Stark, including signal coordination.

Southeast gateway: The triangle of US 26, Burnside and Powell is an important gateway for the City of Gresham, east Multnomah County and the Portland Metropolitan region, providing an essential connection north to I-84, west to I-205, and south and east to Mt. Hood and central Oregon. Projects address several identified needs at the gateway, including

242nd/Hogan/Burnside. Projects address future capacity needs, safety (this area is one of the highest crash areas), way-finding and needed pedestrian improvements (there are sidewalk gaps and challenging crossings in this area, particularly along US 26). Way-finding treatments should be integrated with the adopted Mt Hood Scenic Byway route to bring people into the Gresham Regional Center, a vital commercial area.

257th safety, walking and biking connection: Projects create safe and attractive pedestrian crossings along 257th, particularly along the stretch between Reynolds High School and Mt Hood Community College. They will complete the sidewalk improvements along Stark adjacent to the college.

2. Downtowns and employment areas

Rockwood/181st: Projects include targeted bicycle and pedestrian improvements on 181st between I-84 and Stark, and Stark between 181st and Burnside to improve access to the important commercial areas in Rockwood. Projects improve safety and activate the arterial for businesses and walking.

Gresham Vista Business Park: The Port of Portland's November 2011 purchase of one of the area's largest shovel-ready employment sites is an immediate opportunity to bring jobs and revenue to East Metro communities. Projects increase mobility along the north/south and east/west arterials and improve access to industrial employment land.

Downtown Gresham/Civic: There are important public investments to support the vision of Downtown Gresham. Projects include boulevard treatments along all of Burnside and redevelopment opportunities along this important street. Projects better connect Main City Park, the Springwater Corridor Trail and Johnson Creek to Downtown Gresham. Sidewalk and streetscape projects in Downtown improve walking, window shopping and branding of Downtown Gresham as a unique place. Consider an urban renewal area for Downtown.

Pleasant Valley: Projects develop the necessary public infrastructure for development of Pleasant Valley town center consistent with the Pleasant Valley Community Plan.

Catalyst for Springwater District: Projects help develop the necessary public infrastructure for private investment and jobs in this regionally significant employment area. Projects include a new interchange on US 26 and an extension of Rugg Road to connect US 26 and Hogan, as well as collector street improvements to provide needed access for future jobs and employment.

Halsey main street implementation: Halsey is an important main street that connects the downtowns of Fairview, Wood Village and Troutdale. Projects implement features of the Halsey Street Concept Design Plan (2005), a joint effort of Fairview, Wood Village, Troutdale, and Multnomah County. Projects include realizing Halsey as a 2-lane road with median/turn lane, full bike lanes, sidewalks and pedestrian crossings. Projects support the downtown visions for the three cities and help attract commercial development.

Downtown Troutdale: Projects support future development of the urban renewal area in Downtown Troutdale, creating local road connections to the urban renewal area site and extending the regional trail system along the Sandy River from Troutdale Reynolds Industrial Park into Downtown Troutdale. Projects allow for future private investment and job growth in Downtown.

Downtown Fairview and Wood Village: Projects on Fairview Avenue between I-84 and Arata Road improve access, provide needed safety and multi-modal improvements. Projects also improve connections between Arata Road and Halsey.

3. Regional mobility

Sandy River to Springwater multi-modal connection: Projects provide multi-modal connections from Downtown Troutdale to Mt Hood Community College and the Springwater Corridor Trail. Projects connect neighborhoods to commercial areas and Mt Hood Community College. This area is one of the most significant gaps in the 40-mile loop regional trail network, and connections will encourage tourism to areas along the Springwater Corridor Trail and Sandy River.

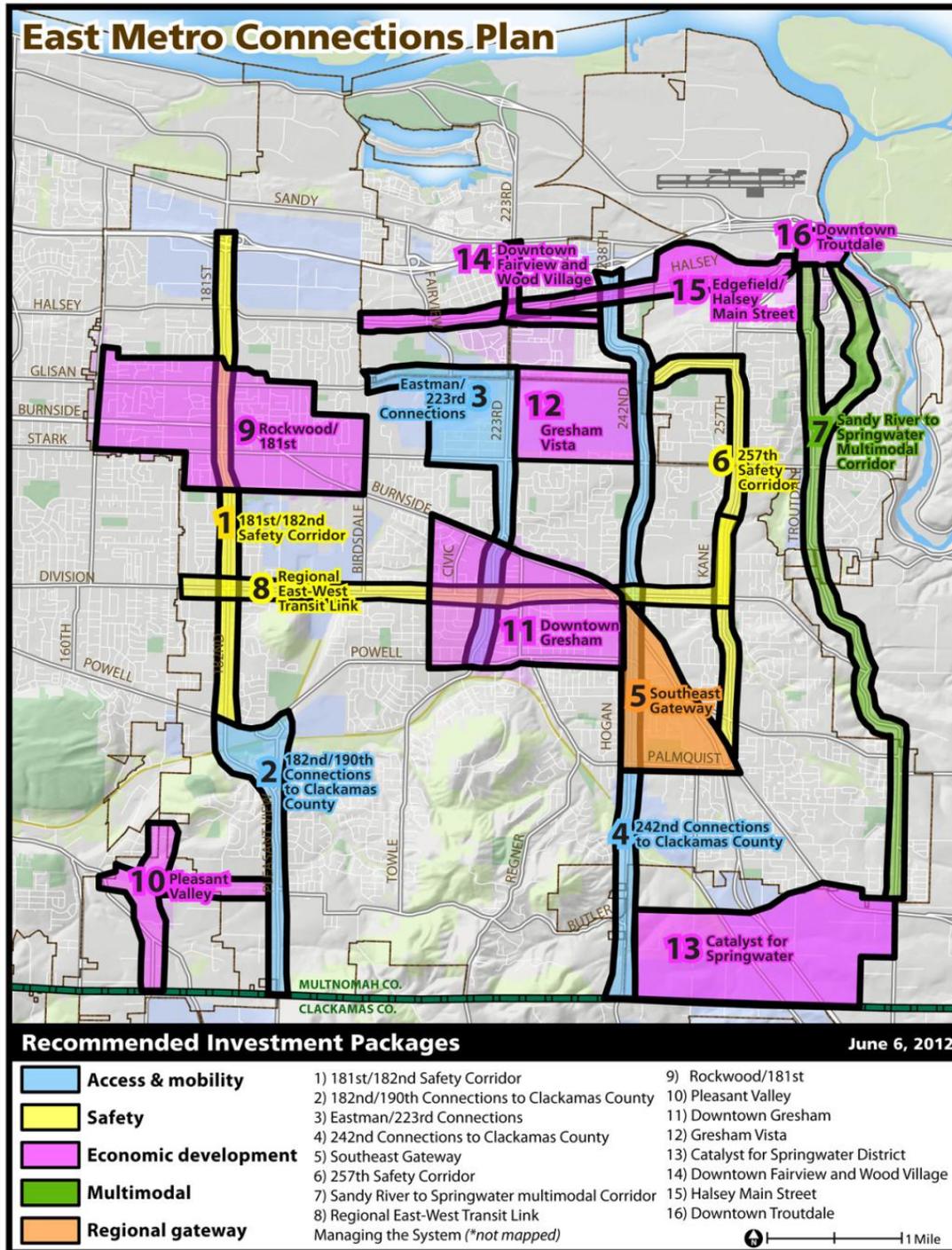
Managing the existing system (Transportation Systems Management and Operations/ Intelligent Transportation System Tools): There are opportunities to improve the current roadway network and enhance the performance of the transportation system using technology that coordinates signal timing and provides “real-time” information. Projects address congestion at intersections through the coordination of signal timing. Improvements to adaptive signal timing along 181st/182nd, Burnside, and Kane Drive. Other projects include signage, messaging and other techniques that improve way-finding and traffic flow. Signal coordination projects can provide as much as a 10% capacity increase to the roadway. Other projects include signage, messaging and other techniques that improve way-finding and traffic flow. Near-term investments include better signage and messaging on US 26 and coordinated signal improvements along all north-south arterials.

Regional east-west transit link: Projects improve east-west transit that connects Mt Hood Community College, Downtown Gresham, Portland and South Waterfront’s Innovation Quadrant. Division is one of the top transit corridors for ridership in the region. Projects include enhanced bus/bus rapid transit and safety, and pedestrian and bike improvements (sidewalks, medians, crossings, access management) to make Division a great street for transit and walking. Enhancements along this corridor create the potential for even greater ridership demand. Enhanced bus service can provide additional service to Downtown Gresham and the Civic Neighborhood, a vital commercial area. Gresham will continue street improvements for sidewalks and other features to make walking and access to transit easier. The phase I recommendation is to pursue a transit alternative analysis along the Powell/Division Corridor.

Recommended RTP system map changes:

The project recommended changes to RTP system maps, including Arterial & Throughways, Freight and System Design. These changes were incorporated into the RTP through amendments adopted in June 2013.

Figure 5.3
 East Metro Connections Recommended Investments (as Recommended by the project's Steering Committee)



5.4 CONGESTION MANAGEMENT PROCESS

The 2007 SAFETEA-LU federal transportation legislation updated requirement for a Congestion Management Process (CMP) for metropolitan planning organizations (MPOs) in Transportation Management Areas (TMAs – urban areas with over 200,000 in population), placing a greater emphasis on management and operations and enhancing the linkage between the CMP and the long-range regional transportation plan (RTP) through an objectives driven, performance-based approach. MAP-21³ retains the CMP requirement while enhancing requirements for congestion and reliability monitoring and reporting.

A CMP is a systematic approach for managing congestion that provides information on transportation system performance. It recommends a range of strategies to minimize congestion and enhance the mobility of people and goods. These multimodal strategies include, but are not limited to, operational improvements, travel demand management, policy approaches, and additions to capacity. The region’s CMP will continue to advance the goals of the 2014 RTP and strengthen the connection between the RTP and the Metropolitan Transportation Improvement Program (MTIP). A “Roadmap” of the region’s CMP can be found in the Appendix.

The goal of the CMP is to provide for the safe and effective management and operation of new and existing transportation facilities through the use of demand reduction and operational management strategies. The CMP seeks to address current and future congestion challenges through an eight-step process. **Table 5.2** lists the CMP steps and how the region’s planning and investment activities implement the CMP.

Table 5.2
Congestion Management Process (CMP) Steps and associated RTP / MTIP Activities

| CMP Steps | RTP/MTIP Activities |
|---|---|
| Step 1: Develop Congestion Management Objectives | 2014 RTP (Chapter 2), Regional Transportation System Management and Operations Plan, and Regional Travel Options Strategic Plan |
| Step 2: Identify Area of Application | 2014 RTP and Mobility Corridor Atlas |
| Step 3: Define System or Network of Interest | 2014 RTP and Mobility Corridor Atlas |
| Step 4: Develop Performance Measures | 2014 RTP Performance Targets (Chapter 2) and Performance Evaluation and Monitoring (Chapter 4) |
| Step 5: Institute System Performance Monitoring Plan | 2014 RTP and Mobility Corridor Atlas |
| Step 6: Identify and Evaluate Strategies | 2014 RTP and Mobility Corridor Atlas |
| Step 7: Implement Selected Strategies and Manage Transportation System; and | MTIP |
| Step 8: Monitor Strategy Effectiveness ⁴ | Mobility Corridor Atlas |

³ The Moving Ahead for Progress in the 21st Century Act (MAP-21) is a funding and authorization bill passed in 2012 which governs United States federal surface transportation spending.

⁴ USDOT, “An Interim Guidebook on the Congestion Management Process in Metropolitan Transportation Planning.” Pg. 1-1. Feb. 2008.

The RTP and MTIP are the region's framework for defining and advancing CMP implementation. The CMP is also implemented by local jurisdictions as required by the Regional Transportation Functional Plan, section 3.08.220. The RTP mobility corridors frame the area of interest and network of interest. The Mobility Corridor Atlas identifies congested areas and identifies 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 provides a framework for data collection and plan monitoring for system performance with the Mobility Corridor Atlas as the reporting vehicle. The data is used to help assess various strategies for managing congestion by the region's partner agencies 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.

5.5 METROPOLITAN TRANSPORTATION IMPROVEMENT PROGRAM

An important tool for implementing the RTP is the Metropolitan Transportation Improvement Program (MTIP). The MTIP schedules and identifies funding sources for projects of regional significance to be built during a four-year period. Federal law requires that all projects using federal funds be included in the MTIP. This section describes the role of the MTIP in regional planning and its relationship to the RTP.

5.5.1 The Role of the MTIP in Regional Planning

In developing the MTIP, the region gives top priority to strategic transportation investments that leverage and reinforce the urban form outlined in section 2.2, of this plan. The MTIP is approved by JPACT, the Metro Council and the Governor of the State of Oregon. The MTIP is then incorporated, without change, into the State TIP (STIP), which integrates regional and statewide improvement plans. The MTIP is updated every two years.

The TIP is fiscally constrained and includes only those projects for which resources are reasonably available. Projects are grouped by funding category, with project costs not to exceed expected revenue sources. The MTIP financial plan is not comprehensive; it covers only federal funds for capital improvements, and does not include operations, maintenance and preservation or local funds for capital costs of local streets and facilities.

It is the responsibility of the cities, counties, ODOT, TriMet and the Port of Portland to implement necessary improvements to the regional system, as well as those needed for local travel. These agencies are eligible to receive federal funds allocated through the MTIP process for projects included in the RTP. The TIP is prepared by Metro in consultation with these agencies. Inter-regional coordination throughout the planning and programming process will help to ensure that improvement projects are consistent with regional objectives and with each other.

Projects included in the MTIP must also be included in the RTP financially constrained system. The revenue assumptions used to develop the RTP financially constrained system are defined in Chapter 3. Projects included in the RTP financially constrained system are identified in the Appendix. However, while the financially constrained system should provide the basis for most MTIP funding decisions, other projects from the RTP may also be selected for funding.

In the event that such projects are proposed for funding, the RTP financially constrained system would need to be amended to include the project or projects. To amend projects into the financially constrained system, continued financial constraint must be demonstrated by identifying additional revenues or removal of other projects from the financially constrained system. Except in the case of exempt projects (as defined by the federal and state conformity rules), such actions also require an air quality conformity determination.

5.5.2 Developing the MTIP

The MTIP development process is initiated by Metro with an update to the MTIP policies. The policies direct how the Joint Policy Advisory Committee on Transportation (JPACT) and the Metro Council intend to coordinate the funding allocation processes administered by Metro for regional flexible funds (RFF) and for funds administered by the ODOT and public transit agencies Tri-Met and SMART. The policy document also describes how the funding allocation processes address federal regulations for the allocation of federal transportation funds.

Applications and proposals for funding from these funds must be included in the financially constrained Regional Transportation Plan. JPACT and the Metro Council consider the MTIP for final approval. Upon adoption by the Council, the MTIP is submitted to the Governor of Oregon for approval as part of the State Transportation Improvement Plan (STIP).

5.6 PROCESS FOR AMENDING THE RTP

5.6.1 RTP Policy, System Map and Compliance Criteria Amendments

When Metro amends policies or system maps in Chapter 2 of this plan, it will evaluate and adopt findings regarding consistency with the Regional Framework Plan. Decisions on amendments made at this level are land-use decisions for need, mode, corridor, general scope and function of a proposed project. Subsequent land-use decisions on final project design and impact mitigation will be needed prior to construction. Such analysis to evaluate impacts could lead to a “no-build” decision where a proposed project is not recommended for implementation, and would require reconsideration of the proposed project or system improvements. As such, amendments at this level shall be reviewed through the post-acknowledgement process. However, a decision on an amendment to the Regional Transportation Plan should not foreclose or appear to foreclose full and fair consideration of all relevant statewide planning goal issues at such time that specific projects and programs are adopted by a local jurisdiction.

It is Metro's responsibility to adopt findings based on project need, mode, corridor, general scope and function of projects proposed in the Regional Transportation Plan. The affected jurisdiction is

responsible for preparing the specific local plan amendments and findings related to specific location, project design and impact mitigation and for scheduling them for hearing before the governing body in time for action by that body by the time required.

5.6.2 RTP Project Amendments

The RTP establishes a comprehensive policy direction for the regional transportation system and recommends a balanced program of transportation investments to implement that policy direction. However, the recommended investments do not solve all transportation problems and are not intended to be the definitive capital improvement program on the local transportation system for the next 20 years.

Rather, the RTP identifies the projects, programs or further refinement studies required to adequately meet regional transportation system needs during the planning period. Local conditions will be addressed through city and county TSPs, and will require additional analysis and improvements to provide an adequate transportation system. This chapter anticipates such refinements, particularly given the degree to which this RTP has been updated from previous plans. Similarly, refinements to the RTP may result from ongoing corridor refinement plans, NEPA studies or other area studies. The following processes may be used to update the RTP to include such changes:

1. Major amendments: These are amendments that come from NEPA processes, Corridor Refinement Plans or other studies and involve additions or deletions of projects or a significant change in scope of the project location or function. As the findings for need for an amendment are produced, they will be recommended by a resolution of JPACT and the Metro Council. These amendments must be incorporated into the RTP, consistent with the Public Engagement Guide (adopted in November 2013) and Federal and State Air Quality Conformity Procedures.⁵
2. Other amendments resulting from local TSPs: new roadway, transit, bikeway, pedestrian, freight and demand management projects necessary to meet the objectives of the RTP shall be accompanied by findings describing the consideration of transportation strategies as described in Metro Code section 3.08.220.A, and a description of the public process used to define the project.

The amount of information required to demonstrate consistency with the RTP shall be commensurate with the scope of the project. Such additions will be amended into the RTP as part of the project update process described in this section. Operations, maintenance and safety improvements are deemed consistent with the policy intent of the RTP if (a) they are needed to serve the travel demand associated with Metro's adopted population and employment forecasts, and (b) they are consistent with affected jurisdictional plans.

3. Amendments resulting from updates to the Regional Framework Plan or related functional plans.

⁵ State Conformity rule 340-252-0060 describes required consultations on air-quality determinations, including required public involvement.

5.7 IMPLEMENTATION ACTIVITIES TO BE ADDRESSED POST-RTP ADOPTION

5.7.1. Local Plan Implementation

Local plans and projects will be updated to implement the outcomes-based RTP and Regional Transportation Functional Plan (RTFP). The RTFP directs how city and county plans will implement the new RTP through their respective comprehensive plans, local transportation system plans (TSPs) and other land use regulations. All of the actions included in the RTFP will help the region begin proactively addressing climate change, improve mobility and support other desired outcomes.

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

5.7.2 Alternative Mobility Standards

The RTP establishes an outcomes-based framework and includes new policies, tools and actions to guide future planning and investment decisions. To successfully implement this approach to supporting the region's efforts to create jobs, sustain economic prosperity, use land efficiently and address climate change, the region needs new tools to evaluate and diagnose our transportation system. Traditional volume-to-capacity based mobility standards are still useful for managing traffic on major throughways, for examples, but new tools will be needed to inform the outcomes-based RTP:

- **The 2040 Growth Concept vision for land use and transportation must continue to evolve through community planning to achieve desired regional outcomes; yet institutional and fiscal barriers exist.** Jurisdictions considering plan amendment proposals for compact development in regional and town centers that exceed current height or density limits are sometimes constrained by traditional volume-to-capacity standards from amending local plans or zoning codes, even when proposed developments are clearly a step toward local planning aspirations and regional outcomes.
- **Existing volume-to-capacity-focused mobility standards only tell part of the story.** A more comprehensive framework of measures is needed to define success and guide investments and actions needed to support local implementation of the 2040 Growth Concept vision.
- **Benefits and impacts of different actions are not always fully understood or accounted for.** Current analysis tools are limited in their ability to fully quantify the benefits of individual actions (e.g., timing traffic signals, providing financial incentives and civic infrastructure in

downtowns, building sidewalks and bike facilities, etc.), yet we know these actions can help improve mobility in the region and support other desired outcomes.

A series of actions to meet these analytical challenges are recommended for Metro, ODOT and other regional partners over the next few years to support the outcomes identified in the 2040 Growth Concept and meet statewide goals for compact development patterns, mobility and greenhouse gas emissions.

2010 Recommended Actions

- **Retain current mobility standards**, subject to future refinement. **(June 2010)**
- **Adopt revisions to the Regional Transportation Functional Plan (June 2010) and Urban Growth Management Functional Plan (December 2010)**

Metro's functional plans direct how local governments implement regional policies, recognizing that "one size does not fit all." Any new functional plan actions should allow for flexibility and varying local aspirations, circumstances, and readiness, but ensure regional policies are being implemented consistently through local transportation system plans (TSPs), comprehensive plans and codes. The following revisions are recommended:

Transportation Functional Plan provisions (June 2010)

- Require TSPs, mobility corridor strategies and corridor refinement plans to implement the new RTP policies for system management and operations, bike, pedestrian, transit, safety, freight, and connectivity, consistent with state and federal policies (e.g., Congestion Management Process and Oregon Highway Plan (OHP), Major Improvements Policy 1G).
- Require TSPs, mobility corridor strategies and corridor refinement plans to include transportation system management and operations (TSMO) strategies and projects, consistent with the regional TSMO plan.
- Allow local governments to identify alternative mobility standards, as set forth in OHP Policy 1F3, in collaboration with ODOT and Metro, through TSP updates, corridor refinement planning, concept planning or other planning efforts.
- Allow an automatic 30 percent trip reduction credit for plan amendments in areas that have adopted a minimum level of "best practices" actions.
- Provide a list of "best practice" actions that will automatically qualify for 30 percent trip reduction credit and other actions that could allow for additional credit if implemented.
- Clarify RTP amendment process and procedures, including public involvement and notification requirements.
- Require adoption of parking management plans in centers and along high capacity transit corridors.

Proposed Urban Growth Management Functional Plan revisions (December 2010)

- Require adoption of property-line boundaries for 2040 designated land uses through a public process.
- Require that a mix of land uses be allowed in 2040 centers, main streets and along transit corridors.
- Require limitations on new auto-oriented uses in centers.
- Require limitations on large-format retail near interchanges, unless allowed by an adopted Interchange Area Management Plan.

- **Adopt multi-modal mobility corridor strategies (June 2010)**

The strategies in the Appendix define the vision and planned system for each of the region's 24 mobility corridors. The strategies have been tailored for each corridor to support adopted land use plans and corridor function(s) and include management, operations and capital investments to support all modes of travel.

- **Adopt findings (June 2010)**

- Document the extent of congestion in the region. (Chapter 5)
- Demonstrate that the region has “done the best we can” to improve highway performance as much as feasible for purposes of meeting state requirements and OHP Policy 1F5.
- Allow the RTP State System to serve as the “reasonably likely” system of improvements and “baseline condition” for local governments to use to assess the traffic impacts of plan amendments to determine if a plan amendment has a “significant effect” on state facilities. This requires local government and TriMet concurrence.
- Document evidence for automatic 30 percent trip reduction credit for plan amendments.

- **Develop best practices checklist** for determining consistency of local plans with the RTP. (June 2010)

- **Request amendments to the Transportation Planning Rule** to define an automatic 30 percent credit for plan amendments in areas that have adopted certain “best practices” actions. (June 2010)

- **Request ODOT to engage Metro region** and other MPOs, cities, counties and interested stakeholders **in the mobility standards research** Project #716 that is underway. (June 2010)

2011-12 Recommended Actions

- **Metro and regional partners consider development of alternative mobility standards for individual corridors through refinement plans, concept planning and TSP updates.**

- **Metro updates Best Practices in Transportation System Design Toolkits/Livable Streets Handbooks** in collaboration with ODOT and other regional partners.
- **Metro and regional partners continue model enhancements and develop data collection and performance monitoring system**, to better understand the relationship between compact urban form, transportation policies and investments, greenhouse gas emissions, health outcomes and combined housing/transportation costs.
- **Metro and regional partners complete greenhouse gas scenarios planning as required by House Bills 2001 and 2186 (2009 Session) and Senate Bill 1059 (2010 Session)**, and identify implementation recommendations for the Metro region.
- **The Oregon Transportation Commission (OTC) works with Metro and other stakeholders to develop and implement a jurisdictional transfer strategy** for regional and district highways, and provide funding to upgrade facilities prior to, or in conjunction with, the transfer of ownership to local governments.
- **The OTC and the Land Conservation and Development Commission (LCDC) work with Metro and other stakeholders to conduct a comprehensive and coordinated review and update to the Transportation Planning Rule, Oregon Highway Plan and mobility standards**, and state procedures manuals and guidelines to more fully integrate the Oregon Transportation Plan policies and state greenhouse gas goals.
- **The OTC and LCDC work with Metro and other stakeholders to develop State Greenhouse Reduction Strategy and Toolkit** for local governments.

2014 Update on Recommended Actions

- In 2011 the Oregon Highway Plan was amended to allow alternative mobility standards, though the traditional volume-to-capacity standard remains the default unless an alternative is developed by a jurisdiction and adopted by the OTC. The City of Portland and Washington County are exploring alternative mobility standards under these provisions.
- In 2011 the Transportation Planning Rule (TPR) was amended to create Multimodal Mixed-Use Area (MMA) designations, an option for jurisdictions planning for increasing housing or jobs within an urban center to avoid triggering traditional volume-to-capacity traffic standards that might otherwise block desirable development. Several jurisdictions in the Metro region are exploring MMA designations for their Region 2040 centers.

5.7.3 Climate Smart Communities Scenarios Project (Regional Greenhouse Gas Scenario Planning as directed by House Bill 2001)

During the 2010 update to the Regional Transportation Plan (RTP), the reduction of greenhouse gas (GHG) emissions gained prominence at the regional, state, and national/international levels. Prior to the update, the 2007 Oregon Legislature established statewide goals to significantly reduce the state's greenhouse gas emissions to a 75 percent reduction below 1990 levels by 2050. The goals applied to all emission sectors, including energy production, buildings, solid waste, and

transportation. Federal climate legislation, with targets and commensurate planning requirements to reduce GHG emissions remained pending in Congress.

House Bill (HB) 2001⁶, adopted in 2009, directs the Oregon Department of Transportation (ODOT) and the Department of Land Conservation and Development (DLCD) to help the state’s metropolitan areas conduct land use and transportation scenario planning to reduce GHG emissions from light vehicle travel. HB 2001 also requires Metro to use scenario planning to develop and adopt a preferred scenario that accommodates planned population and job growth – to the year 2035 - and reduces GHG emissions from light vehicles. Sections 37 and 38 of House Bill 2001 are intended to ensure a statewide goal for GHG emissions is being addressed in local and regional land use and transportation plans.

House Bill 2001 also directed the Oregon Land Conservation and Development Commission (LCDC) to establish a performance target for reducing light-duty vehicle GHG emissions through rulemaking in 2011.

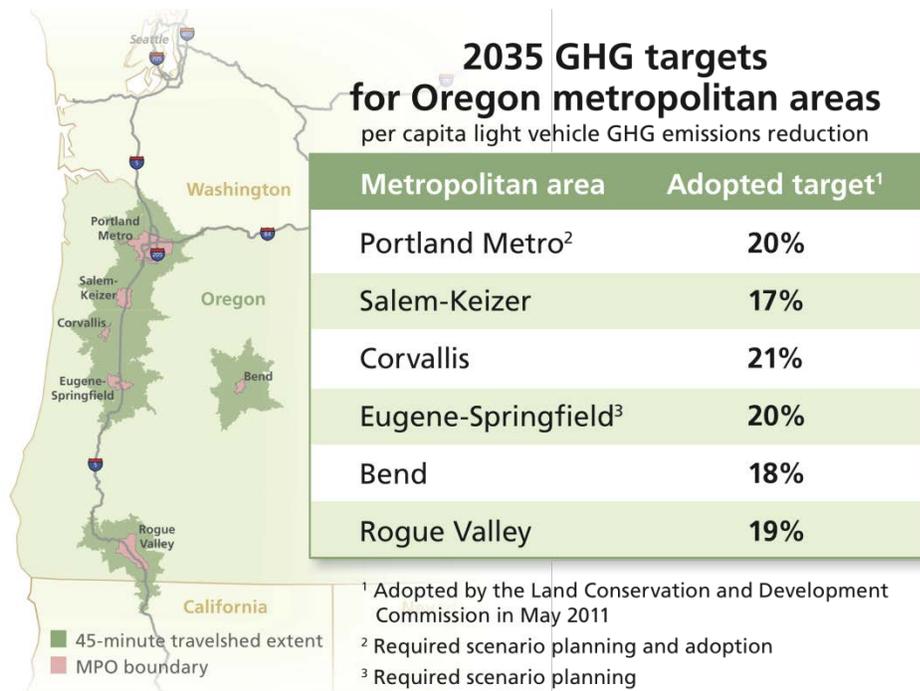
Metropolitan Scenario Planning

Metropolitan scenario planning is part of a broader effort to significantly reduce the state’s “carbon footprint.” In 2007, the Oregon Legislature adopted goals to significantly reduce the state’s greenhouse gas emissions, to 75% below 1990 levels by the year 2050. Since 2007, state agencies, led by the Oregon Global Warming Commission, have been working with communities, businesses and other stakeholders to evaluate the most promising ways the state can reduce greenhouse gas emissions.

HB 2001 directs the Portland and Eugene-Springfield metropolitan areas to conduct scenario planning aimed at reducing GHG emissions. Through scenario planning each metropolitan area is evaluating ways that changes to land use patterns and transportation, in combination with other investments and actions, can reduce greenhouse gas emissions from light vehicle travel (i.e. passenger cars and light trucks). ODOT has provided funding and technical modeling assistance for scenario planning and DLCD has provided general technical support. HB 2001 requirements for the Portland and Eugene-Springfield areas differ:

- Metro is required to develop, select and implement a preferred scenario for the Portland metropolitan region that meets state established greenhouse gas emission reduction targets.
- Eugene-Springfield is required to develop, and select a preferred scenario considering greenhouse gas emission reduction targets, but is not required to implement this scenario.

⁶ Chapter 865, Oregon Laws 2009.



In May 2011, LCDC set per capita light duty vehicle GHG emissions reduction targets for each of Oregon’s six metropolitan areas.⁷ In November 2012, after consulting with local governments, Metro, and other stakeholders, the Commission adopted administrative rules directing Metro to guide Metro’s scenario planning effort – the Climate Smart Communities Scenarios Project.⁸

The rules are designed to use scenario planning as a collaborative tool to inform the region’s already well-established process for coordination of regional planning decisions. In general terms, Metro is expected to conduct scenario planning in conjunction with an update to the regional framework plan, which sets forth the region’s long-term land use and transportation vision and guides regional planning and implementation efforts. A preferred approach will then be adopted by Metro and implemented by Metro and local governments as they update regional and local land use and transportation plans. The rules:

- Direct Metro to adopt a preferred land use and transportation scenario by December 31, 2014.
- Describe how Metro will adopt and implement a preferred scenario:
 - The preferred scenario will be adopted through an amendment to the Regional Framework Plan; and
 - The scenario in the framework plan will be implemented through amendments to the Regional Transportation Plan (RTP) and Metro’s Functional Plans, as necessary.
- List factors and considerations that Metro must address as it develops and evaluates

⁷ The Eugene-Springfield area is conducting scenario planning aimed at developing a preferred scenario by the end of 2014. The Corvallis and Bend areas are developing work plans to conduct a strategic assessment to evaluate performance of a base year (2010) and adopted plans.

⁸ The adopted rules can be accessed at:
http://arcweb.sos.state.or.us/pages/rules/oars_600/oar_660/660_044.html.

alternative scenarios.

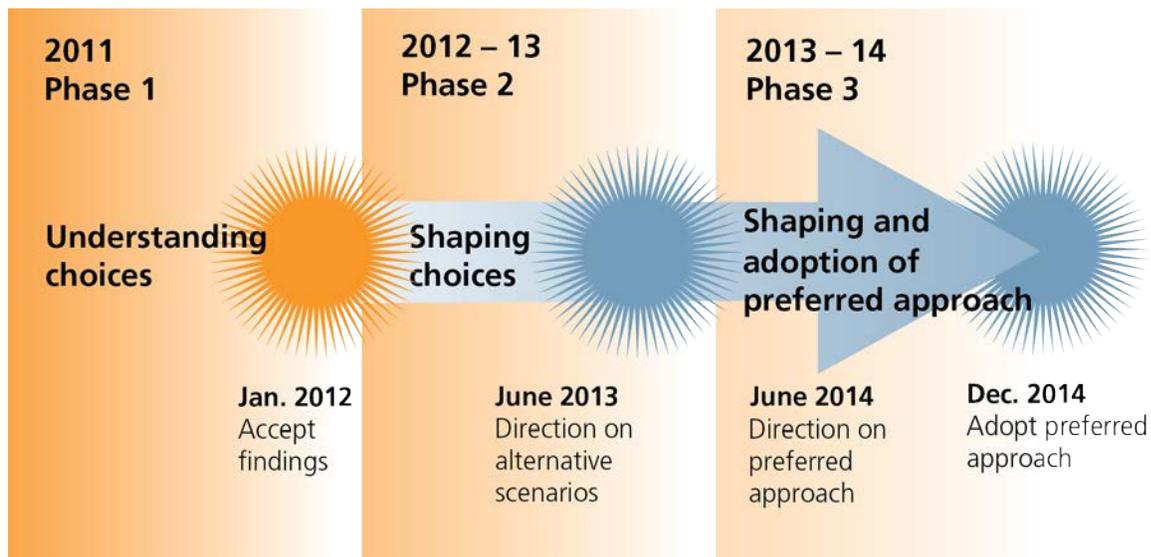
- Describe how Metro is to coordinate its work with cities, counties, state agencies and others.
- Describe how LCDC will review and approve Metro’s preferred scenario:
 - LCDC will review Metro’s Framework and Functional Plan amendments “in manner of periodic review.”
- Describe the process for implementation by cities and counties:
 - Local governments will amend their plans and ordinances as necessary to carry out Metro’s functional plan.
- Direct Metro to monitor and report progress in implementing the plan and to update the preferred scenario over time in coordination with other major plan updates.

CLIMATE SMART COMMUNITIES SCENARIOS PROJECT

Metro launched the Climate Smart Communities Scenarios (CSCS) project in January 2011 to respond to House Bill 2001.⁹ While the CSCS project is directed to address GHG emissions reduction targets for light vehicles, Metro is considering impacts on public health, the economy, the environment and social equity as part of the planning effort. The scenario planning effort has strategically engaged local, regional and state officials, community and business leaders, and interested members of the public and further developed data and tools to support GHG emissions reduction planning and implementation efforts in the region.

The project has three phases. **Figure 5.4.** identifies key milestones for each phase.

Figure 5.4 Key milestones from Climate Smart Communities Project



⁹ Project information can be accessed at: <http://www.oregonmetro.gov/climatescenarios>.

Phase 1 was completed in early 2012 and focused on understanding the region's choices. A key product of Phase 1 was the Strategy Toolbox, which reviewed the latest research on the range of potential GHG reduction strategies, their effectiveness at reducing emissions and other benefits they could bring to the region, if implemented.¹⁰ Most of the strategies identified are already being implemented to varying degrees across the region to realize community visions and other important economic, social and environmental goals. Examples include: providing schools, services and shopping near where people live, improving transit service, building new street connections, using technology to manage traffic flow, encouraging electric cars and providing safer routes for walking and biking.

Metro then evaluated a wide range of options for reducing GHG emissions by testing 144 different combinations of land use and transportation strategies (called "scenarios") to learn what it would take to meet the region's reduction target.¹¹ Phase 1 found that current regional and local plans and policies – if realized and in combination with state agency assumptions for cleaner fuels and more fuel-efficient vehicles – provide a strong foundation for meeting the state target. However, current funding is not sufficient to implement adopted local and regional plans.

Metro concluded that a key to meeting the target would be the various governmental agencies working together to develop partnerships and make strategic community investments to encourage development that both supports adopted local and regional plans and reduces GHG emissions.

Phase 2 began in January 2012 and concluded in

¹⁰ The Strategy Toolbox Report can be accessed at: [Phase 1 Strategy Toolbox Report](#).

¹¹ Phase 1 Findings can be accessed at: [Phase 1 Findings Report](#).

Principles Guiding the Climate Smart Communities Scenarios Project

In order to meet state goals and the region's broader set of desired outcomes, Metro's greenhouse gas scenario planning work has been guided by the following principles:

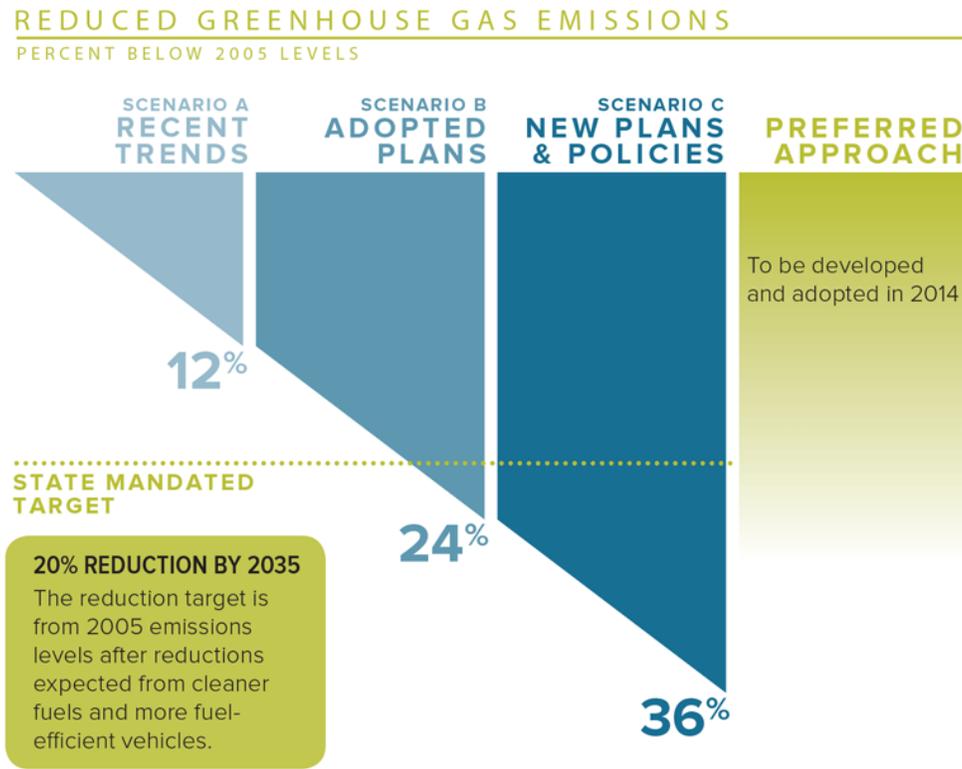
- **Regional collaboration and partnerships.** Addressing the climate change challenge will take a regional approach and partnerships in the public and private sectors, requiring meaningful policy and investment discussions with elected leaders, stakeholders and the public. It is only by working together and combining resources that we can hope to make real progress and be successful.
- **Healthy environment, healthy people and healthy economy.** Environmental and community health and economic vitality are not mutually exclusive -- with strategic planning, innovation and investment, the region can achieve these desired outcomes.
- **Continued leadership on the integration of land use and transportation.** National studies continue to show that a compact urban form coupled with expanded travel choices are key to reducing greenhouse gas emissions. Land-use and transportation policy-makers must work together to provide leadership and commit to strategies that will enhance this integration at the local, regional and state levels.
- **Build on past successes and existing efforts and innovation.** The scenarios analysis will build on the innovative policy and technical work from the *Making the Greatest Place* initiative, the 2010 Regional Transportation Plan and local efforts to implement the 2040 Growth Concept and community plans. Scenarios will be based on agreed-upon assumptions for land use and development patterns, transportation, user fees and technological advancements related to vehicle fleets and fuels.

October 2013. This phase focused on shaping and evaluating the region's choices for supporting local community visions and meeting the state GHG emissions reduction target. Metro undertook an extensive consultation process by sharing the Phase 1 findings with the local cities, counties and coordinating committees, regional advisory committees, and state commissions. In addition, Metro convened workshops with community leaders working to advance public health, social equity, environmental justice and environmental protection in the region. A series of discussion groups were held in partnership with developers and business associations across the region. More than 100 community and business leaders participated in the workshops and discussion groups. Eight case studies were produced to spotlight local government success stories related to strategies implemented to achieve their local visions that also help to reduce GHG emissions. An on-line survey helped gauge public awareness of and support for GHG reduction goals, strategies being considered to reduce emissions, and willingness to take personal action. Through these efforts, Metro concluded that its 2040 Growth Concept and the locally adopted land use and transportation plans that implement it provide the foundation for further scenario development and analysis.

The second phase began in 2012 and concluded in October 2013. In this phase, Metro created three scenarios and the criteria to be used to evaluate them based on Phase 1 research and modeling, early Phase 2 stakeholder input, and guidance from regional advisory committees. Scenario A (Recent Trends) reflects the results of implementing adopted plans to the extent possible using existing revenues. Scenario B (Adopted Plans) relies on raising additional revenues, as called for in the Regional Transportation Plan. Scenario C (New Plans and Policies) reflects the results of pursuing new policies, additional revenue and targeted investments to more fully achieve adopted and emerging plans. Both Scenario B and C require new funding and investments in infrastructure.

Locally-adopted land use and transportation plans across the region served as the foundation for each scenario. The criteria developed to evaluate and compare the scenarios addressed costs and benefits not only in terms of GHG reductions, but also across fiscal, public health, environmental, economic and social equity outcomes. The Phase 2 evaluation was conducted over the summer and fall of 2013. Initial results indicate that Scenario A would not meet the state's 2035 GHG reduction target while both Scenario B and Scenario C would exceed the target. The results are shown in **Figure 5.5**.

Figure 5.5 Greenhouse Gas Emissions Results from Phase 2 Scenarios Evaluation



The results of the Phase 2 scenario alternatives analysis demonstrate that implementation of the 2040 Growth Concept, the Regional Transportation Plan and locally-adopted zoning, land use and transportation plans and policies make the state-mandated greenhouse gas emissions reduction target achievable – if we make the investments and take the actions needed to implement those plans.

The analysis also demonstrated there are potentially significant long-term benefits that can be realized by implementing adopted plans and new policies and plans, including cleaner air, improved public health and safety, reduced congestion and delay and travel cost savings that come from driving shorter distances and more fuel efficient vehicles.

Phase 3 of the project (November 2013 to December 2014) involves the development of a preferred approach for adoption by the Metro Council and defining how best to implement it. Current efforts are focused on reporting the results of the Phase 2 scenarios evaluation to community and business leaders, local governments, state agencies and the public. Local government and public input will inform the Metro Council’s direction on what investments and actions should be included in a draft preferred approach in May 2014. This work will build on and advance existing efforts to implement the 2040 Growth Concept, the RTP, and locally-adopted land use and transportation plans.

It is expected that the preferred approach will be a hybrid of investments and actions from the

three tested scenarios in Phase 2, while relying on adopted local land use plans and visions as its foundation. The final adoption process in fall 2014 will include extensive public review and consultation with local governments and state and regional partners.

The Metro Council is scheduled to consider adoption of a preferred approach in December of 2014. The final action will be in the form of an amendment to the Regional Framework Plan. The action is also expected to describe a general course of action for achieving the GHG emissions reduction target through policies, investments and actions at the state, regional and local levels, and include recommendations to state agencies and commissions, the 2015 Legislature, and amendments to the RTP. Recommendations directed at the RTP will be addressed through the 2018 RTP update.

In early 2015, Metro will submit the preferred approach to the Land Conservation and Development Commission in the manner of a periodic review. According to OAR 660-044, following Metro's plan amendment and LCDC review and order, Metro is required to adopt functional plan amendments, if necessary, that require local cities and counties to implement the preferred approach.

5.7.4 Greater Portland Pulse

As the region increasingly shares similar desired outcomes, the need to use similar performance measures increases. To take advantage of this, Metro has been and continues to be engaged in an effort with PSU's Institute of Metropolitan Studies to deliver a coordinated regional approach to generating performance indicators that can provide a shared lens for tracking how the region is doing socially, economically and environmentally. The mission of this partnership is to use data and dialogue to encourage coordinated action. For the economy, education, health, safety, the arts, civic engagement, environment, housing and transportation, the Greater Portland Pulse data shows where the region is successful and where it's lagging. The performance indicators are also a road map for public and private action and can inform investment decisions, such as those made through the RTP and MTIP. More information on this project can be found at www.portlandpulse.org.



5.7.5 Community Investment Strategy

The attractiveness of life in our region is both a competitive advantage and a challenge. By 2040, we anticipate the population will rise dramatically, increasing the need for homes and family-wage jobs.¹² Absorbing rapid growth also strains the infrastructure systems and structures we rely on to

¹² A recent study by United Van Lines showed that Oregon is now the most popular relocation destination in the country.
http://www.oregonlive.com/today/index.ssf/2013/12/oregon_is_no_1_for_attracting.html#incart_river_default

support our communities. Our Greater Portland region is grappling with a significant funding shortfall between what we need and what we can currently afford. We need a regional strategy to fund the infrastructure that protects our quality of life and ensures that our economy remains resilient – today and for future generations.

In 2010, Metro helped organize the Community Investment Initiative (CII) to seek solutions to our growing infrastructure gap, with an emphasis on infrastructure that supports economic activity. The CII has helped to:

- address barriers to development in local communities with the creation of a *Development Ready Communities* tool¹³
- prioritize investments in school facilities with a *Schools Atlas* tool available to districts¹⁴
- evaluate priority development and infrastructure projects for new funding, potential public-private partnerships and innovative financing

Out of those recommendations came a new regional initiative – Greater Portland Regional Infrastructure Supporting our Economy (RISE) – to secure investment for our communities, our key industries, and priority infrastructure projects that connect us and drive our economy.

Metro will convene public and private partners in RISE to develop the *Prosperity Portfolio*, a regional capital improvement plan comprised of projects and investments of economic significance that benefit the entire region. A clear set of investment priorities will position us to be responsive to opportunities as they arise, be they public or private, federal, state or local.

5.7.6 Regional Transportation Model Enhancements

Network Enhancements

Metro worked closely with jurisdictions to add more detail to the Transportation Analysis Zones (TAZs) used in the travel demand model. Many refinements were also made to existing zone boundaries. The 4-county region is now divided into 2147 TAZs. During this process, the roadway network was reviewed, and the modeled facilities were transitioned from 2005 conditions to represent a new base year of 2010.

Transit Modeling

Metro conducted research with regard to the transit traveler’s perception of time. Is the wait time at a fully developed station less onerous than at a street corner? Is the ride on a LRT vehicle more pleasant than on a bus? We statistically quantify these time



¹³ The DRC was piloted in Oregon City and will now be employed in other locations under the leadership of the Thriving Cities Alliance.

¹⁴ The Atlas is currently being evaluated for use by the State of Oregon under Senate Bill 540.

perceptions and integrate them into the model. Capturing these time perceptions is important to more confidently estimate transit travel and its potential reduction of VMT. We also incorporated a new park and ride lot choice model algorithm.

Freight Modeling

The Port of Portland and Metro have recently completed an update to the regional Commodity Flow Forecast. The changes in quantities and types of commodities moving throughout the region were estimated and integrated into a revised freight model. Further improvements to the freight model are desired, and we are pursuing funding opportunities to enable additional refinement.

Model Development Activities

Metro is developing a tour based dynamic demand model (DASH). The relevancy of this tool is that it will better reflect the traveler response to congestion (e.g., time of day choices, tour alterations, joint household travel). In addition, the response to pricing is better measured due to more discrete value of time delineations.

Metro has implemented dynamic traffic assignment capabilities using two software platforms. DynusT has been used in a regional application to develop measures of roadway system reliability, and it will soon have an integrated dynamic transit assignment feature. Dynameq has been used in subregional applications. These assignment tools better reflect speed conditions by accounting for intersection delays and queuing effects.

Bicycle and Pedestrian Modeling

Since the last RTP update, Metro partnered with Portland State University (PSU) to develop a bicycle model that was used to forecast bicycle travel within the Active Transportation Plan and the Southwest Corridor Plan. This suite of bicycle modeling tools considers a multitude of network attributes in assessing the relative attractiveness of travel by bicycle between origins and destinations throughout the region.

More work is needed to capture the increased pedestrian mode share that may result due to urban form and amenities. Pedestrian trips are accounted for in the regional travel demand model, but are generally short enough to make a TAZ-to-TAZ network assignment impractical. Metro has again partnered with PSU to support research to improve our capabilities to model pedestrian travel.

Peak Spreading

Metro has developed a peak spreading algorithm that can be applied once a model run has been completed. The method calculates a travel time index (TTI) by comparing peak period travel conditions to free flow travel time on an origin to destination basis and moves trips to adjacent hours for only those zone pairs that have reached the TTI threshold. This process will produce hourly assignments that better reflect the amount of traffic that roadways are capable of handling.

This enhancement will not be applied for the 2014 RTP, but we do expect to incorporate this advancement in the 2018 RTP analysis. In the mean time, the peak spreading assignments and

model run information will be available for use in corridor studies, TSPs and other local planning projects, providing the opportunity for local partners to become more familiar with applying the peak spreading element.

Metro conducted a Household Travel Survey in 2011 which tracked over 6,000 households to understand how factors such as age, income, children, car ownership, and transportation infrastructure characteristics affect travel choices. This more current information has been reflected in our recalibrated travel forecasting model. Additional model enhancements using the new survey are planned.

Regional Travel Behavior Model

Metro conducted a Household Travel Survey in 2011, which tracked over 6,000 households to understand how factors such as age, income, children, car ownership, and transportation infrastructure characteristics affect travel choices. This more current information has been reflected in our recalibrated travel forecasting model. Additional model enhancements using the new survey are planned.

ODOT Statewide Model

ODOT has completed a more detailed set of travel zones for the state which will allow Metro to better predict travel demand at "gateway" points where statewide traffic enters the region. Currently, the regional model simply projects historic traffic volumes on such routes, but is unable to evaluate how congestion, parallel routes, and distribution of employment in and outside the region affects travel demand at these "gateway" locations. Coordination with ODOT has begun, and the results will be considered for the next RTP update.

ODOT GreenSTEP model

The GreenSTEP model was developed by ODOT to estimate and forecast the effects of multiple policies and other influences on the amount of vehicle travel, the types of vehicles and fuels used, energy consumption from vehicle travel, and resulting greenhouse gas (GHG) emissions from the transportation sector. The name, GreenSTEP, is an acronym which stands for Greenhouse gas Strategic Transportation Energy Planning. The model was developed to run at a statewide level and has since been adapted to run at a metropolitan-scale. The model has provided strategic analytical support for a number of state and regional planning efforts, including setting greenhouse gas emissions reduction targets for each of Oregon's metropolitan areas, development of the Oregon Statewide Transportation Strategy Vision and the Oregon 10-year Energy Action Plan, and scenario planning being conducted by Metro as part of the Climate Smart Communities Scenarios Project. Further coordination is needed between Metro, ODOT, DEQ and DLCDC to determine the future role of GreenSTEP in monitoring the region's progress toward meeting its state-mandated greenhouse gas emissions reduction target, and its relationship to future planning efforts and Metro's existing regional models, tools and enhancement activities. More information about GreenSTEP can be accessed at: <http://www.oregon.gov/ODOT/TD/TP/Pages/GreenSTEP.aspx>.

5.7.7 Parking Management Policy Refinement

Parking management refers to various policies and programs that result in more efficient use of parking resources. Managing parking works best when used in a complementary fashion with other strategies; it is less effective in areas where transit or bicycle and pedestrian infrastructure is lacking. Parking management is implemented through locally-adopted zoning and development codes.

Planning approaches include conducting assessments of parking supply and use to better understand needs.

On-street parking approaches include spaces that are timed, metered, designated for certain uses or have no restriction. Examples of these different approaches include charging long-term or short-term fees, limiting the length of time a vehicle can park, and designating on-street spaces for preferential parking for electric vehicles, car share vehicles, carpools, vanpools, bikes, public use (events or café’ “Street Seats” and freight truck loading/unloading areas.

Off-street parking approaches include providing spaces based on uses, unbundling parking from office/condo purchase or leases, preferential parking (for vehicles listed above), shared parking between land uses (for example, movie theater and business center), park-and-ride lots for transit and carpools/vanpools, parking garages in the center of downtowns and other mixed-use areas that allow surface lots to develop as other uses.

The RTP scenarios analysis, completed in 2008, demonstrated the effectiveness of parking management for helping the region achieve the modal targets in **Table 2.4**. Additionally, the Climate Smart Communities evaluation also found parking management as an effective strategy for helping the region reduce green house gas emissions. More work is needed to determine what parking management strategies should be implemented in this region and where they could be applied (beyond what is currently required in Title 4 of the Regional Transportation Functional Plan.) This effort could define how to tailor the application of these strategies to recognize different levels of development, transit service provision and freight parking needs.

This work could include updating and expanding the existing inventory of parking practices in the Metro region, and developing a parking model code and a parking “best practices” handbook to guide local implementation in the region.

5.7.8 Urban and Rural Reserve Planning and Green Corridor Implementation

Green corridors were adopted as part of the 2040 Growth Concept. The purpose of green corridors is to prevent unintended urban development along these often heavily traveled routes, and maintain the sense of separation that exists between neighbor cities and the Metro region. The green corridor concept calls for a combination of access management and physical improvements to limit the effects of urban travel on the routes on adjacent rural activities.

IGAs are not in place and physical improvements, such as street and driveway closures, landscaping and public signage have not been implemented in any green corridors.

In 2010 and 2011, the elected governing bodies of Clackamas, Multnomah and Washington counties and Metro entered into agreements that determine the location and scale of urban development for the future. These agreements were the result of a two-year region-wide planning effort that identified areas for future urban use and other areas that should remain rural for the next 40 to 50 years. The urban and rural reserve decision provides a more certain framework for transportation improvements along the urban edge. Metro will work with interested local jurisdictions to complete IGAs for green corridors that reflect updated plans for urban and rural reserves.

5.7.9 Funding Strategy for Regional Bridges

The region continues to struggle with a long-term strategy for maintaining major bridges that serve regional travel, particularly local bridges spanning the Willamette River. Currently, Multnomah County has primary responsibility for five of the ten bridges. Within 20 years, four of Multnomah County's five Willamette River Bridges will be 100 years old. The county's capital program for these bridges is estimated to cost \$450 million, yet only \$144 million in federal, state and county revenues has been identified. All the region's bridges face maintenance challenges that come from age and use.

More work is needed to determine primary financial responsibility for ensuring ongoing operations and maintenance and other transportation needs of regional bridges, given the regional economic importance of keeping the Willamette River Bridges and other regional bridges fully functional in the long-term.

5.7.10 ODOT District and Regional Highways Jurisdictional Transfer Strategy

As ODOT continues to face decreased funding for system operations and maintenance, a significant backlog of multi-modal modernization investments on the ODOT-owned "district and regional highways" continue to grow. These are former highway routes, built before the development of the regional throughway system evolved. They have since evolved into urban arterial streets that connect centers, industrial and employment areas and in many cases, function as regional transit routes.

However, most have a backlog of basic urban improvements that must be addressed in order to fully implement the 2040 Growth Concept. Work is needed to define a long-term strategy for transferring responsibility for these routes to local governments, which are best equipped to build and maintain needed improvements. Some of these routes should also be evaluated for their role as complementary facilities within the context of the regional mobility corridors, and prioritized accordingly for needed multi-modal investments.

5.7.11 Emerging Communities

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

5.7.12 Regional Active Transportation Work Program

A Regional Active Transportation Plan (ATP) was completed in 2014. Development of the ATP provided updates to the bicycle and pedestrian networks, concepts, policies and performance targets in the 2014 RTP.

Funding through June 2015 has been dedicated by the Metro Council to support a regional active transportation work program. The program will focus on implementation activities identified in Chapter 12 of the ATP. Metro will work with local jurisdictions and agencies, ODOT, TriMet, SMART, and other stakeholders on these activities. The implementation activities are coordinated with other Metro transportation planning activities, including activities related to Climate Smart Communities and the regional safety work program, Regional Transportation Options, TSMO, and corridor and freight planning.

5.7.13 Best Design Practices in Transportation

Starting in FY 2015, Metro staff will initiate an update to the Best Design Practices in Transportation, formerly known as the Livable Streets handbook. Recommendations from the Regional Freight Plan and the Regional Active Transportation Plan will be addressed as part of this effort. The update to the guidebooks will incorporate designs for low-volume bicycle boulevards, alternate designs for high volume arterial streets (e.g. cycle tracks) and regional trails. The guidelines will address the added design elements that are needed when these facilities serve as a bicycle parkway route, e.g. bicycle priority treatments and strategies for avoiding bike and pedestrian conflicts, design guidelines for transit and bicycle interaction, especially at transit stops and stations and along light rail and streetcar tracks, and best practices and successful case studies integrating bicycle, pedestrian and freight facilities, especially within constrained roadways, to guide future planning and project development. The outcomes of this process will be incorporated into the next RTP update.

5.7.14 Intercity Passenger Rail and Thruway Motor Coach Service

Current Operations

The Oregon Department of Transportation (ODOT) Rail and Public Transit Division administers the state-supported Amtrak *Cascades* intercity passenger rail service and the related and supporting *Thruway* motor coach service. Passenger rail ridership in Oregon has steadily increased since its beginning in 1994, setting record numbers of riders in 2011, up 5 percent from 2010. ODOT also manages and finances the maintenance of two passenger rail train sets that run in the federally designated Pacific Northwest Rail Corridor (PNWRC).

Planning Efforts

Over the next 20 years, the population in the Willamette Valley is expected to grow by approximately 35 percent, reaching 3.6 million by 2035. During the same period, freight rail volume is expected to grow by 60 percent. These increases will result in rail service demand that exceeds Oregon's available freight and passenger rail capacity in the Willamette Valley.

Rail improvements are needed to provide additional passenger and freight rail capacity and to improve passenger train reliability, frequency and travel times between Eugene and Portland. Current passenger rail service runs on private freight rail lines owned by Union Pacific Railroad (UP) and BNSF Railway Company. To ensure better on time performance, it is essential to eliminate priority at grade crossings, at known conflict points between railroads and traveling public.

The viability of corridor rail service is driven by several key factors. Based on research conducted by the American Association of State Highway and Transportation Officials (AASHTO), approximately 81 percent of all intercity trips greater than 100 miles do not extend beyond 500 miles. Corridor rail service of 500 miles or less between major population centers can eliminate the need to travel on congested highways, as well as to and from airports located in suburban areas. Corridor rail service can also provide transportation to communities not served by regional air carriers, help relieve aircraft congestion at major airports, and can become an attractive mode of transport for business travelers and those taking single day round trips.

The State of Oregon is currently involved in two planning efforts that involve intercity passenger rail, the Oregon State Rail Plan and the Oregon Passenger Rail Project. The Oregon State Rail Plan and the Oregon Passenger Rail Project are separate but coordinated efforts. The Oregon State Rail Plan development is a closely coordinated activity between the Oregon Transportation Commission (OTC), ODOT, the Federal Railroad Administration (FRA), stakeholders and the public. The State Rail Plan will look at policies, priorities, challenges and opportunities for the rail system statewide. The Oregon Passenger Rail Project is studying ways to improve intercity passenger rail service along the Portland to Eugene Corridor and is planning for the 20 year horizon.

The Oregon Passenger Rail Project is more detailed and focuses on important decisions that will be made through a Tier 1 Environmental Impact Statement (EIS) for the Oregon section of the PNWRC. Through the Oregon Passenger Rail Project, ODOT is in the process of studying options for improved passenger rail service between Eugene-Springfield and Portland – a 124-mile segment. The Tier I EIS will help ODOT and the FRA make important decisions that include selecting the general rail alignment, selecting communities where stations would be located, and determining service characteristics (e.g., number of daily trips, travel time objectives, and technologies to be used).

The purpose of the Oregon Passenger Rail Project is to improve the frequency, convenience, speed and reliability of passenger rail service in a manner that will:

- Provide riders with an efficient, safe, equitable and affordable alternative to highway, bus, and air travel;
- Be a cost-effective investment;
- Protect freight-rail carrying capacity;
- Support the ongoing implementation of regional high speed inter-city passenger rail in the PNWRC between Eugene-Springfield metropolitan area and Vancouver, British Columbia;
- Be compatible with the Washington State portion of the PNWRC;
- Promote economic development;
- Avoid or minimize community and environmental impacts; and

- Integrate with existing and planned multi-modal transportation networks.

The project is guided by the Governor-appointed Oregon Passenger Rail Leadership Councils whose members include representatives of Metro, TriMet, and the cities of Portland and Milwaukie. The project is scheduled to be completed in mid-2016 with the issuance of a Record of Decision by the FRA. Upon project completion, the state will be eligible to apply for future federal funding for final engineering and construction, when it becomes available.

Additional Projects

ODOT's Rail Safety unit is working with TriMet and Portland Streetcar on their projects to ensure safety compliance. With federal funding and guidance from the FRA, ODOT is developing preliminary engineering and environmental protocol for three Portland-area railroad projects that could improve passenger train performance if funded in the future.

Willbridge Crossovers – A pair of existing crossover switches connect BNSF Railway's two main tracks 4.3 miles northwest of Portland Union Station, allowing trains moving in either direction to switch from one main track to the other main track. However, the existing turnouts that comprise the crossovers restrict trains using them to 10 mph. This project would replace the old turnouts with longer turnouts that would permit trains to navigate them at 30 to 35 mph, which will help reduce congestion and contribute to improved intercity passenger service, velocity and on-time performance. Plans and the environmental work are due to be completed in 2014.

North Portland Junction – This critical junction on BNSF Railway's Portland-Seattle line provides access to Union Pacific, whose trains share use of BNSF Railway Company's trackage for 140 miles north to the Tacoma area. The turnouts used by UP to enter and leave BNSF Railway's line limit train speed to 10 mph and some freight trains can require up to 10 minutes to transition from one rail line to the other. This project will upgrade the switches, track and signal system to allow UP trains to transit this junction at 25 mph to reduce congestion and reduce freight train interference with the 12 daily passenger trains that currently operate through this facility. Because another key junction called Peninsula Junction is just nine-tenths of a mile south, similar upgrades are being engineered so that Union Pacific trains can maintain a steady 25 mph while passing through both points, while entering or leaving the BNSF Railway line. The preliminary engineering and environmental review will be completed in 2014.

Portland Union Station – This project will support the final design and construction of additional track and building upgrades at Portland Union Station that were identified in 2001 by the Union Station Facility Assessment and Seismic Work Plan. The improvements are expected to increase yard ingress/egress speed to clear the mainline faster for meet/pass benefits and permit faster crossover between tracks, resulting in improved intercity passenger rail service. Plans to overhaul storm water drainage will be developed along with preparations for important support facilities such as potable water and stand-by electrical power to maintain air conditioning, heating and lighting for passenger trains lying over between runs. The proposed renovations will enable current passenger service to operate more efficiently and accommodate forecasted increases in train service. Future construction will reduce congestion and help decrease intercity passenger trip

times, aid on-time performance and passenger safety and accessibility in the station. This project is expected to be completed in mid-2015.

Funding

Amtrak *Cascades*, managed jointly by ODOT, the Washington State Department of Transportation (WSDOT), and Amtrak, provides intercity passenger rail service between Eugene, OR and Vancouver, B.C. Starting in October 2013, the federal government discontinued funding support for intercity passenger rail service through Amtrak (Passenger Rail Investment and Improvement Act of 2008 or PRIIA). Consequently, Washington and Oregon must absorb those costs to maintain the service.

Oregon's portion of the costs for the Amtrak *Cascades* service is covered in part with dedicated funds from the sale of custom license plates and the transportation operating funds for an approximate total of \$10.1 million a biennium. With the advent of PRIIA this leaves a shortfall of \$18 million a biennium. The state highway fund cannot be used to pay for passenger rail activities.

If permanent funding is not found in the future, service will be reduced to one roundtrip per day or less. If the daily roundtrips are reduced or eliminated, the capital cost required by the host railroad to restore the service at a later date could cost Oregon \$50 million or more and over 200,000 riders per year will be forced to find other modes of transportation between Eugene and Portland. The resulting increased highway traffic will likely further exacerbate congestion and have deleterious impact upon greenhouse gas reduction goals.

Oregon's two new Talgo passenger rail train sets would no longer run in Oregon if service is eliminated. An arrangement to sell or lease the trains would need to be pursued, with possible reimbursement of federal funds required.

ODOT will request permanent funding from the 2015 Oregon Legislature in an effort to continue operating the Amtrak *Cascades* service and to improve intercity passenger rail in Oregon.

Funding for final design and construction of the Oregon Passenger Rail project is expected to be a mix of federal, state and other funding. The most recent federal funding for similar passenger rail projects was in 2010 and required a minimum 20 percent state match. A source for the state match has not been identified and would probably require special funding.

5.7.15 Regional Safety Planning 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. Between 2009 and 2012, Metro worked with a purpose-built Regional Safety Workgroup composed of local jurisdictions, agencies, and safety specialists to develop a safety work program which culminated in the Regional Transportation Safety Plan (RTSP). The work program included a discussion of ongoing efforts, best practices, and opportunities, crash data analysis, context sensitive solutions, and performance measurement.

The resultant RTSP provides a framework and set of strategies to address the region’s transportation safety problems. The goals included in the RTSP replace the previous Safety Performance Target. With the conclusion of the planning work program in 2012, Metro’s efforts are focused on incorporating safety, particularly the strategies developed in the RTSP, into all transportation-related activities within our work.

The Regional Transportation Safety Plan made the following recommendations. As part of the 2018 RTP and associated updates to the Regional Transportation Functional Plan, Metro will consider these changes as well as recommendations from the Regional Active Transportation Plan.

Short-Term Recommendations

| | Finding | Strategy or Strategies | Actions |
|---------------------------------|---|---|---|
| All Crashes | <i>Alcohol and drugs, excessive speed, and aggressive driving are the most common contributing factors in serious crashes. Crashes involving alcohol and drugs have a much higher likelihood of being fatal than other crashes.</i> | Policies to reduce the prevalence of speeding and aggressive driving on surface streets and to reduce the prevalence of driving under the influence of intoxicants. | <ul style="list-style-type: none"> • Convene and/or coordinate targeted workgroups of safety professionals (law enforcement, EMS, etc.) to develop targeted strategies to reduce the prevalence of driving under the influence of alcohol and/or drugs, speeding and aggressive driving. |
| Surface Streets | <i>Arterial roadways have the highest serious crash rate per road mile and per VMT. 59% of the region’s serious crashes, 67% of the serious pedestrian crashes, and 52% of the serious bike crashes occur on arterial roadways.</i> | A regional arterial safety program to focus on corridors with large numbers of serious crashes, pedestrian crashes, and bicycle crashes. | <ul style="list-style-type: none"> • Develop systemic performance measures for identifying high severity crash arterials across the region. Use strategies, including the Highway Safety Manual, to address arterial safety, such as medians, speed management, access management, roundabouts and road diets. |
| Bicycle & Pedestrian | <i>Serious pedestrian crashes are disproportionately represented after dark. Serious nighttime pedestrian and bicycle crashes occur disproportionately where street lighting is not present.</i> | A focus on crosswalk and intersection lighting where pedestrian and bicycle activity is expected, as well as programs to encourage use of reflective equipment by pedestrians and bicyclists. | <ul style="list-style-type: none"> • Research pedestrian/bicycle facility lighting best practices. • Ensure bike routes and crosswalks – marked and unmarked – are adequately lit. • Safety education campaign around “See and be seen.” • Further explore bicycle and pedestrian safety and identify projects as part of the Regional Active Transportation Plan currently underway. |
| | <i>Streets with more traffic lanes have higher serious pedestrian crash rates per mile and per VMT.</i> | Policies to improve the quality and frequency of pedestrian crossings on arterials and multi-lane roadways, as well as enforcement of right-of-way at crosswalks. | <ul style="list-style-type: none"> • Develop safe crosswalks on arterials and multi-lane roads, generally adhering to the region’s maximum local street spacing standard of 530 feet and at all transit stops. • Enforce existing laws through crosswalk enforcement actions. |

| | Finding | Strategy or Strategies | Actions |
|--|--|--|--|
| | <i>Streets with more traffic lanes have higher serious bicycle crash rates per mile.</i> | Policies to encourage protected bicycle facilities along roadways with high motor vehicle traffic volumes and/or speeds. | <ul style="list-style-type: none"> Along high-volume and/or high-speed roadways, where feasible, provide protected bicycle facilities such as buffered bike lanes, cycle tracks, multi-use paths, or low-traffic alternative routes |

Long-term Recommendations

| | Finding | Strategy or Strategies | Actions |
|------------------------|--|--|--|
| All Crashes | <i>Increases in vehicle miles travelled (VMT) generally correlate with increases in fatal and serious crashes.</i> | Policies that limit the need to drive, and therefore limit vehicle-miles travelled. | <ul style="list-style-type: none"> Continued support of regional and state policies that seek to reduce VMT, including multimodal facilities, transit, RTO, and TDM. |
| Surface Streets | <i>The most common serious crash types on surface streets were rear end and turning. For fatal crashes, the most common types were pedestrian and fixed object.</i> | Develop more detailed understanding of causes of the most common serious crashes in the region and the effectiveness of countermeasures. | <ul style="list-style-type: none"> Develop safety best practices based on the HSM for the region to address the most prevalent crash types. Further analyze crash types. |
| | <i>Higher levels of congestion on surface streets are correlated with lower serious crash rates, likely due to lower speeds.</i> | Revisions to state, regional, and local mobility standards to consider safety as equally important, at a minimum, as vehicular capacity. | <ul style="list-style-type: none"> Elevate safety to equal importance as mobility in regional policy as part of the next RTP update that will start in 2013. |
| | <i>Higher levels of congestion on freeways are correlated with higher serious crash rates, except for severe congestion, which is correlated with lower serious crash rates.</i> | Revisions to state, regional, and local mobility standards to consider safety as equally important, at a minimum, as vehicular capacity. | <ul style="list-style-type: none"> Elevate safety to equal importance as mobility in regional policy as part of the next RTP update that will start in 2013. |
| | <i>Surface streets with more traffic lanes have higher crash rates per road mile and per VMT. This follows trends documented in AASHTO's Highway Safety Manual. Roadway designs that increase speed lead to increased crash severity in the absence of specific safety considerations.</i> | A regional arterial safety program to focus on corridors with large numbers of serious crashes, pedestrian crashes, and bicycle crashes. | <ul style="list-style-type: none"> Include safety as an element of the update to the Metro Best Design Practices guidebooks. Use strategies including Highway Safety Manual strategies to address safety on multi-lane roadways, such as medians, speed management, access management, improved pedestrian crossings, roundabouts, and road diets. |
| Data | <i>This report identifies high-level trends in regional crashes, but more detailed work is needed to identify specifically where and why they are occurring in disproportionate amounts.</i> | More detailed analysis of the causes of serious crashes, pedestrian crashes, and bicycle crashes in the region | <ul style="list-style-type: none"> Collect, maintain and analyze ODOT crash data. Provide regional crash data for use in TSP updates and other requests. |

| | Finding | Strategy or Strategies | Actions |
|----------------------------|--|---|---|
| Additional Research | <i>The analysis of the relationship between land use, neighborhood design, and safety was inconclusive. More research is needed to establish reliable relationships between land use, neighborhood design, and safety.</i> | More detailed research on the relationship between land use patterns and safety | <ul style="list-style-type: none"> • Work with OTREC to develop research project to further explore the linkage between transportation safety, land use and the built environment. |

5.7.16 Congestion Management Program Data Collection and Monitoring

The great challenge for establishing and maintaining a monitoring program has been the availability of data. Historically, collecting and managing data has been expensive and difficult. With advancements in intelligent transportation systems in the region, more and better data is available today and will continue to grow with implementation of data collection projects identified in the Regional Transportation System Management and Operations (TSMO) plan.

Starting in 2008, the region approved ongoing funding for implementation, including an annual allocation to fund Portal, the regional transportation data archived, housed and maintained by Portland State University. PSU, in partnership with ODOT, TriMet, Metro and other local agencies, provides data aggregation, maintenance and reporting on the region's roadways and transit systems. Metro will continue to work with ODOT and other regional partners to expand existing data collection and performance monitoring capabilities, in order to evaluate system performance for all modes of travel.

This work includes supporting a data management system to facilitate data collection, maintenance and reporting to support on-going RTP and MTIP monitoring. The performance monitoring will be reported biennially as part of the Regional Mobility Program, consistent with the region's federally-approved congestion management process.

5.7.17 Freight system bottlenecks

As a critical West Coast domestic hub and international gateway for commerce and tourism, the Portland area must maintain well-functioning river ports, rail connections and highways. The Regional Freight Plan and RTP identify a small set of key highway bottlenecks on National Highway System facilities critical to state and regional truck mobility. The plans also note freight rail bottlenecks critical to access the region's ports and intermodal facilities, as well as the need for rail to carry its full share of existing and future commodities efficiently.

In order to address these long standing needs and to increase understanding of their economic importance, the Regional Freight Technical Advisory Committee, with assistance from private sector stakeholders (e.g., through a Regional Freight and Business Task Force), will develop criteria and a methodology for ranking these locations in terms of their freight and business impacts. This can be done by: (a) measuring the extent to which sensitive economic activities are affected by those facilities, and (b) estimating the magnitude of potential economic benefit associated with

making improvements to these facilities, using the best available methods and tools. Information generated through this analysis will be used in future RTP updates to help prioritize investments and may be needed in the future to qualify for certain federal funding categories.