Westside Multimodal Improvements Study

Recommendations and Implementation Plan

June 2024

Oregon Department of Transportation

Metro

This page intentionally left blank.

Contents

Figures

Page

Tables

Page

Attachments

Acronyms and Abbreviations

ADA	Americans with Disabilities Act
JPACT	Joint Policy Advisory Committee on Transportation
NWACT	Northwest Area Commission on Transportation
PDX	Portland International Airport
PMG	project management group
RMPP	Regional Mobility Pricing Project
RTDM	regional travel demand model
RTP	regional transportation plan
TPAC	Transportation Policy Alternatives Committee
VMT	vehicle miles traveled
WMIS	Westside Multimodal Improvements Study

Summary: Recommendation from Steering Committee

The recommendation described below has been endorsed by the Steering Committee for the Westside Multimodal Improvements Study (WMIS) and was presented to the following participating local jurisdictions: Beaverton, Hillsboro, Portland, Washington County, Multnomah County, TriMet and Metro.

The Steering Committee – composed of elected officials and representatives of participating agencies, businesses, and community organizations from the Greater Portland region – guided a study of multimodal transportation needs and opportunities for improvement in the Westside Corridor. The Oregon Department of Transportation (ODOT) and Oregon Metro (Metro) convened the committee and the study in collaboration with local governments, local agency partners, business representatives, and community members to identify multimodal investments that address transportation needs, support the regional economy, and accommodate future growth in a socially equitable and environmentally sustainable way.

The Steering Committee adopted a problem statement (see Attachment D, Meeting #2 and Attachment G) for the study that identifies the following concerns related to travel on US 26 between Hillsboro and the Vista Ridge Tunnel:

- Traffic congestion and increased motor vehicle trips.
- Unreliable travel times for people driving and moving freight.
- Decline in transit use.
- Dispersed and incomplete active transportation networks.
- Increasing numbers of total traffic fatalities and serious injuries in the past 5 years.

Project partners considered more than 80 potential multimodal projects, strategic, and technology investment options in the development of a preferred set of investments and programs that would likely address the problem statement. The investment options were grouped into scenarios, and each scenario was evaluated for its potential to address the

problem statement. This evaluation was completed using measures within five priority areas: mobility and reliability, safety, social equity, climate action, and economic vitality. The Steering Committee developed its final recommendation based on the results of the evaluation.

State and regional policy guidance direct that improvements to system efficiency and management are required before additional highway capacity can be considered. The recommendations of the Steering Committee are consistent with that hierarchy, as described in Policy 1G of the *Oregon Highway Plan,*[1] Policies 5 and 6 of the Metro *2023 Regional Transportation Plan* Regional Motor Vehicle Network,[2] and in the Metro Regional Congestion Management Process.[3]

The Steering Committee came to consensus on the recommendations below. The recommendations are organized as follows:

- **Multimodal Investments**. Transportation demand management and transit-supportive programs and projects that need more local, state, and federal funding to be successful.
- **Strategic Capital Investments and Funding Strategy**. Advance study of tolling paired with complementary corridor investments.
- **Future Considerations**. Items lacking consensus to advance but that may be considered in the future.

Recommended Multimodal Investments

Multimodal solutions are an important part of any solution addressing transportation needs in the region. State and regional priorities point to providing transportation alternatives to support our communities and advance our region's climate, safety, and social equity goals. Although the improvements listed in this section may not individually have a substantial impact on the overall mode share or other travel performance measures within the Westside, they could be significant at a smaller scale and would provide important travel options to the community. These investments are listed in

[1] Oregon Highway Plan. https://www.oregon.gov/odot/Planning/Documents/OHP.pdf

[2] 2023 Regional Transportation Plan. https://www.oregonmetro.gov/sites/default/files/2023/12/21/2023-RTP-Ordinance-No-23-1496-adopted-package-exhibit-A.pdf

[3] Metro Regional Congestion Management Process. https://www.oregonmetro.gov/sites/default/files/2018/12/05/RTP-Appendix_L_CMP%20Roadmap20181206web.pdf

Table S-1. A multifaceted partnership, including both the public and private sectors, is needed to help realize these investments.

- Local agencies should consider transit-oriented development policies and strategies.
- Employers can invest in travel option programs such as vanpools to address commuting trips.
- State and federal funding is needed to support capital investments in transit to implement this package of transportation investments.

Table S-1 Recommended Multimodal Investments

Program or Investment	Description	Owners
Employer and regional transportation demand management programs	Get There Oregon, a statewide program, will support a focused effort on the needs of Washington County's largest employers in cooperation with regional partners such as Washington County, the Westside Transportation Alliance, and the Washington County Chamber of Commerce.	Metro, Washington County, Washington County Chamber of Commerce, business partners
Close gaps in the pedestrian and bicycle network	Continue to work toward closing sidewalk and bike lane gaps in the west side to support providing access to transit.	City of Hillsboro, City of Beaverton, Washington County, Multnomah County, ODOT
High frequency and high capacity transit improvements	Use the Metro HCT Strategy and follow TriMet concepts laid out in Forward Together 1.0 and 2.0 and for the FX high-capacity bus service to continue to grow high capacity transit options on the Westside. As new transit is developed, continue to consider the need for bus-on-shoulder and new park and rides.	TriMet, Metro
Shuttles and circulators	Continue to add shuttles and circulators, advancing the work done as part of the Washington County Transit Study.	Washington County

Program or Investment	Description	Owners
Park and rides	Consider opportunities for park and rides that might be leased or owned by cities or Washington County.	Washington County, City of Hillsboro, City of Beaverton
Parking pricing	Evaluate local policy and plans to implement town center and regional center parking pricing.	City of Hillsboro, City of Beaverton, Metro (policy)

Recommended Strategic Capital Investments and Funding Strategy

The WMIS demonstrated that tolling was an effective tool to manage congestion and improve safety and travel time reliability on US 26. When paired with projects on nearby routes, increased systemwide benefits are expected. Furthermore, tolling revenues could be leveraged to fund complementary safety, transit-supportive, and operational investments at congested bottleneck locations on and off US 26. Based on the evaluation, the Steering Committee recommends conducting a study of tolling paired with options for phased strategic capital investments on US 26 or ancillary routes. The future study would evaluate local (within the Westside) and regional (beyond the Westside) multimodal transportation network and land use impacts, while balancing congestion management, revenue generation, and equity outcomes. The future study should account for other potential expanded transportation funding efforts to be explored at the local, regional and state levels in addition to federal funding opportunities. The future study would be developed in collaboration with regional partners and would include extensive public engagement. Depending on funding availability and required approvals, capital investments described below could be implemented prior to completion of the full study. Strategic investments to pair with tolling are listed in Table S-2.

Table S-2 Strategic Investments to Pair with Tolling

Program	Description	Owners
Corridor bottleneck improvements: US 26 and I-405	Build upon work done in previous studies such as the ODOT Corridor Bottleneck Operations Studies 1 and 2 which identified recurring bottlenecks and evaluated potential solutions at a high level. On US 26 and I-405, several concepts have been identified for further study. Use the Metro Freight Commodity Study for additional information on demand and the economic impacts of bottlenecks and freight travel time reliability.	ODOT
Cornelius Pass roadway safety and mobility improvements	Cornelius Pass Road (OR 127) between US 26 and US 30 is already used as an alternative to US 26 for hazardous materials transport, some freight, and general traffic. To improve safety, provide system resiliency, and address traffic diversion, the Steering Committee recommends identifying phased improvements to Cornelius Pass Road. Build upon previous work such as the Cornelius Pass Road Safety Evaluation Jurisdictional Transfer Agreement to improve mobility through the corridor and increase safety for hazardous materials that are diverted to Cornelius Pass Road since they are prohibited on US 26 between OR 217 and I-405 due to the Vista Ridge Tunnel.	ODOT
Barnes Road improvements	Evaluate the improvements to Barnes Road at strategic locations within Washington County to improve access to transit, safety, and traffic congestion and address diversion. This would be consistent with the strategic investments section of the *2023 Regional Transportation Plan*, which includes a study of widening SW Barnes Road to four or five lanes between OR 217 and SW Leahy Road and to two or three lanes between SW Leahy Road and the Multnomah County line. The design would focus on improving access to transit, safety, and operations and would be advanced within a multimodal framework. Features could include provision of turn lanes in select locations, enhanced bicycle and pedestrian accessibility including completing bike lane and sidewalk gaps and Americans with Disabilities Act (ADA) improvements, enhanced pedestrian crossings, transit priority, and bus stop improvements as part of a corridor-based bus rapid transit project or to ready the corridor for future corridor-based bus rapid transit investment.	Washington County

Program	Description	Owners
Transit-supportive investments: high frequency and high capacity transit	Identify funding and implementation strategies for enhanced transit services and transit-supportive corridor investments that can result in transit travel time and reliability improvements along tolled corridors. Jurisdictions with road and signal authority play an important role in making improvements on roadways to help buses run faster and more reliably in conjunction with the tolling time frame.	TriMet, Metro, ODOT, counties, cities

Future Considerations: Additional Items Discussed by the Steering Committee

A minority of Steering Committee members advocated for studying new capacity projects in the form of the Northern Connector and a new North Willamette bridge. These two projects would create a new connection between Germantown Road/Kaiser Road (north of US 26) across/through the west hills to US 30 and a new bridge across the Willamette River to the vicinity of N Columbia Boulevard or N Lombard Street in North Portland. A new Northern Connector was first evaluated in the *Washington County Transportation Futures Study* in 2017. That study showed the potential of these facilities to provide an efficient and reliable route for freight vehicles, a resilient route option for travelers during winter storms and other incidents, and potentially a safer and more direct route for hazardous materials than the current route over Cornelius Pass Road.

Several factors influenced the Steering Committee's decision not to include these two projects in the recommended Strategic Capital Investments and Funding Strategy. The primary factors were:

- State and regional policies require that system- and demand-management strategies be used before adding capacity to existing facilities and before building new facilities.
- High construction and ongoing maintenance costs and concerns about potential environmental impacts.
- A lack of support from the majority of jurisdictions through which the facilities would pass.

The Steering Committee agreed that if the combination of multimodal investments and demand management, transit, tolling, and capacity improvements on existing facilities did not adequately address the problem statement and evaluation priorities identified by

the Steering Committee, then the region may want to consider studying new facilities such as the Northern Connector and a new North Willamette bridge.

1 Purpose of Study

The purpose of the Westside Multimodal Improvements Study (WMIS) process was to collaboratively identify the transportation issues in the Westside Corridor and to identify multimodal investments that would address these issues to support the regional economy and accommodate future growth in a socially equitable and environmentally sustainable way.[4] The corridor, including the areas around the Sunset Highway from Hillsboro through the Vista Ridge Tunnel, is one of Oregon's major economic centers. Based on Census commute data, there are approximately 85,000 residents and 117,000 workers employed in the study area. Of these people, 27,000 live and work in the area; 97,000 commute to the area for work but live elsewhere; and 64,000 live here and commute elsewhere for work.[5]

The Oregon Department of Transportation (ODOT) and Oregon Metro (Metro) co-managed the WMIS and worked with local governments, local agency partners, and community members to identify transportation issues, needs, challenges, and opportunities in the Westside Corridor.

The study considered potential multimodal projects, strategies, and technologies and developed a preferred set of investments and programs to address the transportation issues and needs on the Westside. Investment options were evaluated for their potential to address existing and future transportation deficiencies that affect the movement of freight and commuters who use the US 26 corridor for access between Hillsboro's Silicon Forest, key Westside employers and employment districts such as the West Five in Beaverton, Northern Washington County's agricultural areas, the Portland Central City, I-5 and I-84, the Port of Portland marine terminals, rail facilities, and the Portland International Airport (PDX).

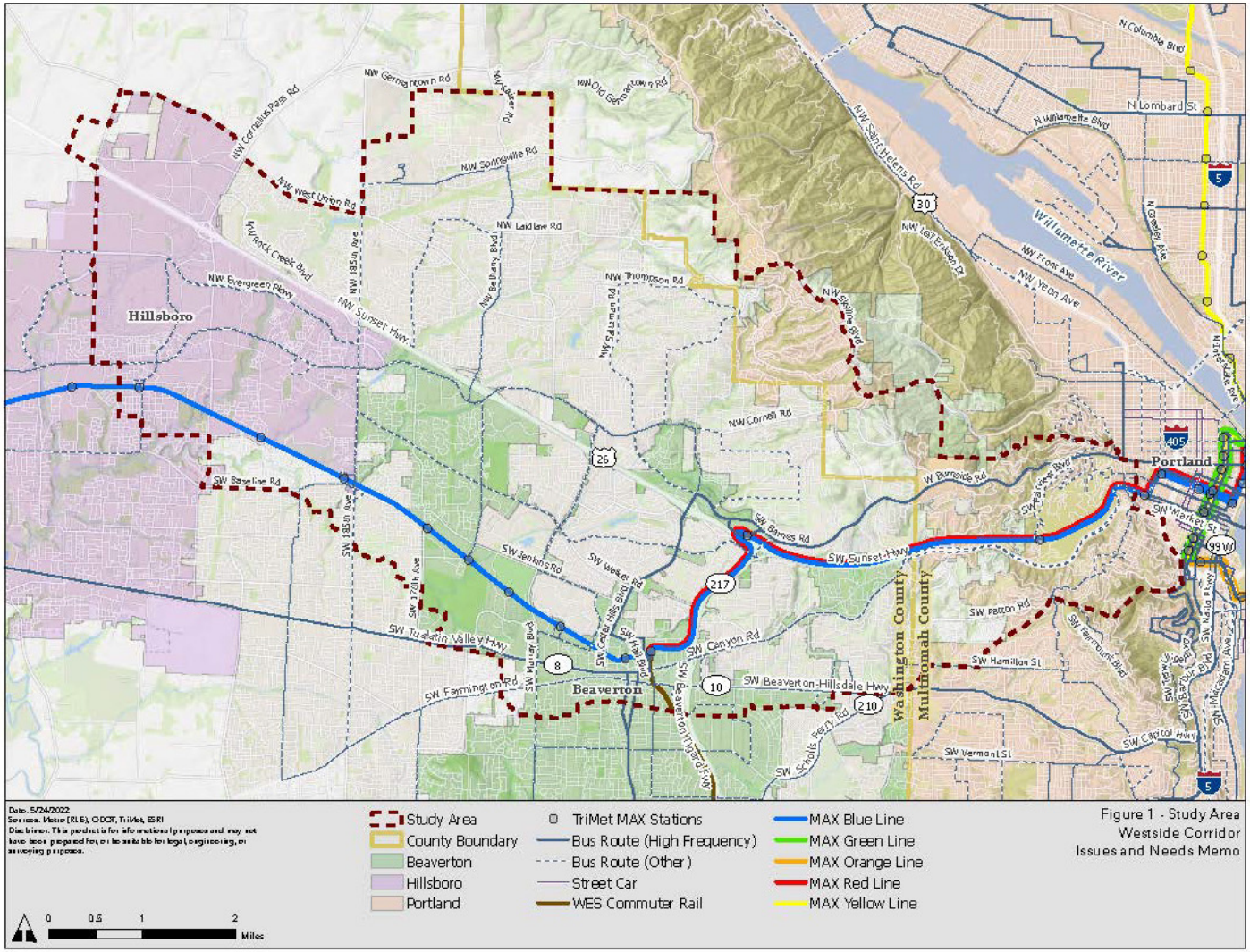
The study area generally follows US 26 from the I-405 interchange to central Hillsboro, as shown in Figure 1-1.

---

[4] The Westside Multimodal Improvements Study was developed in response to a request from former Governor Kate Brown to address transportation issues in the westside of the Portland metropolitan area. The letter from the Governor is appended in Attachment A.

[5] U.S. Census Bureau, LEHD OnTheMap, 2019.

Figure 1-1 Study Area



Multi-Agency Collaboration

This study was a product of collaborative action from multiple agencies, jurisdictions and organizations. In addition to ODOT and Metro, this effort was supported by substantial contributions from the following organizations, each with representation on the Steering Committee:

- Cities: Hillsboro, Beaverton, Portland
- Counties: Washington and Multnomah
- Transit: TriMet
- Non-governmental organizations: APANO, Centro Cultural, Greater Portland Inc., Washington County Chamber of Commerce

Past Planning

Much planning had been done in the Westside Corridor, and the WMIS built on recommendations from those efforts. Most recently, the *Washington County Transportation Futures Study* (2017) was a planning effort to anticipate transportation needs and strategies in Washington County for the next 50 years. Although that project's study area did not align with the Westside Corridor boundary, its long-term expectations for growth in housing, employment and travel needs were relevant.

Engagement for the *Transportation Futures Study* was extensive, and received 5,319 public comments, in addition to feedback received from a statistically valid opinion poll. The top priority reported was to improve the corridor's multimodal transportation system.

Highlights from the *Transportation Futures Study* findings and trends include:

- Employment will increase 100% to 145% and population will increase 40% to 55% over the next 40 to 50 years.
- Regional centers (Downtown Beaverton, Tanasbourne, and others) will continue to develop into a mix of residential, employment and commercial uses.
- Vehicle miles traveled (VMT) per person is expected to decline due to regional policies supportive of urban, mixed-use higher density centers; and regional investment in high capacity transit and active transportation.
- Employment growth will likely be focused in the city of Hillsboro, the OR 217 corridor, and southern Washington County, based on Metro forecasts.

- More daily trips will be coming into the county than out of the county. The share of daily trips within the county will also increase.
- More people and more jobs will result in more trips. Traffic in 40 years will be worse, even with changes in how people travel.
- The numbers of transit, walking, and bicycle trips will increase at a faster rate than auto trips.
- Traffic delays will more than double compared to today [2017]; people will choose to travel at different times of day, resulting in higher levels of congestion throughout the day.
- Congestion will increase throughout the day, especially on freeways and at regional access points. None of the transportation options from the *Transportation Futures Study* would eliminate or reduce vehicle delays to today's [2017] levels.
- Congestion will increase on major roads; this will create more cut-through traffic on local roads.
- Delays of freight traffic will increase over four-fold due to more trucks on the road and their dependence on the most congested freeways and roads.
- Improvements in bicycle, pedestrian, and transit infrastructure; highways and roads; smart technology; and demand management are needed to meet increased travel demand.

In addition to the *Transportation Futures Study*, the 2013 *Portland Region Westside Freight Access and Logistics Analysis* interviewed many electronics manufacturers and freight shippers to document mobility and logistics challenges, in particular the outbound movement of goods from the westside manufacturers to the freight consolidation area near PDX. As with the *Transportation Futures Study*, many of the projects recommended for advancement included multimodal elements.

During the course of the WMIS study, Metro finalized and adopted the *2023 Regional Transportation Plan* (RTP). The 2023 RTP recognizes several trends:

- Declines in travel during the COVID-19 pandemic, across all modes, with freeway travel in 2021 decreasing by 5%, arterial trips by 14% and transit ridership by 41% compared to 2019.[6]
- Per capita VMT in the region has been mostly flat or declining, but to reach ambitious VMT reduction goals, new approaches will be needed.

The 2023 RTP set the policy framework shown in Figure 1-2 as part of the call for projects.

Figure 1-2 Policy Framework for the 2023 RTP Call for Projects

[6] The RTP recognizes that many aspects of life and travel have already returned to their "normal" pre-pandemic state, while others are trending that way. In almost every location studied, arterial volumes decreased more significantly than throughway volumes. Transit volumes fell particularly significantly in locations closer to the center of the region.

2 Decision-Making and Involvement

Decision-Making Structure

The WMIS was co-led by ODOT and Metro and included a Project Management Group (PMG) and a Steering Committee.

Project Charter

A charter was established at the beginning of the process to clarify tasks, responsibilities and expectations for each partner organization participating in the WMIS and to clarify the decision-making structure to be used. Steering Committee members signed the charter, agreeing to work together toward achieving the study purpose and goals, creating the plan, and implementing the strategies created by this process. The charter established the PMG and Steering Committee and is attached as Attachment B.

Project Management Group

The PMG provided a venue for additional coordination with study partners. The composition of the PMG included technical staff from study partner agencies.

The PMG included agency management and technical staff and met approximately monthly to guide the implementation of the planning process. Additionally, there were five optional "office hours" meetings for PMG members and project team members to dive into more technical topics, especially modeling and scenario evaluation.

PMG members reviewed technical products, provided guidance to the team, and supported outreach activities. PMG members informed their Steering Committee representatives about the study's progress and shared Steering Committee representatives' questions and input, as well as public and additional input from other interested parties. The PMG considered investment options and assessed the transportation alternatives for their potential to help achieve the WMIS goals. Using

technical analysis and public feedback, the PMG helped to shape the project list presented to the Steering Committee for its recommendations.

Steering Committee

The Steering Committee made decisions on study milestones and developed a recommendation based on the study's findings.

The Steering Committee was composed of a decision-making representative from each of the partner agencies that had jurisdiction or ownership of infrastructure or systems considered in the study. The group also had four appointed members from the community: a member from each of the two community-based organizations that conducted outreach and two members of the study's business roundtable, one representing Washington County business interests and one representing broader regional business interests.

The Steering Committee was charged with working toward the successful creation of the Implementation Plan. The Steering Committee met six times to provide guidance throughout the process, make decisions at key milestones, and to make a final recommendation.

Community and Business Engagement

Decisions by the Steering Committee were guided by input received from community interests on the Westside. This process used a targeted approach to engagement. Community engagement was coordinated through two community-based organizations: Centro Cultural, serving the Latino and Hispanic community, and APANO, which serves the Asian and Pacific Islander communities of the region. Business engagement was provided as briefings to several groups including the Washington County Chamber of Commerce. These groups also had appointed members serving on the Steering Committee to provide a voice for these perspectives.

Focus Groups

Centro Cultural and APANO hosted a series of focus groups in English, Spanish, Chinese, and Vietnamese to better understand transportation priorities of the communities they represent in Washington County.

Focus group participants shared the following concerns and suggestions:

- There are few alternate routes besides US 26.
- There is a need for more transit options and improvements to current service.

- Safety is a big concern; driving on US 26 feels dangerous because of driver behavior, crashes, and sharing space with large freight vehicles.
- There were mixed opinions about tolling and congestion pricing on US 26; participants brainstormed other possible solutions that included improving alternate routes and options to reduce congestion at the Vista Ridge Tunnel bottleneck.

A summary of the focus group activities is included as Attachment C.

Public Meetings

The six Steering Committee meetings were open and available to members of the public. Each meeting included time dedicated for public comment. Meetings were recorded and shared on the project website for people who could not attend. Meeting materials and summaries for the Steering Committee meetings are included as Attachment D.

Business Roundtables

The project team hosted two business roundtable events to provide a venue for over a dozen Westside businesses to voice their concerns and needs related to the transportation network. Key topics of discussion included employee commuting, and freight movement (including shipment of time-sensitive or perishable goods), local delivery and last-mile shipping, and service vehicles (such as sales or repair businesses).

The business community discussion highlighted the following needs:

- employee commute issues including congestion, and transit travel times that are not competitive with driving
- personal and physical safety while biking, walking or taking transit
- first and last mile connectivity issues
- travel time and reliability for freight movements
- impact congestion has on delivery and service businesses
- impact congestion and transportation options have on employee recruitment and retention

Meeting materials and an attendance list of the business roundtables are included as Attachment E.

Briefings

In addition to the PMG, Steering Committee, and targeted community engagement, the project team provided information and briefings to community groups and organizations that requested more information.

- Washington County Chamber: October 31, 2022; February 27, 2023; November 9, 2023
- Westside Economic Alliance: June 8, 2022; November 15, 2023
- City of Hillsboro Transportation Subcommittee: November 22, 2022
- Washington County Coordinating Committee: March 13, 2023
- Washington County Coordinating Committee - Technical Advisory Committee: May 9, 2023
- Washington County Board work session: January 30, 2024
- Beaverton City Council: November 1, 2022
- Community-Based Organizations:
  - APANO Focus Groups: February 4, 2023, and March 14, 2023
  - Centro Cultural Focus Groups: January 21, 2023, and February 11, 2023
- Community Participation Organization - Bonnyslope Neighbors: May 9, 2023
- Transportation Policy Alternatives Committee (TPAC): March 1, 2024
- Community Participation Organization - CPO1: March 12, 2024
- Metro Council Work Session: March 19, 2024
- Joint Policy Advisory Committee on Transportation (JPACT): March 21, 2024
- City of Hillsboro City Council: March 19, 2024
- Northwest Area Commission on Transportation (NWACT): April 11, 2024

Website and Fact Sheets

The project website was hosted through the ODOT Urban Mobility Office and provided project information for interested parties. The website was updated regularly with project materials including Steering Committee meeting announcements, meeting agendas, presentation slides, handouts, and a video recording of each meeting.

Three project fact sheets were developed to communicate information to interested members of the public.

1. Project overview, including purpose, schedule and opportunities to get involved
2. Issues, needs and current conditions
3. Summary of the study's recommendations

Factsheets are appended in Attachment F.

3 Issues and Needs

Problem Statement

The Steering Committee adopted a problem statement for the study and identified the following problems related to travel on US 26:

- Traffic congestion and increased motor vehicle trips
- Unreliable travel times for people driving and moving freight
- Decline in transit use
- Dispersed and incomplete active transportation networks
- Increasing numbers of total traffic fatalities and serious injuries in the past 5 years

The problem statement guided development of the study's priority areas and subsequent evaluation of projects and programs. The complete problem statement is included in Attachment G.

The evaluation framework adopted for the study established the following priority areas:

- Mobility and reliability
- Safety
- Social equity
- Climate action
- Economic vitality

Westside Corridor: Economic and Transportation Conditions

Growth on the Westside

The Westside Corridor is one of Oregon's major economic centers, currently home to about 90,000 people and 124,000 jobs. Forecasting used in the 2023 RTP estimated that

by 2045, the region's population will grow 26% and total employment will grow 22%; growth in the study area is expected to keep pace or exceed the region as a whole.

The study area is a major employment destination that draws workers from across the region. Based on 2018 LEHD[7] census data, roughly 97,000 workers commute into the study area daily, while 64,000 residents commute outside the study area for work. The Westside is also a key economic engine for Oregon, producing many high-value exports, including high tech manufacturing. With the help of major federal investments, this sector is expected to continue to grow.

Transportation Trends and Issues

This section highlights several key trends for transportation use in the Westside. US 26 and the MAX light-rail lines form the central structure of the transportation system in the study area. There are gaps in the active transportation networks across much of the study area, even in areas well served by bus and high capacity transit.

Transit. The Westside Corridor is served by MAX light-rail (Blue and Red Lines), WES commuter rail, bus and frequent service bus lines, LIFT paratransit, and Ride Connection services. The MAX lines connect the regional centers in the corridor. TriMet's bus service generally operates along the network of major east-west arterial streets, with fewer options for north-south connections.

Recognizing the COVID-19 pandemic changed the way some people travel, the busiest TriMet stops in the area are now at major transfer points, and ridership is more distributed throughout the day and less concentrated in the morning and evening rush hours. The TriMet Forward Together plan made service changes in response to how and when people travel. These changes were incorporated into the RTP and used for this study.

Freight. Although US 26 has the highest freight volume of all non-interstate highways in the region, just 5% of trips on US 26 are freight vehicles, indicating that freight is not the primary cause of traffic congestion. By percentage of trips, freight trips are more concentrated on Cornelius Pass Road and the region's interstate system.

Safety. Motor vehicle crashes and vehicle breakdowns can cause safety hazards and further delay for people driving. Frequent congestion can lead to spillover traffic where drivers choose to take an alternate route, although that often requires a longer trip or

[7] Longitudinal Employer-Household Dynamics

out-of-direction travel which increases VMT. Congestion contributes to greenhouse gas emissions, worsening global climate change.

Traffic. Traffic congestion on US 26 is a major challenge today and is expected to grow by 2045, increasing travel times compared to today through the study area. In the future, the corridor does not meet performance targets, even with the multimodal transportation investments included in the RTP.

Travel time variability. In 2022, travel times could vary over 20 minutes for a typical trip from Hillsboro's employment areas to PDX, largely due to congestion on US 26. The highest delays are seen at the evening peak travel hours around 5 p.m., and daytime eastbound travel frequently experiences delay. This does not account for traffic congestion due to crashes, weather, or other incidents, which can cause much longer delays.

Future Conditions

The conditions and trends outlined above are expected to continue or increase in the future, including:

- Continued growth as new jobs and housing are added in the Westside Corridor
- Increase in traffic congestion, diversion and delay
- Increase in freight traffic, including smaller-format residential delivery vehicles
- Changes in land use that increase density and mix of uses, increased transit-oriented development in designated town and regional centers
- Incremental improvements in active transportation networks
- Continued pandemic travel behavior (likely short-term or medium-term) – changes in where, when, and how people are traveling
- Accelerating impacts from climate change and continued risk of a Cascadia subduction zone earthquake
- Continued MAX and bus service improvements but a lack of north-south network connections

Regional and State Policy

State and regional policy guidance direct that improvements to system efficiency and management are required before changes in highway capacity can be considered. This policy context informed the evaluation and prioritization of potential investment options

considered as part of this study. Some investment options that did not meet policy objectives were eliminated early in the study.

Per the *Oregon Highway Plan*, the state implements improvements in the following prioritized order, unless a lower priority measure is clearly more cost-effective or unless it clearly better supports safety, growth management, or other livability and economic viability considerations. The priorities are, in order from highest to lowest:

1. Protect the existing system.
2. Improve efficiency and capacity of existing highway facilities.
3. Add capacity to the existing system.
4. Add new facilities to the system.

The Metro RTP, Policies 5 and 6, and Congestion Management Process are consistent with this state plan and call for implementing system and demand management strategies and other strategies prior to building new motor vehicle capacity, consistent with the federal Congestion Management Process,[8] Oregon Transportation Plan policies (including *Oregon Highway Plan* Policy 1G),[9] and Section 3.08.220 of the Regional Transportation Functional Plan.[10]

[8] Metro Congestion Management Process. https://www.oregonmetro.gov/sites/default/files/2018/12/05/RTP-Appendix_L_CMP%20Roadmap20181206web.pdf

[9] Oregon Transportation Plan. https://www.oregon.gov/ODOT/Planning/Pages/OR-Plan_Results.aspx?sm=spec&keyword&plans=Oregon%20Highway%20Plan&psn=Policy%201G&sortBy=ItemR

[10] Regional Transportation Functional Plan. https://www.oregonmetro.gov/sites/default/files/2015/02/03/chap308_regional_transportation_functional_plan.pdf

4 Evaluation Criteria and Method

The project team used a three-stage evaluation approach for scenario modeling and development of implementation recommendations:

1. Conduct initial issues and needs screening on individual investment options.
2. Package investment options into five scenarios to model and evaluate using a robust set of evaluation metrics, organized by priority areas.
3. Refine list of recommended investments based on initial evaluation and feedback.

Figure 4-1 illustrates the process of moving from an initial set of investment options through the issues and needs screening, scenario development and evaluation, to a recommendation for investments.

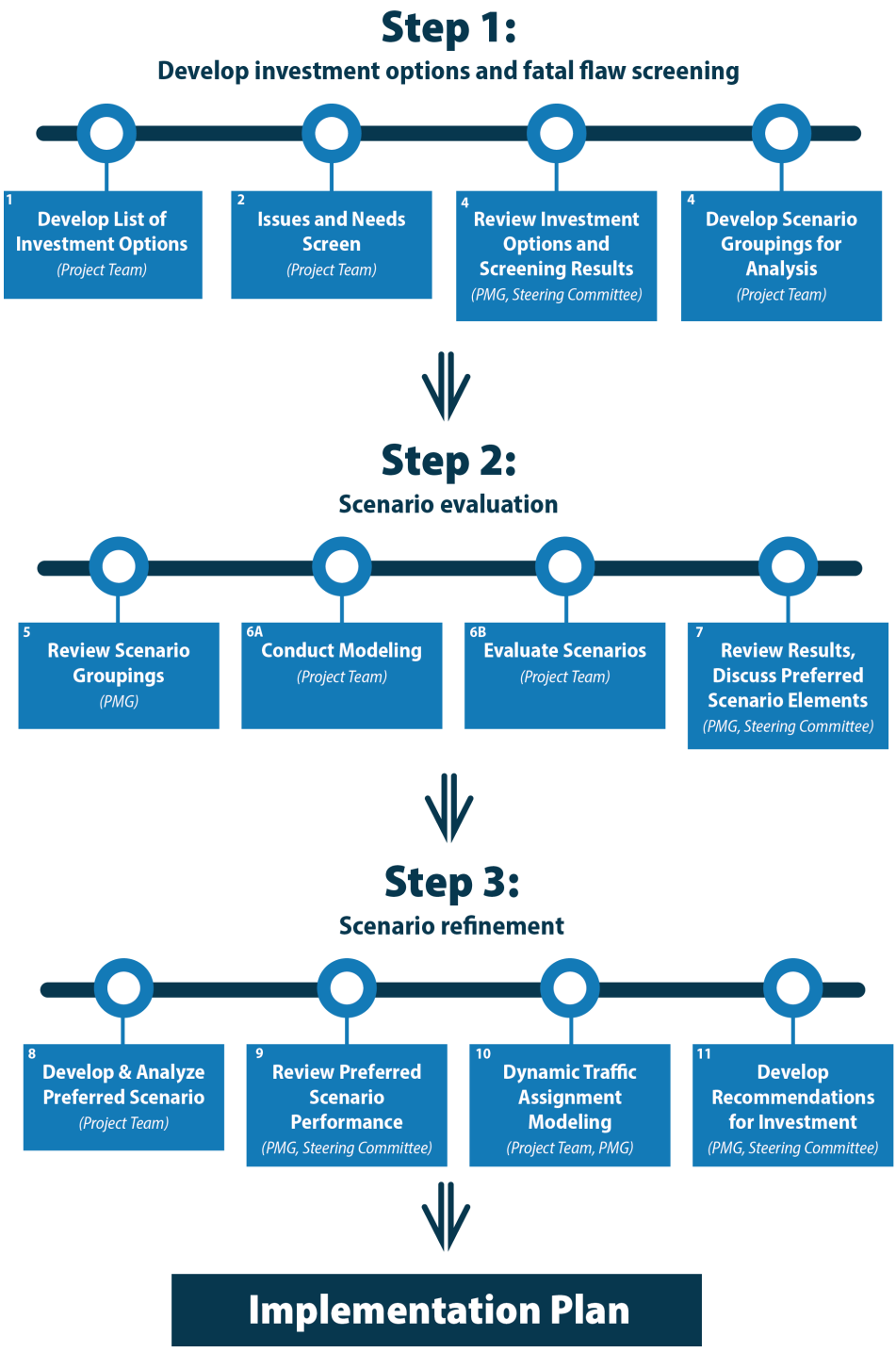
Issue and Needs Screen

The initial screening process was based on the *Issues, Needs and Problem Statement* (described in Section 3 of this report and included as Attachment G). Of each investment option, the project team asked the following questions:

- Does the project or program apply at the regional scale of this study?
- Would implementation of the project or program clearly be counter to existing local and regional policies?
- Would implementation of the project or program, by itself or in combination with other investments, clearly *not* address or address the identified regional issues, needs, and problems?
- Which issues and needs does the project program address?

In addition to the screening questions, the project team prepared information about each investment option including the source, the readiness of implementation, the mode(s) best advanced, and a high-level cost estimate.

Figure 4-1 Evaluation Process



Scenario Evaluation Metrics

As noted above, the project team worked with the PMG and Steering Committee to establish five priority areas. The five priority areas include: mobility and reliability, safety, social equity, climate action, and economic vitality. Provided these priority areas, the project team developed a set of evaluation metrics for each of the five priority areas in collaboration with the PMG. Table 4-1 presents the priority areas and evaluation metrics that were used to assess performance of the investment options.

Table 4-1 Evaluation Criteria Summary Table

Priority Area	Evaluation Metric	Methodology
Mobility and Reliability	Person-trips by mode	Used district-level average weekday trip tables by mode output from the Metro regional travel demand model (RTDM).
	Diversion onto local streets	Traffic analysis determined changes in eastbound and westbound auto volumes on facilities north and south of US 26, from Cornelius Pass Road in the north to Capitol Highway in the south. RTDM output was used as part of calculations.
	Vehicle hours of delay	Hours per day of congested travel on US 26 between Brookwood Parkway and I-405. Also from RTDM, calculated hours per day of congested travel for autos and trucks during the PM peak and mid-day within the study area, outside the study area in the Westside, and the region.
	Travel time reliability	Ratio of congested corridor travel time to average corridor travel time for auto and transit modes on US 26. This was calculated for a trip between 185th and the Vista Ridge Tunnel. Used RTDM output as part of calculations.
Safety	Pedestrian and bicyclist safety	Qualitative assessment of the degree to which the scenario investment options would address crash types and/or crash locations most commonly involving people walking, rolling, or cycling.
	Addresses high crash vehicle locations on the highway and arterial road system	Qualitative assessment of the degree to which the scenario investment options would address crashes on the highway and arterial roadway system through application of crash modification factors or other interventions.

Priority Area	Evaluation Metric	Methodology
Social Equity	Access to community places	Analysis showing the change in the number of community places reachable within 30 minutes by auto and 45 minutes by transit from locations that rank highest in the Metro equity focus areas[11] (top quintile). Used RTDM output as part of the calculations.
	Households with access to job centers	Analysis showing the change in the number of households that could reach key job centers within 30 minutes by auto and 45 minutes by transit. Job centers are the Portland central business district, downtown Beaverton, Nike, the Sunset Transit Center, Intel Ronler Acres campus, Orenco Station, and downtown Hillsboro. Used RTDM output as part of the calculation.
Climate Action	Change in VMT	Compared the VMT from existing/baseline to each scenario. VMT served as a proxy for greenhouse gas emissions. A per capita greenhouse gas emissions estimate was also developed. Used RTDM output as part of the calculations.
Economic Vitality	Access to key destinations	Change in the number of key destinations reachable within 30 minutes by auto, transit, on foot, or by bike from downtown Hillsboro, downtown Beaverton, the Sunset Transit Center, Orenco Station, Nike, and the Intel Ronler Acres campus. Metro's Places of Interest GIS layer was used for the essential destinations, as well as major shopping centers. Used RTDM output as part of the calculations.
	Freight travel time	Travel time required to complete each segment. People employed in freight trucking are typically paid per mile traveled, and direct costs (fuel costs, maintenance) increase when freight vehicles are stuck in traffic. The higher this ratio, the more efficient the freight movement. Travel time was calculated for the following segments in the RTDM, all beginning at the west end of the study area: ▪ 1A: To Terminal 6 via US 26 ▪ 1B: To Terminal 6 via Cornelius Pass Road ▪ 1C: To Terminal 6 via the Northern Connector and a new Willamette River bridge ▪ 2A: To PDX via US 26, I-405, I-5, and Columbia Boulevard ▪ 2B: To PDX via Cornelius Pass Road, St. John's, and US 30 ▪ 2C: To PDX via the Northern Connector and a new Willamette River bridge ▪ 2D: To PDX via US 26, I-405, I-84, and I-205 ▪ 3A: To OR 217 or I-5 via US 26

[11] Metro Equity Focus Areas. https://regionalbarometer.oregonmetro.gov/datasets/drcMetro::all-equity-focus-areas/about

A memorandum detailing the initial evaluation criteria and approach is included as Attachment H. This memorandum captures the proposed evaluation process where the project team would assign scores to scenario performance using a scale of -3 to +3 or 0 to +3; however, this approach was not used except for qualitative assessment of safety impacts.

The metrics and methods were refined from the initial evaluation criteria memo based on data availability and continued input from project partners. Based on requests from PMG and Steering Committee members, the project team provided more detailed scenario performance results using actual values, including for example, minutes of delay for each scenario, rather than assigning a score. This approach provided more clarity and context for decision-makers when comparing across scenarios, making it easier to understand small changes and clearly see model results. Weighting the priority areas was considered but dropped due to a preference to see the values for each metric independently. Not all projects or programs could be evaluated for each metric.

5 Developing Scenarios

Scenario Development

The project team developed an initial list of over 80 potential investment options by reviewing past and current plans in the region and through collaboration with the PMG and other agency staff. Of the initial list of investment options, some were removed because they were already completed or underway. The remaining list of investment options was presented to the PMG for its feedback before the issues and needs screening. The initial list of investment options is included as Attachment I. Projects that are already built, underway, or included in the Metro 2023 RTP Financially Constrained System were considered a part of the baseline for modeling and evaluation purposes.

Issues and Needs Screening

As a result of the issues and needs screening process, some investment options were removed from consideration. These are detailed below by category and grouped by their reason for removal.

Table 5-1 Investment Options Removed Through the Issues and Needs Screening

Category	Reason for Removal
Carshare programs and policies	These options were determined to be outside the scope of the project. They are either private or other agency programs out of the direct control of ODOT and Metro.
Micromobility programs and policies	
Changes to land use, development code	
Employee Commute Options[12] (DEQ program)	
Regional demand management (trip-planning website; education and Portland Smart Trips; bike lockers at transit stations, transportation management associations)	

[12] Employee Commute Options program. https://www.oregon.gov/deq/aq/programs/pages/eco.aspx#:~:text=Employee%20Commute%20Options%20is%20a,in%20Portland%20and%20surrounding%20areas.

Category	Reason for Removal
Bike lending library	Impact is not sufficient to address key issues and needs; not regionally significant.
Bikeshare program	
Bike repair hubs and training	
Hillsboro Airport – air cargo expansion	Hillsboro Airport master plan indicates no plans for expansion.
Time-sensitive freight on MAX light-rail (access to PDX)	Not feasible.

Final Scenarios and Packages

Following the issues and needs screening, the project team met several times with the PMG and presented the remaining investment options along with research and past findings that were available. Several collaborative discussions resulted in five scenario packages (see Figure 5-1 through Figure 5-5). Packages are groupings of investment options that strive to answer specific thematic questions, detailed in Table 5-2. This approach was taken because it was not possible to individually test investment options due to timeline and budget constraints, and because future investments would likely not be implemented in isolation.

Layered Approach

Scenario packages 1 through 4 were designed to be layered on top of one another in an additive approach. For example, Scenario 1 represents only the investments in that scenario, while Scenario 2 represents the investments in Scenarios 1 and 2. The project team and PMG put a strong emphasis on capturing benefits from smaller, more easily implementable projects while working up to larger investments. This approach reflects regional and state policy for transportation investments and is demonstrated in the thematic questions for Scenarios 1 through 4. Scenario 5, the tolling scenario, is the only standalone scenario that was not layered onto the prior scenario investments, though it used the same baseline (financially constrained RTP). This scenario was kept separate to help the team understand the potential impact of pricing independent of other investments. The implementation of pricing would likely result in adjustments to other investments and would require further assessment.

Scenario 5 (tolling), like Scenarios 1 through 4, assumed future implementation of the tolling projects and programs in the 2023 RTP: the Regional Mobility Pricing Project (RMPP), tolling on the I-205 Abernethy Bridge, and tolling on the I-5 Columbia River Bridge (Interstate Bridge Replacement Program).

Defining Investment Options for Evaluation

The specific investment options in each scenario were further defined for inclusion in modeling and evaluation through a collaborative effort. The project team conducted a thorough review of existing plans for specific information, PMG members contributed details from their local jurisdictions, Metro provided context and information about the status of the projects in the RTP that was in development at the time of this phase of the project, and ODOT reported on inputs to past modeling efforts such as the Corridor Bottleneck Operations Study. The defined investment options were modeled with either the regional travel demand model (RTDM) or were included as qualitative information if it was not possible to include them in the model. The results from these efforts are included in the next section of this report.

Table 5-2 Scenario Packages and Investments

Scenario	Scenario Question	Projects in Regional Model Evaluation	Projects in Qualitative Analysis
No-Build/ Baseline		▪ 2023 RTP (2020 Base Year and 2045 Financially Constrained System)	
1	What can we achieve by using pricing and system management? i.e., what can we do with the pavement already on the ground?	*Projects above plus:* ▪ Transit travel-time improvements ▪ Transit fare subsidy ▪ Fixed-route shuttles and circulators (see Figure 51)	▪ Regional bike network ▪ Incident response ▪ Active traffic management ▪ Vanpools ▪ Parking policies and pricing ▪ Employer and regional demand management program enhancements ▪ Bike and micromobility programs ▪ Carshare programs
2	What can we achieve by implementing relatively short-term improvements such as modifications to interchanges, investments in active transportation, and expansions of transit service and park and rides?	*Projects above plus:* ▪ 185th/US 26 Interchange ▪ US 26/I-405 modifications (minimize merges) ▪ Bus-on-shoulder on US 26 ▪ Park and ride ▪ New transit corridors ▪ High capacity transit – New route along Barnes Road from the Sunset Transit Center to the Hillsboro Central Transit Center	*Projects above plus:* ▪ Close gaps in the regional pedestrian network

Scenario	Scenario Question	Projects in Regional Model Evaluation	Projects in Qualitative Analysis
3	What improvements would we see by investing in parallel routes and local facilities?	*Projects above plus:* ▪ Managed Lanes on US 26 – high-occupancy vehicle and freight ▪ Ross Island Bridge reconfiguration ▪ Widen Cornelius Pass Road ▪ Widen Barnes Road/Burnside Street ▪ Add arterial crossings of US 26 ▪ New three-lane roadway – Schaaf Street ▪ Freight bypass at ramp meters ▪ Expanded transit service – add MAX frequency between Hillsboro Hatfield Center and Expo Center	*Projects above plus:* ▪ Improvements to create complete streets on local facilities and parallel routes, where missing
4	What are the larger-scale, major infrastructure concepts that could provide significant multimodal improvements?	*Projects above plus:* ▪ Reconfigure I-405/US 26 (Market Street) ▪ Northern Connector – new roadway, tolled tunnel connecting Kaiser Road to US 30 across the west hills/Forest Park ▪ North Willamette River Bridge – connects US 30 to Columbia Boulevard or Lombard Street ▪ Widen US 26 from 217 through the Vista Ridge Tunnel ▪ MAX tunnel downtown between Goose Hollow and Lloyd Center	*No additional projects to be addressed qualitatively*
5 (Tolling)	What can be achieved by applying tolling/congestion pricing?	▪ Toll US 26 from Brookwood Parkway to I-405 and OR 217 from US 26 to I-5 (same assumptions as RMPP)[13]	*No additional projects to be addressed qualitatively*

[13] Tolls are in addition to those already planned and included in the 2023 Regional Transportation Plan.

Figure 5-1 Scenario 1 Improvements Map

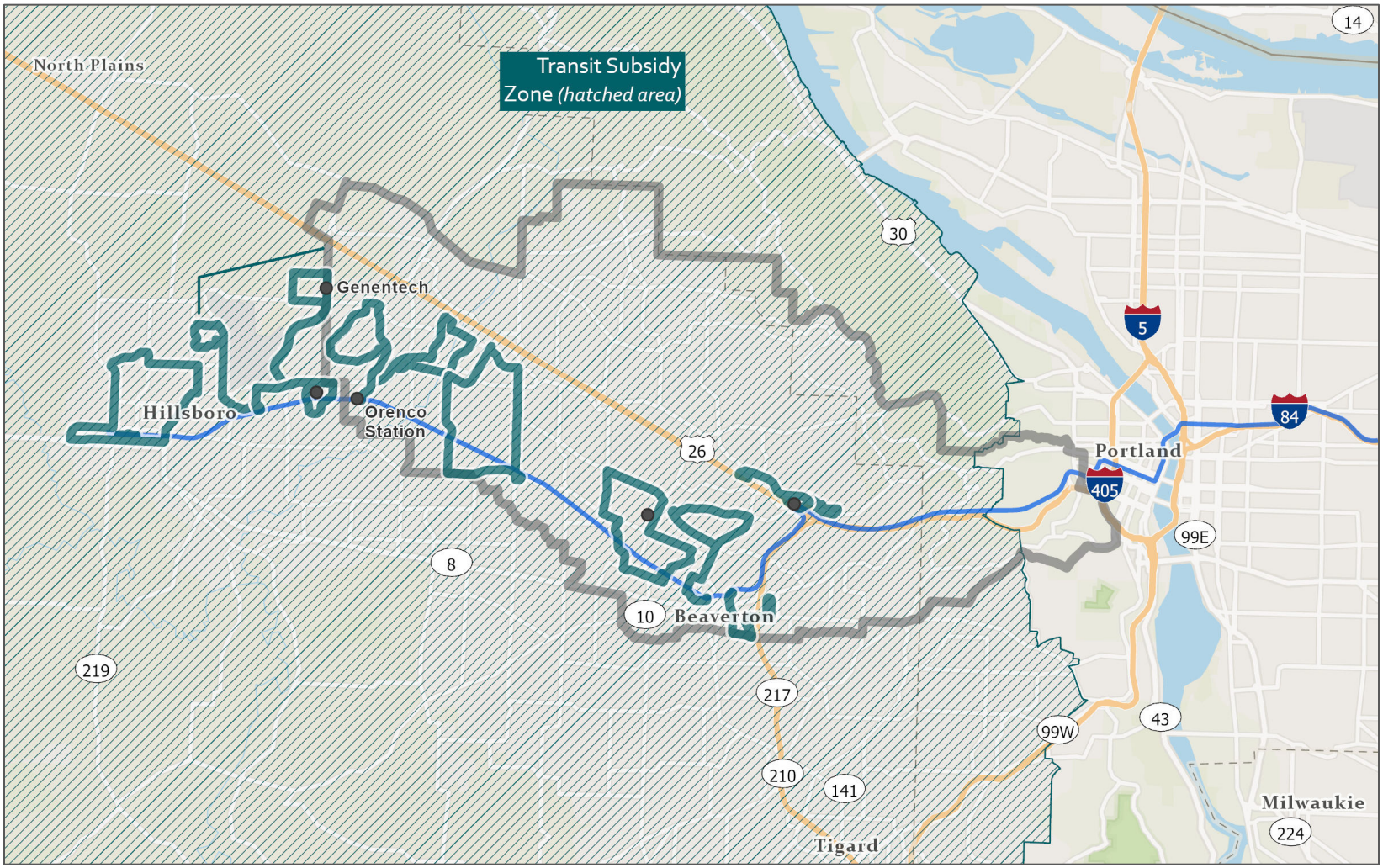


Figure 5-2 Scenario 2 Improvements Map

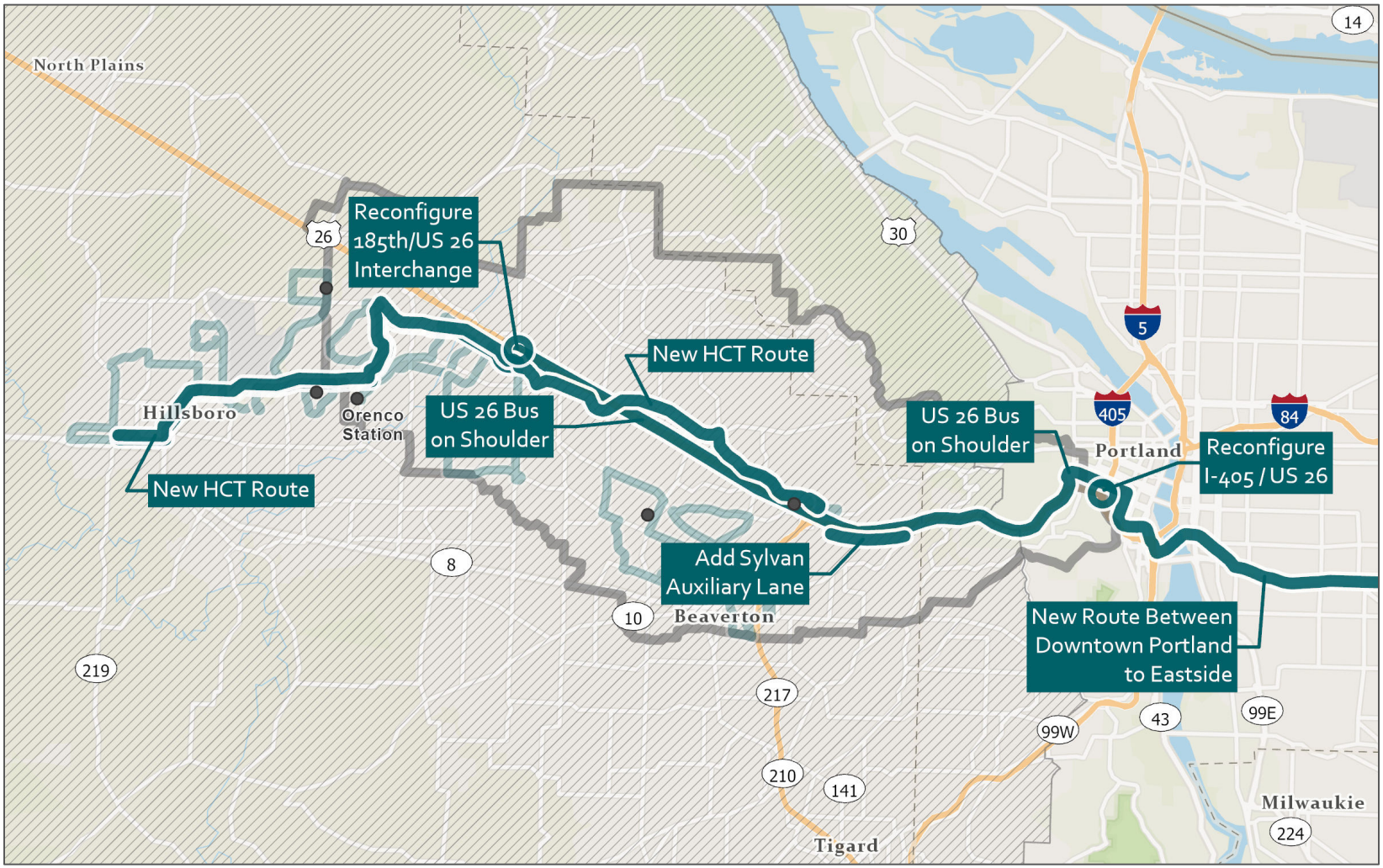


Figure 5-3 Scenario 3 Improvements Map

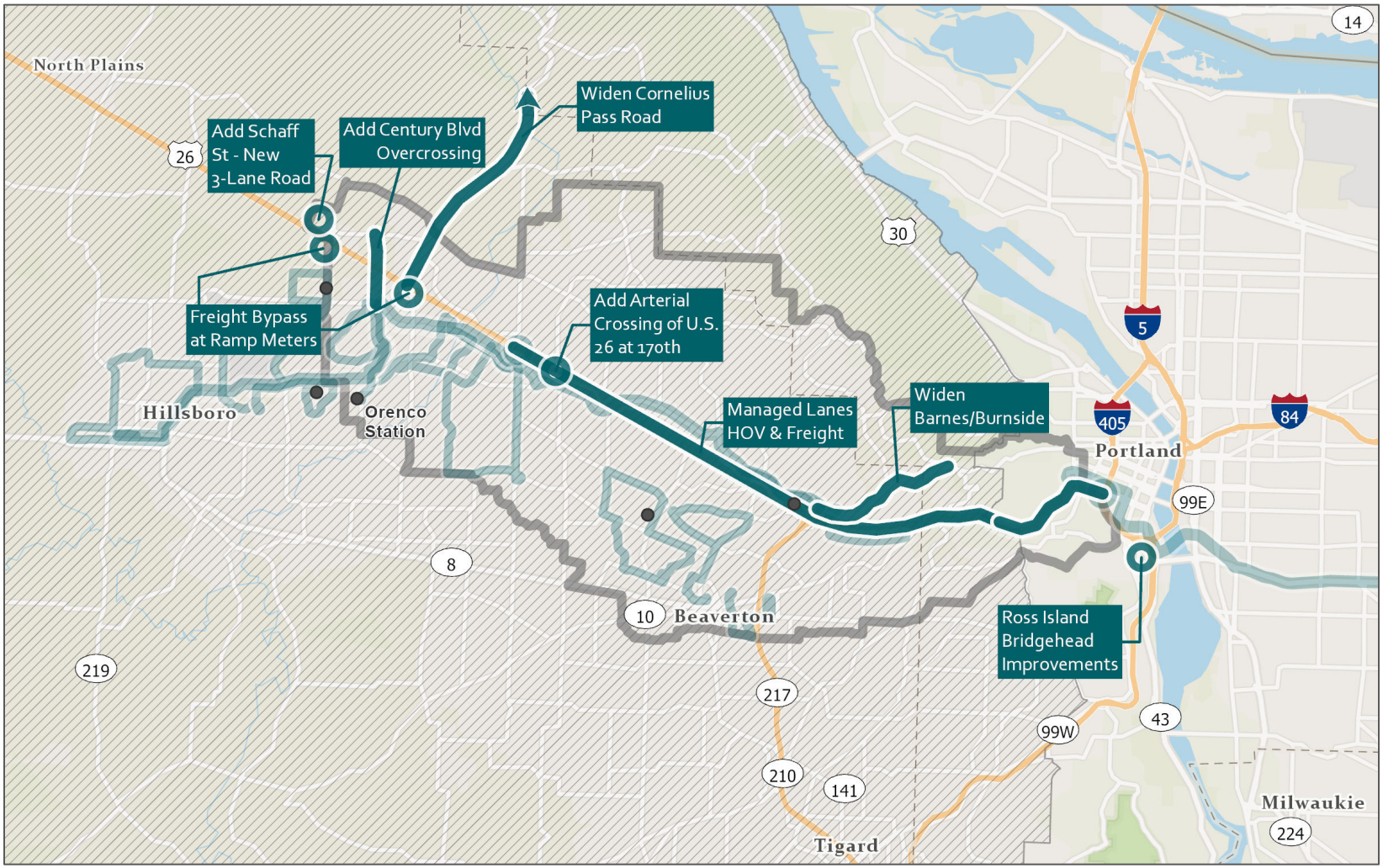


Figure 5-4 Scenario 4 Improvements Map

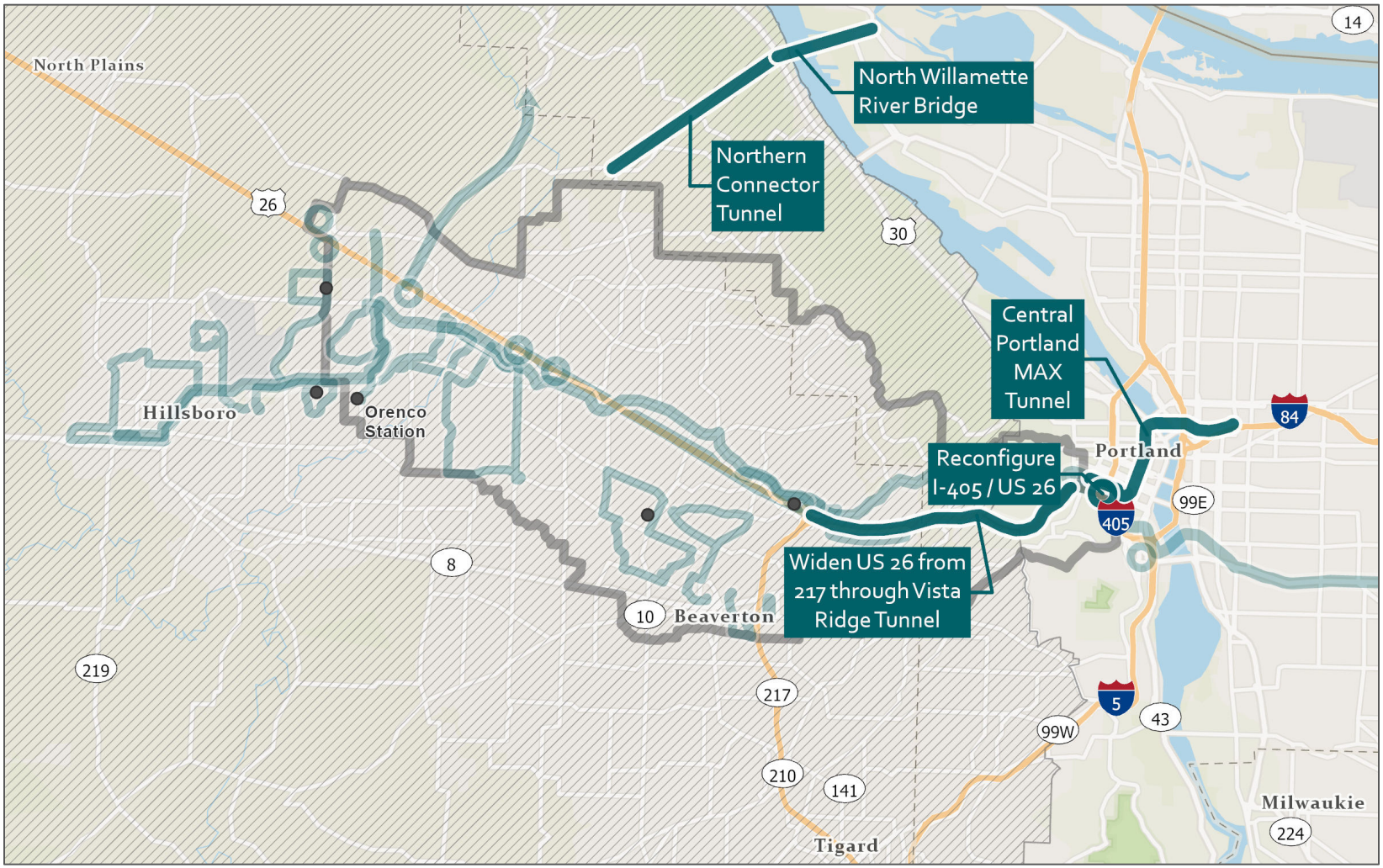
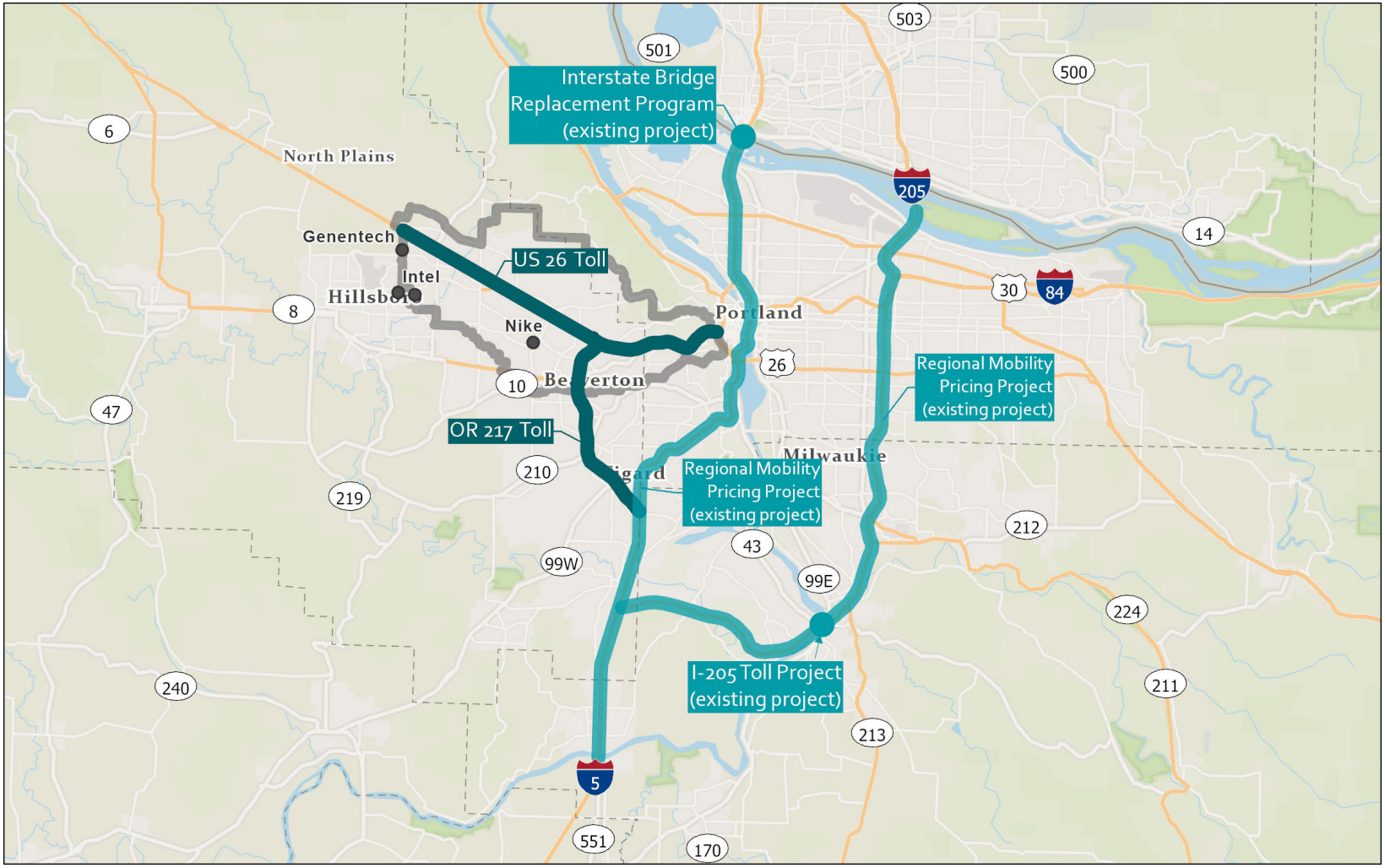


Figure 5-5 Scenario 5 (Tolling) Map



6 Evaluation of Scenarios – Results

Model results for the five scenario packages were analyzed to respond to the quantitative evaluation metrics defined in Section 4. Qualitative analysis was also included, but the results below rely most heavily on the quantitative response. Attachment N presents the qualitative safety evaluation.

The model results (quantitative) clearly highlighted the scenarios and investment options that were able to change vehicle travel behavior and patterns, which correlates closely with the Issues, Needs, and Problem Statement. The region has had a longstanding commitment to implementing multimodal projects and solutions, and the outcomes of the modeling effort show that bigger investments or tolling may now be needed to see more shift to non-automobile modes. The project team met several times with the Steering Committee to present results and conduct a priority-setting exercise where each committee member was given a limited number of votes to cast on projects they wanted to prioritize. The PMG assisted the project team in an additional feasibility analysis which quantitatively analyzed conceptual-level cost estimates and viability. Where possible, costs referred to cost estimates from prior planning documents. For new investment options, costs range estimates were developed. Following these discussions and feedback, the project team was able to develop a final draft recommendation.

Tolling was overwhelmingly the most effective at creating quantifiable change in all evaluation measures, followed by the large infrastructure investments in Scenario 4. Scenarios 1 through 3 show little to no change from the baseline in nearly all measures. Scenario 3 performs the best for increasing non-auto trips by mode, but this increase is still less than 1%. Results for the evaluation metrics are described below, and the final draft recommendation follows in Section 7.

Mobility

Person-Trips by Mode

The percentage change for non-auto mode shift for all scenarios compared to baseline 2045 is small. Scenario 3 shows the greatest difference, with about 1% increase for non-auto trips. Scenario 4 adds auto capacity in addition to transit capacity which causes smaller increases in non-auto modes. Scenario 5 (tolling) shows increases in high-occupancy vehicle and non-auto trips with no added transit improvements over the baseline as people choose alternatives to driving when tolls are introduced.

Baseline 2045 Mode Shift

The baseline 2045 scenario shows a shift away from single-occupancy vehicles between 2020 and 2045. This reflects 25 years of policies and land use that are focused on meeting goals to reduce per capita VMT and the share of single-occupancy vehicle trips within overall travel in the region. While the number of auto trips increase from 2020 to 2045 by about 1 million trips, the overall share of these auto trips decreases, as trips shift toward carpooling and transit, walking and biking.

Figure 6-1 Regional Change in Trips by Mode – Baseline 2045 from 2020

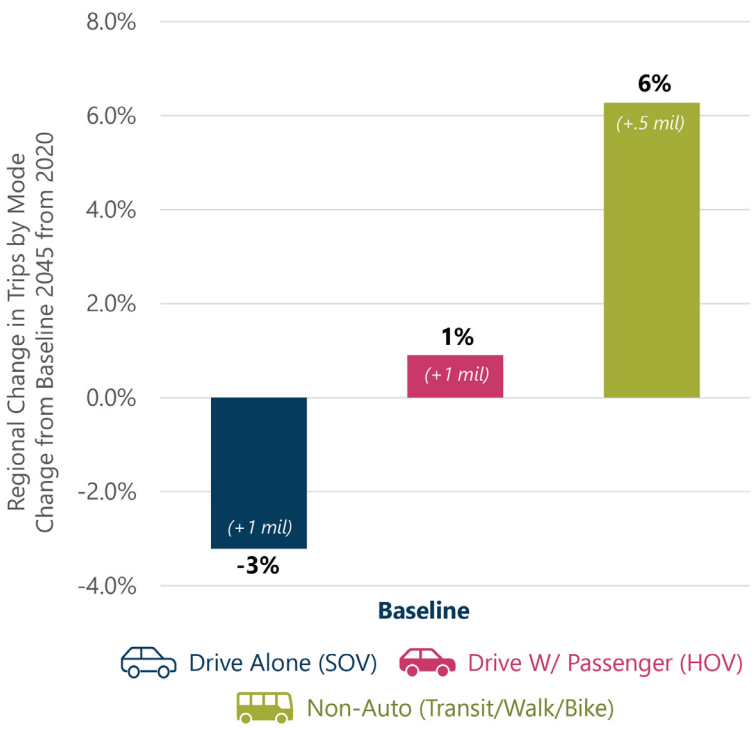
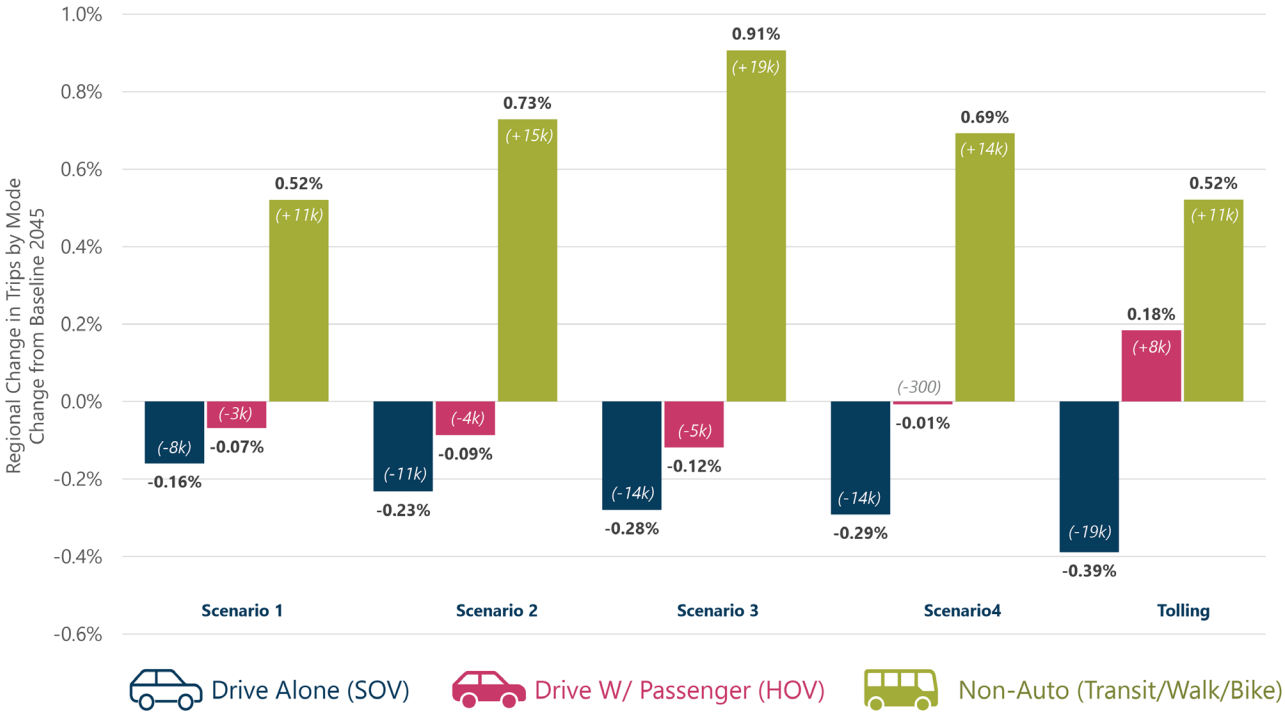


Figure 6-2 Regional Change in Trips by Mode – from Baseline 2045



Travel Pattern Changes and Diversion onto Local Streets

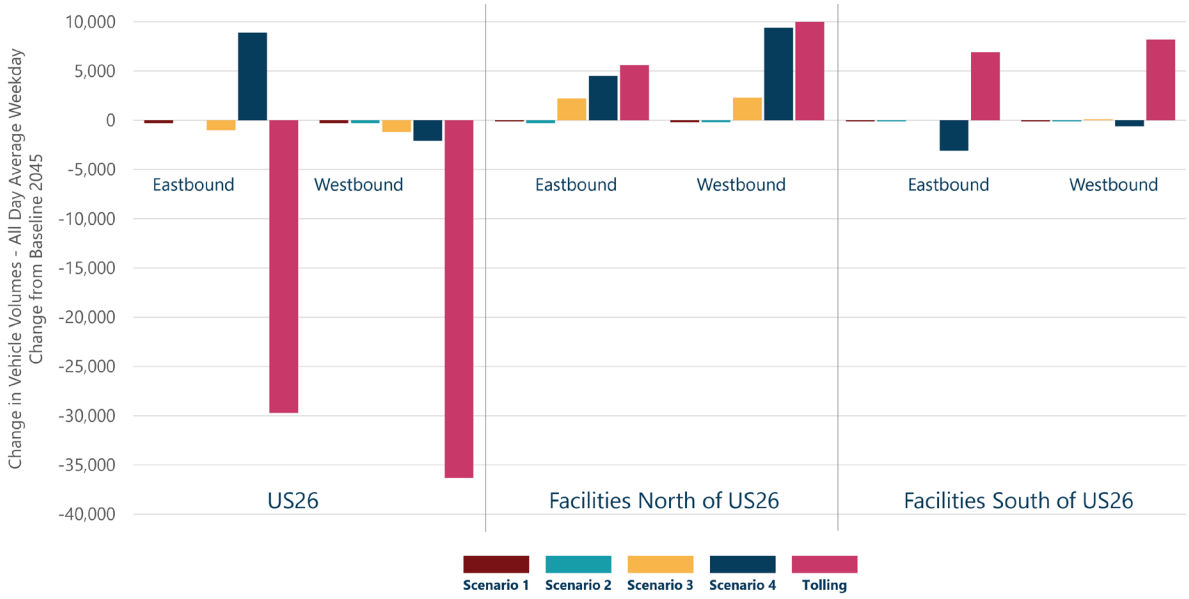
Figure 6-3 presents changes in the volume of vehicles in different parts of the study areas. There are changes to the number of vehicles north of US 26, on US 26, and south of 26. These differences are a result of a number of factors, primarily changes in capacity and diversion. Scenarios 1 through 3 had relatively small changes in vehicle volumes on local streets north and south of US 26 compared to the baseline alternative. Of these, Scenario 3 shows the greatest difference. This is attributed to capacity increases on Cornelius Pass Road which increases traffic on facilities north of US 26. Scenario 4 adds more significant capacity on both eastbound US 26 and on the new Northern Connector.

Diversion is measured as the change in traffic from its normal route or path to an alternative path. .

Scenario 5 (tolling) shows the biggest change in traffic on US 26 with the introduction of pricing. For trips north and south of US 26 in this scenario, the increases in vehicle volumes are true diversion because no capacity was added compared to baseline. Tolling related diversion includes trips not made, change of time, change of mode, or change of route. Scenario 5 (tolling) shows large drops of vehicle volumes on US 26 and increases

on facilities elsewhere in the study area. Notably, the total volume of vehicles traveling in Scenario 5 (tolling) is reduced compared to the baseline.

Figure 6-3 Change in Vehicle Volumes – All Day During an Average Weekday, Change from Baseline



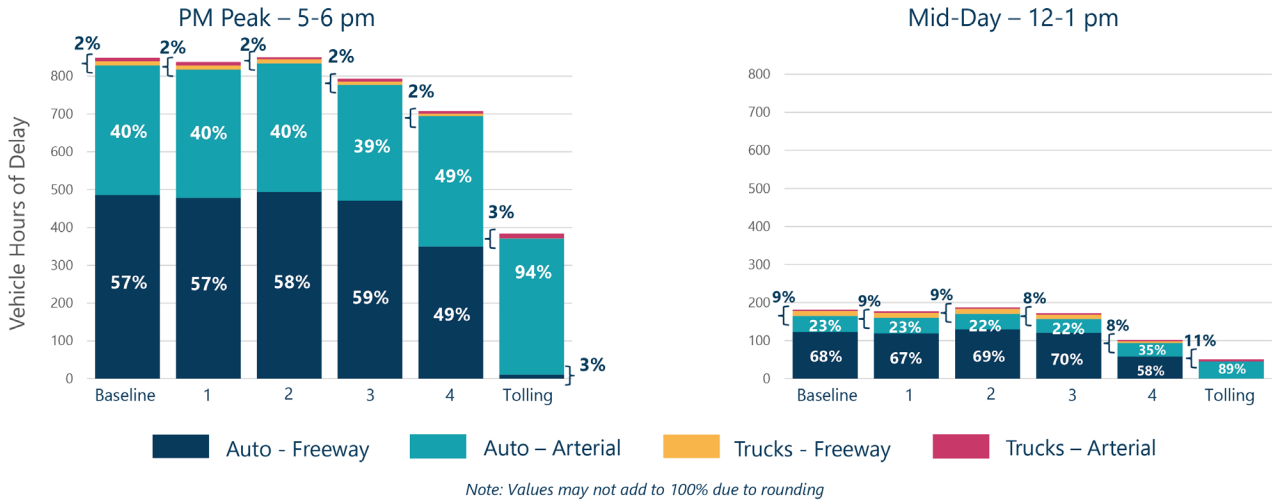
Vehicle Hours of Delay

This measure uses total vehicle demand and travel times on links as output from assignments completed in the regional travel demand model (RTDM). Vehicle demand includes single-occupancy vehicles, high-occupancy vehicles, medium trucks, and heavy trucks. The starting point for this measure is a calculation of the volume to capacity (V/C) ratio which measures how congested a link in the network is given the number of vehicles that are assigned to it and its assumed capacity for carrying those vehicles. The V/C ratio is calculated for all links in the RTDM for each individual hour of a 24-hour average weekday using RTDM output assignments. The travel times for the final assignments are compared to travel times on links in the network that result if a link is over a V/C ratio of 0.90. The resulting time difference is the vehicle hours of delay. This calculation is completed for each individual hour of the 24-hour day and added together to get a daily total. For overall vehicle hours of delay on freeway and arterials on the Westside (Figure 6-4), Scenarios 1 through 3 show almost no change in peak or mid-day delay compared to the baseline. However, Scenario 4 starts to show more of a decrease in overall travel delay and a shift to more equal amounts of arterial and freeway delay, where in the baseline and Scenarios 1 through 3, delay on freeways exceeded that on arterial routes. Scenario 5 (tolling) nearly eliminates delay on freeways and sees

reductions overall in delay, with small increases in truck delay primarily on arterials as a result of the diversion to local routes that is summarized above.

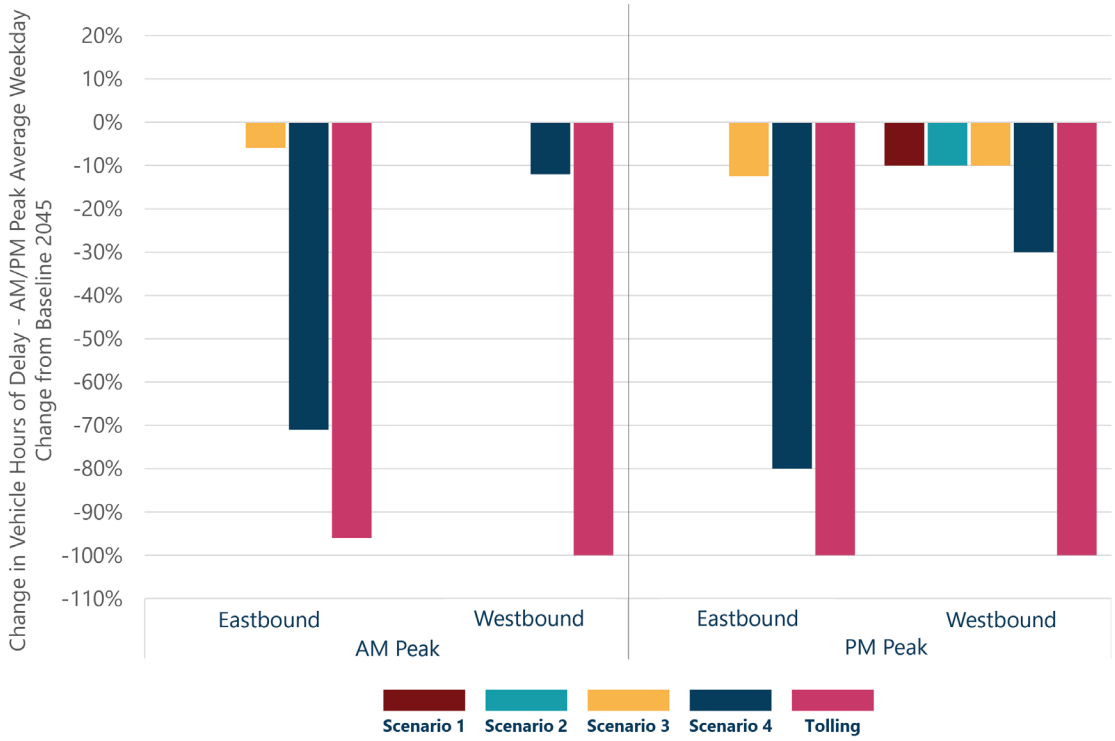
Delay on US 26 in both directions follows a similar trend with Scenarios 1 through 3 seeing only minor improvements from the baseline alternative, Scenario 4 seeing more significant differences, and Scenario 5 (tolling) completely removing delay in both the AM and PM peaks (Figure 6-5).

Figure 6-4 Vehicle Hours of Delay – Westside, Including the Study Area



Note: Values may not add to 100% due to rounding

Figure 6-5 Change in Vehicle Hours of Delay – AM/PM Peak on an Average Weekday, Change from Baseline



Travel Time Reliability

Similar to the results for delay, the results for the travel time reliability measures see very little change between the baseline alternative and Scenarios 1 through 3, while Scenario 4 improves somewhat (better improvement in the eastbound direction) and Scenario 5 (tolling) shows substantial improvements in both directions. Hours of congestion could drop to 0 with tolling, from about between 11 to 14 hours per day depending on direction (Table 6-1).

Travel time is reduced from the baseline alternative in only Scenario 4 and Scenario 5 (tolling). Scenario 4 would reduce the 2045 travel time from the baseline to be similar to today. Scenario 5 (tolling) has the largest reduction, dropping travel time by between 6 and 7 minutes depending on the direction of travel (approximately 4 minutes faster than today).

Table 6-1 Hours of Congestion at the US 26 Vista Ridge Tunnel

Direction	Baseline 2045	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Tolling
Eastbound	14	14	14	14	4	0
Westbound	11	11	11	10	9	0

Table 6-2 Change in AM Peak Travel Time (Minutes) on US 26 from Hillsboro to the Vista Ridge Tunnel

Direction	Baseline 2045	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Tolling
Eastbound	+3	No change	No change	No change	-3	-7
Westbound	+2	No change	No change	No change	-1	-6

Note: Baseline change is from today, scenarios change from baseline.

Safety

Safety impacts were analyzed qualitatively using a comparison to known crash modification factors and professional judgment. Each potential investment option was evaluated, and a summary by scenario is provided below for the two crash types: crashes involving vulnerable users (pedestrians and bicyclists) and crashes at high-crash locations. Investments with a positive impact on safety (or a positive score) would improve safety either through proven countermeasures or by addressing travel in areas with a known high rate of crashes and severe crashes. Investments with a neutral impact (scoring 0) would not influence overall roadway safety or there was not enough detail to make a determination. Investments with a negative impact involve factors associated with higher crash rates and more severe crashes. Attachment N includes the qualitative safety evaluation.

Table 6-3 Safety Assessment

Scenario	Safety Summary	Key Investments
1	All potential investment options would have a neutral or positive impact on safety.	Intelligent transportation system improvements would provide advanced warning/notification for drivers; an expanded bike network would make it easier to travel by bike for all types of trips.
2	Most investments would be slightly positive for safety.	Closing gaps in the pedestrian network would make it safer and easier to travel by walking or mobility device and would improve access to transit.

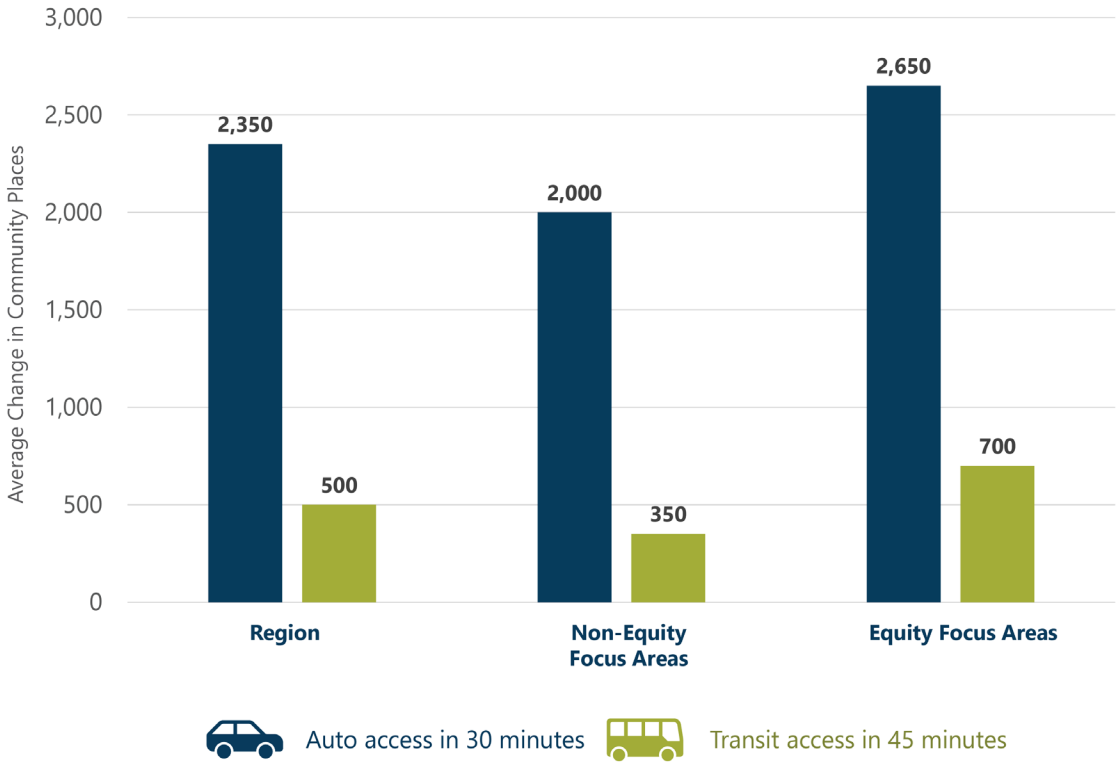
Scenario	Safety Summary	Key Investments
3	Investments would have varied impacts for safety. Investments that increase roadway capacity would have a strongly negative impact on safety.	Design for projects such as widening Cornelius Pass Road or adding arterial crossings of US 26 would likely involve multiple safety countermeasures, but project details have not been established yet.
4	Investments would have varied impacts for safety. Investments that increase roadway capacity would have a strongly negative impact on safety.	Widening US 26 on the east end and building the Northern Connector and North Willamette bridge would add new capacity. Wider roads can negatively impact safety through longer crossing distances for people walking and rolling and increased speeds.
5	Tolling would have a undetermined impact on safety.	There is limited research on the safety outcomes of tolling and road pricing.

Social Equity

Access to Community Places

Future investments will improve access to community places, particularly for people living in or traveling to equity focus areas. The baseline alternative, Scenarios 1 through 4, and Scenario 5 (tolling) show little difference in the number of destinations accessible within 30 minutes by auto and 45 minutes by transit. Figure 6-6 shows the change in community places accessible as an average since there is very little variation in the values. The average change is made up of the change from 2020 to baseline 2045 and from baseline 2045 to Scenarios 1 through 4 and Scenario 5 (tolling).

Figure 6-6 Average Change in Community Places



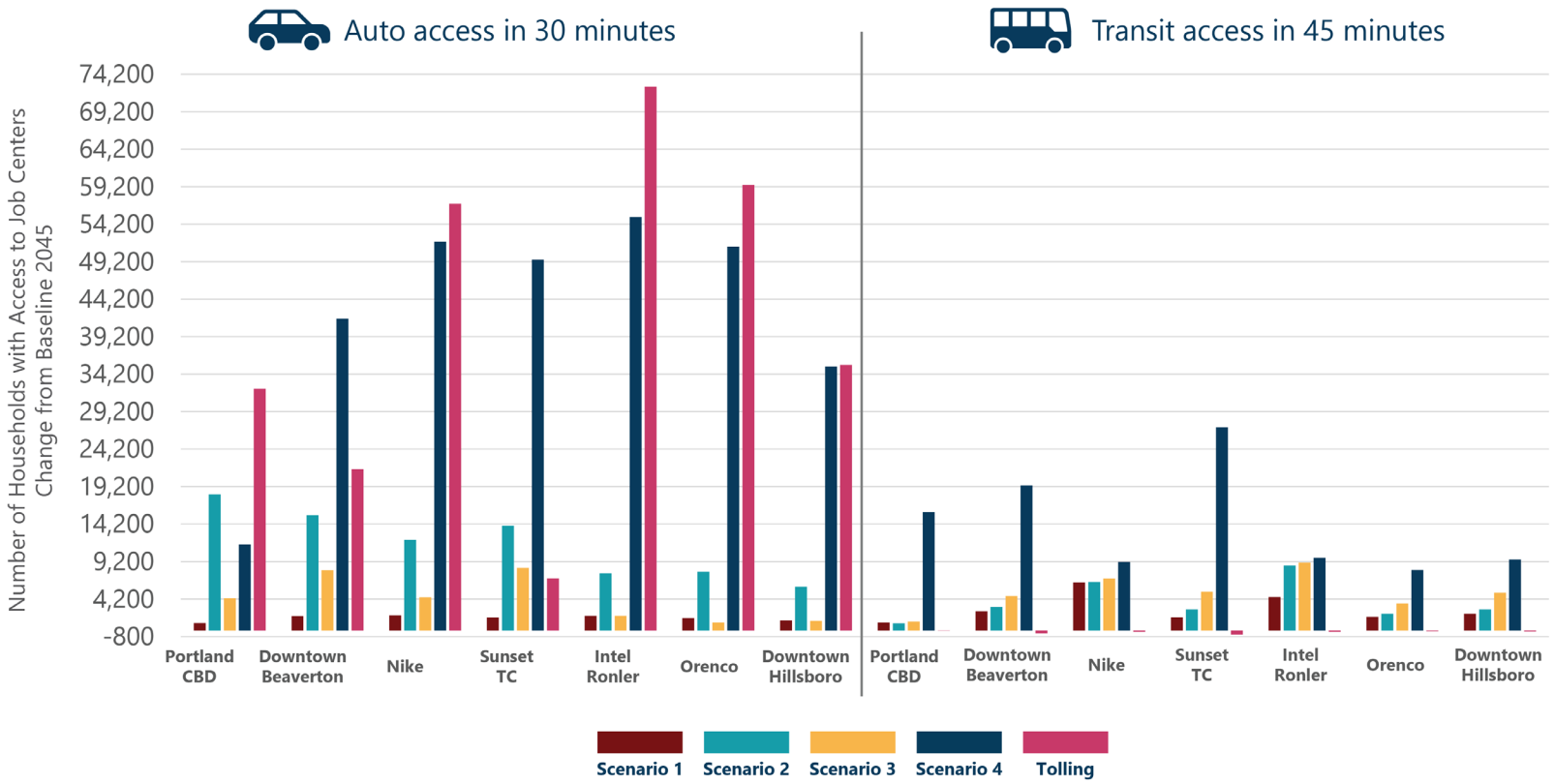
Households with Access to Job Centers

This measure analyzed how many households can reach designated jobs centers within 30 minutes by auto and 45 minutes by transit. Transit time includes walk time, wait time, and the time spent in the transit vehicle. Auto time only includes in-vehicle time. Each of the scenarios shows improvements compared to the baseline alternative. The most significant improvements for most locations are with Scenario 4 and Scenario 5 (tolling; see Figure 6-7).

Job Centers:

- Portland central business district (CBD)
- Downtown Beaverton
- Nike
- Sunset Transit Center
- Intel Ronler Acres campus
- Orenco Station
- Downtown Hillsboro

Figure 6-7 Change in Number of Households with Access to Job Centers by Mode – Change from Baseline 2045

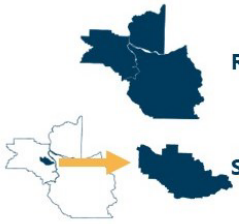


Climate Action

Change in Vehicle Miles Traveled

VMT per capita shows very little change compared to the baseline alternative. Scenario 5 (tolling) sees a 1-mile per capita decrease (see Figure 6-8).

Figure 6-8 Vehicle Miles Traveled per Capita – Total VMT, Not Change



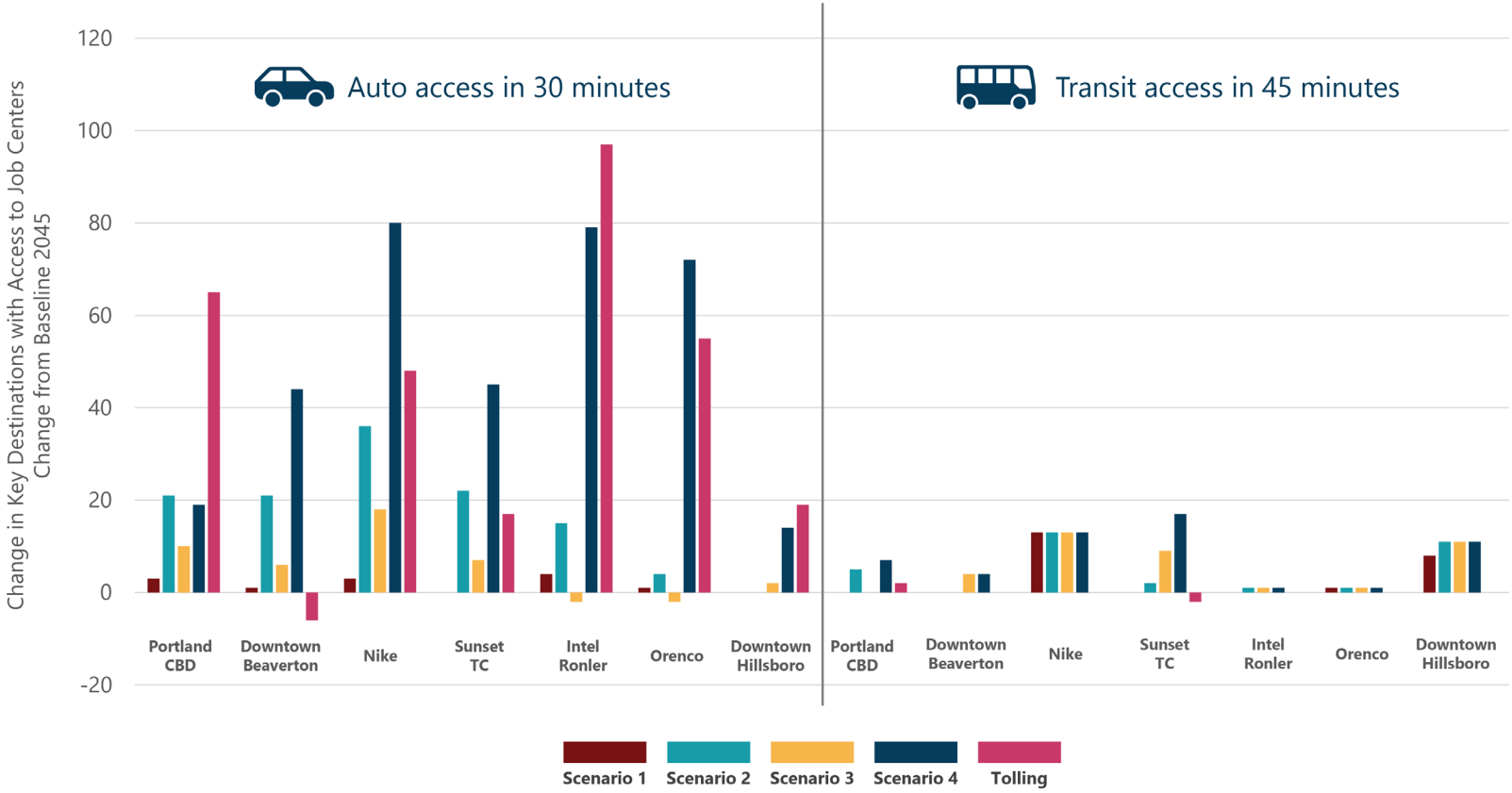
	Baseline 2045	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Tolling
Region	12.8	12.8	12.8	12.8	12.8	12.7
Study Area	25.2	25	25.1	25	25.1	24.2

Economic Vitality

Access to Key Destinations

Access to key destinations is a similar measure to households with access to job destinations. This measured how many key destinations were within 30 minutes by auto and 45 minutes by transit to specific job centers that are noted below in Figure 6-9. Transit time includes walk time, wait time, and the time spent in the transit vehicle. Auto time only includes in-vehicle time. Scenario 5 (tolling) shows fewer key destinations accessible via auto from downtown Beaverton and fewer from the Sunset Transit Center by transit (Figure 6-9). Scenario 3 results in fewer key destinations accessible by auto from both Intel Ronler Acres and Orenco Station. All other combinations of mode, scenario, and job center show increases from the baseline alternative.

Figure 6-9 Change in Key Destinations with Access to Job Centers by Mode – Change from Baseline 2045



Freight Travel Time

Figure 6-10 shows the eight freight routes analyzed while Table 6-4 shows the route names and the range of eastbound travel times throughout the day. For routes using US 26 (1A, 2A, 2D), Scenario 4, which adds capacity, and Scenario 5 (tolling) give the most improvement to travel time. Routes using Cornelius Pass Road (1B, 2B) perform the best in Scenario 4. This is in part because of traffic that is routed to the new Northern Connector tunnel which reduces congestion on Cornelius Pass Road. Northern Connector routes (1C, 2C), which are only in place in Scenario 4, see clear travel time improvements to PDX and Terminal 6. Route 3A, along US 26 and OR 217, only shows improvement in Scenario 5 (tolling).

Figure 6-10 Freight Routes

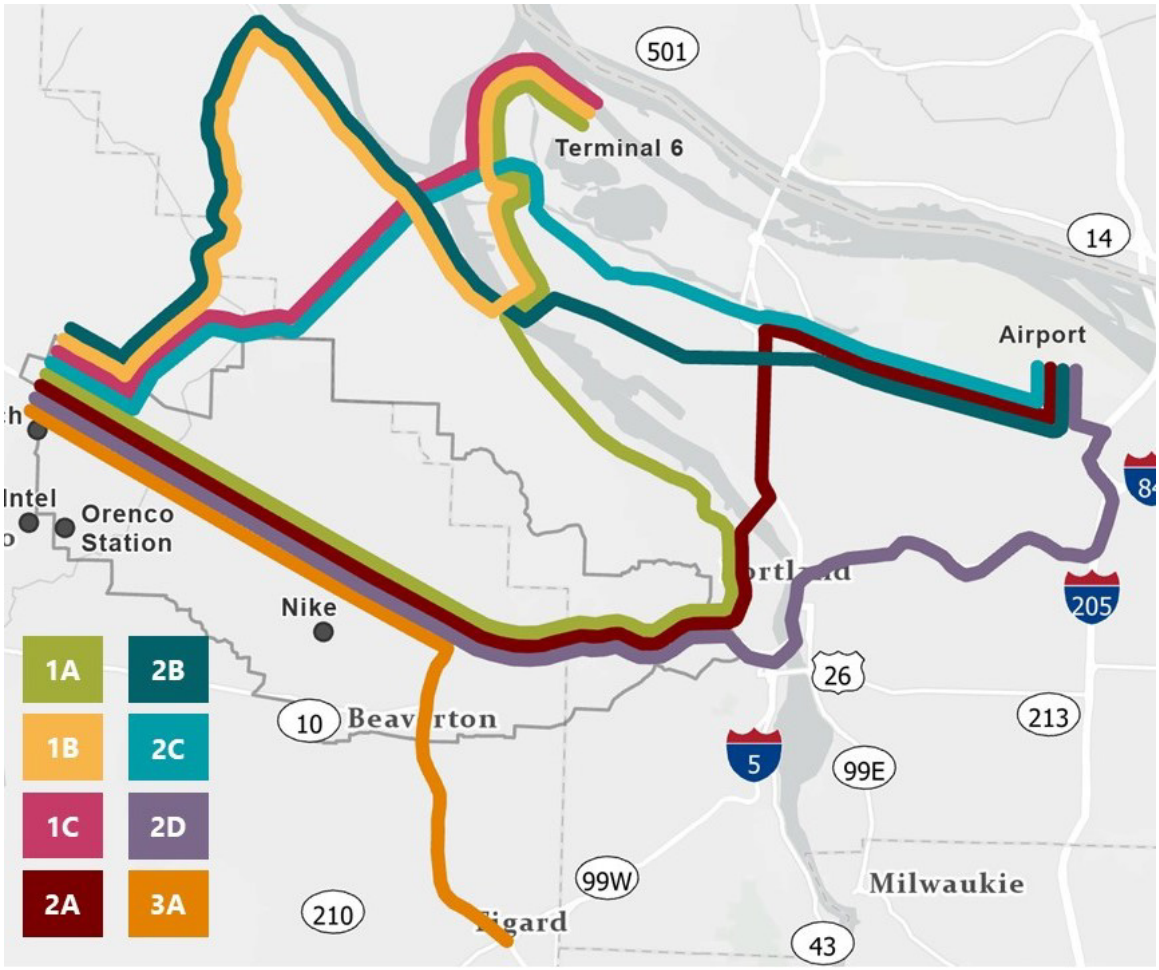


Table 6-4 Freight Routes Eastbound Travel Times – Range in Minutes Based on Time of Day

Freight Routes	Baseline 2045	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Tolling
1A: To Terminal 6a via US 26	44–53	44–53	43–55	43–52	40–47	39–46
1B: To Terminal 6 via Cornelius Pass Road	42–49	40–49	40–49	38–45	35–38	40–50
1C: To Terminal 6 via Northern Connector and new Willamette River bridge	–	–	–	–	19–21	–
2A: To PDX via US 26 I-405, I-5, and Columbia Boulevard	36–41	36–41	36–41	36–40	33–37	32–34
2B: To PDX via Cornelius Pass, St. John's, and US 30	49–55	48–55	48–55	46–51	43–45	48–56
2C: To PDX via the Northern Connector and new Willamette River bridge	–	–	–	–	32–35	–
2D: To PDX via US 26, I-405, I-84, and I-205	42–49	42–49	42–49	42–48	40–46	38–42
3A: To OR 217/I-5 via US 26	21–25	21–25	21–25	21–24	21–24	19–21

7 Recommendations and Conclusions

Project partners considered more than 80 potential multimodal project, strategic, and technology investment options in the development of a preferred set of investments and programs that address the problem statement. The investment options were grouped into scenarios, and each scenario was evaluated for its potential to address the problem statement. This evaluation was completed using measures within five priority areas: mobility and reliability, safety, social equity, climate action, and economic vitality. The Steering Committee developed its final recommendation based on the results of the evaluation.

State and regional policy guidance direct that improvements to system efficiency and management are required before additional highway capacity can be considered. The recommendations of the Steering Committee are consistent with that hierarchy, as described in the Oregon Highway Plan Policy 1G, Metro's Regional Transportation Plan Regional Motor Vehicle Network Policies 5 and 6, and Metro's Congestion Management Process.

The Steering Committee came to consensus on the recommendation below. The recommendation is organized as follows:

- Multimodal Investments. Transportation demand management and transit-supportive programs and projects that need more local, state, and federal funding to be successful.
- Strategic Capital Investments and Funding Strategy. Advance study of tolling paired with complementary corridor investments.
- Future Considerations. Items lacking consensus to advance but that may be considered in the future.

Recommended Multimodal Investments

Multimodal solutions are an important part of any solution addressing transportation needs in the region. State and regional priorities point to providing transportation alternatives to support our communities and advance our region's climate, safety, and social equity goals. Although the improvements listed in this section may not individually have a substantial impact on the overall mode share or other travel performance measures within the study area, they could be significant at a smaller scale and would provide important travel options to the community. These investments are listed in Table 7-1. A multifaceted partnership, including both the public and private sectors, is needed to help realize these investments:

- Local agencies should consider transit-oriented development policies and strategies.
- Employers can invest in travel option programs such as vanpools to address commuting trips.
- State and federal funding is needed to support capital investments in transit to support this package of transportation investments.

Table 7-1 Recommended Multimodal Investments

Program	Description	Owners
Employer and regional transportation demand management programs	Get There Oregon, a statewide program, will support a focused effort on the needs of Washington County's largest employers in cooperation with regional partners such as Washington County, the Westside Transportation Alliance, and the Washington County Chamber of Commerce.	Metro, Washington County, Washington County Chamber of Commerce, business partners
Close gaps in the pedestrian and bicycle network	Continue to work toward closing sidewalk and bike lane gaps in the west side to support providing access to transit.	City of Hillsboro, City of Beaverton, Washington County, Multnomah County, ODOT
High frequency and high capacity transit improvements	Use the Metro HCT Strategy and follow TriMet concepts laid out in Forward Together 1.0 and 2.0 and for the FX high-capacity bus service to continue to grow high capacity transit options on the Westside. As new transit is developed, continue to consider the need for bus-on-shoulder and new park and rides.	TriMet, Metro

Program	Description	Owners
Shuttles and circulators	Continue to grow shuttles and circulators, advancing the work done as part of the Washington County Transit Study.	Washington County
Park and rides	Consider opportunities for park and rides that might be leased or owned by cities or Washington County.	Washington County, City of Hillsboro, City of Beaverton
Parking pricing	Evaluate local policy and plans to implement town center and regional center parking pricing.	City of Hillsboro, City of Beaverton, Metro (policy)

Recommended Strategic Capital Investments and Funding Strategy

The WMIS demonstrated that tolling was an effective tool to manage congestion and improve safety and travel time reliability on US 26. When paired with projects on nearby routes, increased systemwide benefits are expected. Furthermore, tolling revenues could be leveraged to fund complementary safety, transit-supportive, and operational investments at congested bottleneck locations on and off US 26. Based on the evaluation, the Steering Committee recommends conducting a study of tolling paired with options for phased strategic capital investments on US 26 or ancillary routes. The future study would evaluate local (within the study area) and regional (beyond the study area) multimodal transportation network and land use impacts, while balancing congestion management, revenue generation, and equity outcomes. The future study should account for other potential expanded transportation funding efforts to be explored at the local, regional and state levels in addition to federal funding opportunities. The future study would be developed in collaboration with regional partners and would include extensive public engagement. Strategic investments to pair with tolling are listed in Table 7-2.

Table 7-2 Strategic Investments to Pair with Tolling

Program	Description	Owners
Corridor bottleneck improvements: US 26/I-405	Build upon work done in previous studies such as the ODOT Corridor Bottleneck Operations Studies 1 and 2 which identified recurring bottlenecks and evaluated potential solutions at a high level. On US 26 and I-405, several concepts have been identified for further study. Use the Metro Freight Commodity Study for additional information on demand and economic impacts of bottlenecks and freight travel-time reliability.	ODOT
Cornelius Pass roadway safety and mobility improvements	Cornelius Pass Road (OR 127) between US 26 and US 30 is already used as an alternative to US 26 for hazardous materials transport, some freight, and general traffic. To improve safety, provide system resiliency, and address traffic diversion, the Steering Committee recommends identifying phased improvements to Cornelius Pass Road. Build upon previous work such as the Cornelius Pass Road Safety Evaluation Jurisdictional Transfer Agreement to improve mobility through the corridor and increase safety for hazardous materials that are diverted to Cornelius Pass Road since they are prohibited on US 26 between OR 217 and I-405 due to the Vista Ridge Tunnel.	ODOT
Barnes Road improvements	Evaluate the improvements to Barnes Road at strategic locations within Washington County to improve access to transit, safety, and traffic congestion and address diversion. This would be consistent with the strategic investments section of the 2023 RTP, which includes a study of widening SW Barnes Road to four or five lanes between OR 217 and SW Leahy Road and to two or three lanes between SW Leahy Road and the Multnomah County line. The design would focus on improving access to transit, safety, and operations and would be advanced within a multimodal framework. Features could include provision of turn lanes in select locations, enhanced bicycle and pedestrian accessibility including completing bike lane and sidewalk gaps and ADA improvements, enhanced pedestrian crossings, transit priority, and bus stop improvements as part of a corridor-based bus rapid transit project or to ready the corridor for future corridor-based bus rapid transit investment.	Washington County
Transit-supportive investments: high frequency and high capacity transit	Identify funding and implementation strategies for enhanced transit services and transit-supportive corridor investments that can result in transit travel time and reliability improvements along tolled corridors. Jurisdictions with road and signal authority play an important role in making improvements on roadways to help buses run faster and more reliably in conjunction with the tolling time frame.	TriMet, Metro, ODOT, counties, cities

Future Considerations: Additional Items Discussed by the Steering Committee

A minority of Steering Committee members advocated for studying new capacity projects in the form of the Northern Connector and a new North Willamette bridge. These two projects would create a new connection between Germantown Road/Kaiser Road (north of US 26) across/through the west hills to U.S. 30 and a new bridge across the Willamette River to the vicinity of N Columbia Boulevard or N Lombard Street in North Portland. A new Northern Connector was first evaluated in the *Washington County Transportation Futures Study* in 2017. That study showed the potential of these facilities to provide an efficient and reliable route for freight vehicles, a resilient route option for travelers during winter storms and other incidents, and potentially a safer and more direct route for hazardous material than the current route over Cornelius Pass Road.

Several factors influenced the Steering Committee's decision not to include these two projects in the recommended Strategic Capital Investments and Funding Strategy. The primary factors were:

- State and regional policies require that system- and demand-management strategies be used before adding capacity to existing facilities and before building new facilities.
- High construction and ongoing maintenance costs and concerns about potential environmental impacts.
- A lack of support from the majority of jurisdictions through which the facilities would pass.

The Steering Committee agreed that if the combination of multimodal investments and demand management, transit, tolling, and capacity improvements on existing facilities did not adequately address the problem statement and evaluation priorities identified by the Steering Committee, then the region may want to consider studying new facilities such as the Northern Connector and a new North Willamette bridge.

8 References

Executive Summary

Metro. 2023. Regional Transportation Plan. https://www.oregonmetro.gov/sites/default/files/2023/12/21/2023-RTP-Ordinance-No-23-1496-adopted-package-exhibit-A.pdf

Metro. 2018. Federal performance-based planning and congestion management process documentation. https://www.oregonmetro.gov/sites/default/files/2018/12/05/RTP-Appendix_L_CMP%20Roadmap20181206web.pdf

ODOT (Oregon Department of Transportation). 2023. Oregon Highway Plan. https://www.oregon.gov/odot/Planning/Documents/OHP.pdf

Chapter 1

Greater Portland Export Initiative. 2013. Portland Region Westside Freight Access and Logistics Analysis. Prepared by DKS, Portland, OR. https://popcdn.azureedge.net/pdfs/Trade_Trans_Studies_Westside_Freight_Access.pdf

Washington County, Oregon. 2017. Washington County Transportation Futures Study. https://www.washingtoncountyor.gov/lut/planning/transportation-futures-study

U.S. Census Bureau. 2019. Longitudinal Employer-Household Dynamics (LEHD), OnTheMap. Accessed June 11, 2024. https://onthemap.ces.census.gov/

Chapter 4

Metro. "All equity focus areas" (Feature layer dataset). Scale not given. April 10, 2020. Accessed June 11, 2024.

https://regionalbarometer.oregonmetro.gov/datasets/drcMetro::all-equity-focus-areas/about

Chapter 5

DEQ (Oregon Department of Environmental Quality). 2024. Employee Commute Options. Air Quality, Clean Vehicles, Employee Commute Options Program. Accessed June 11, 2024. https://www.oregon.gov/deq/aq/programs/pages/eco.aspx#:~:text=Employee%20Commute%20Options%20is%20a,in%20Portland%20and%20surrounding%20areas

Chapter 7

Metro. 2023. High Capacity Transit Strategy. https://www.oregonmetro.gov/sites/default/files/2024/05/13/High-Capacity-Transit-Strategy-11302023.pdf

ODOT. Undated. Cornelius Pass Road Safety Evaluation Jurisdictional Transfer Agreement. https://multco-web7-psh-files-usw2.s3-us-west-2.amazonaws.com/s3fs-public/cornelius_passfinal_2012report.pdf

TriMet. 2024. FX-Frequent Express high-capacity bus service. Accessed June 11, 2024. https://www.trimet.org/fx/

TriMet. 2022. Forward Together. Accessed June 11, 2024. http://www.trimet.org/forward

Washington County, Oregon. 2024. Washington County Transit Study. Accessed June 11, 2024. https://www.washingtoncountyor.gov/lut/planning/washington-county-transit-study