

# MEMORANDUM

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**Subject:** Westside Multimodal Improvements Study Evaluation Framework

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## Overview

This memorandum documents the evaluation approach and criteria for the Westside Multimodal Improvements Study. Figure 1 illustrates the overall evaluation process. The first step will identify investment options (transportation projects or programs) that are likely to address the study's identified issues and needs. This initial list of programs and projects will be screened as part of an initial "issues and needs" screening to identify any investments that do not address the study's *Issues, Needs and Problem Statement* and that should be removed from further consideration.

The screened list of investment options will then be packaged into analysis scenarios; these scenarios will be evaluated to understand how different packages of investments might address the *Issues, Needs and Problem Statement* and best meet regional goals. In this second step, the scenarios will be packaged to illustrate the potential benefits, costs, and impacts of different approaches to addressing the *Issues, Needs and Problem Statement*. Once reviewed, the project team will develop and evaluate a final "preferred" scenario composed of those investment options that best meet study goals. The results of this preferred scenario will inform the recommendations for the Implementation Plan. These recommendations may include specific ideas, projects, and other actions that were shown to address issues and needs and that best met regional goals.

## Review and Engagement

The Project Management Group (PMG) and Steering Committee will provide review and guidance during development of investment options, scenarios, and criteria throughout the evaluation process. Community members and stakeholders will be asked to provide input at key points documented in the study's Public Engagement Plan.



Figure 1. Evaluation Process

## Step 1 – Investment Options Development and Issues and Needs Screening

### Project Identification

The project team will identify investment options (i.e., transportation programs or projects) that potentially address the *Issues, Needs and Problem Statement*. Investment options will be sourced primarily from past planning efforts, including the Washington County Futures study, transportation system plans (TSPs), and other key documents. Projects that are already programmed as part of the

Regional Transportation Plan (RTP) will be included as part of the baseline scenario for comparison, discussed later in this memorandum. The following plans and documents were the main sources of program or project ideas:

- Community Cycling Center – Pedals to the People
- Corridor Bottleneck Operations Study II (ODOT, 2019)
- Forward Together (TriMet, 2022)
- Get Moving 2020 (Metro, 2020)
- Get There Oregon (ODOT)
- Hillsboro Airport Master Plan (Port of Portland)
- Interchange Area Management Plan: Cornelius Pass Rd/Highway 26 Interchange (ODOT, 2003)
- Interchange Area Management Plan: Jackson School Road Interchange (ODOT, 2003)
- Interchange Area Management Plan: US 26: Brookwood Parkway/Helvetia Road Interchange (ODOT, 2012)
- MAX Tunnel Study (Metro, 2019)
- Metro Regional Congestion Pricing Study (Metro, 2021)
- Oregon's Traffic Incident Management Program (ODOT)
- Portland Region Traffic Performance Report (ODOT, 2021)
- Portland – Cannon Beach Junction (US 26) Corridor Plan (ODOT, 1999)
- Regional Transportation Plan (Metro, 2018)
- St. Johns Truck Strategy – (City of Portland, 2001)
- Safe and Healthy Urban Arterials (Metro Policy Brief June 2022)
- Transportation Development Tax project list (Washington County, 2021)
- TriMet Express and Limited Stop Feasibility Study (TriMet, 2021)
- Washington County First-Last Mile Transit Access Strategies Toolbox (Washington County, 2021)
- Washington County Transportation Futures Study (Washington County, 2017)
- Washington County Transportation System Plan (Washington County, 2019)
- Washington County Travel Options Assessment (Washington County Travel Options, Washington County, 2017)
- Westside Freight Logistics Study (DKS, 2013)

There are many plans with projects, programs, or ideas potentially relevant to this study. Some regionally significant projects or programs listed in local TSPs may not be reflected in the investment options list. Additional projects may be considered for inclusion based on feedback from the PMG. Additional project or program ideas beyond those in existing plans will be considered for inclusion as well.

## Initial Needs Screening and Evaluation

The project team will initially review the list of investment options to identify any that clearly do not address the study's *Issues, Needs and Problem Statement* and that do not have applicability at the regional scale of this study. The project team will screen projects by asking the following questions:

- 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 the identified regional issues, needs, and problems?
- Which issues and needs does the project or program address?

The project team will evaluate each investment option to reflect the source of the option (e.g., existing plan or new idea), the readiness of the project for implementation, the mode(s) best advanced, and a high-level cost estimate for the potential investment.

A given investment option does not need to address all issues or needs identified but may address one or more need. The project team will provide written justification for any projects or programs proposed for removal from the list. The results of this screen will also be reviewed by the PMG to confirm the findings. The PMG may provide additional justification for including or removing certain investments that informs the final list of investments advanced to Step 2.

## Step 2 – Scenario Evaluation

### Scenario Development

The project team will develop packages of investment options (scenarios) for evaluation. The purpose of these scenarios is to facilitate comparison of the performance of different groupings of investment options to illuminate those programs, projects, or ideas that best address study goals and *Issues, Needs and Problem Statement*. Evaluating investment options as a group also accounts for interactions among them that may increase benefits (or potential impacts). Scenarios will be grouped by theme. For example:

- By cost: scenarios composed of high, medium, and low-cost solutions
- By timeframe for implementation: short term and long term
- By “new ideas” (i.e., scenarios that test previously unevaluated ideas) and “existing plans”

There are many potential investment options (the initial list of options exceeds 80 individual projects or programs). For scenario analysis purposes, the project team may assess certain project ideas as a class of actions – for example, individual projects of a similar type that may be packaged together and included as a part of a scenario (e.g., transportation demand management (TDM) programs or measures). The scenarios will be developed in consideration of the context of the Federal performance-based planning and congestion management process.

### Scenario Evaluation

The project team will evaluate each scenario based on the criteria in Table 4. A score of -3 is assigned for scenarios that perform poorly or negatively with respect to the metric and to other scenarios, and +3 is assigned where the scenario would perform very strongly with respect to the other scenarios. A score of 0 represents an expected neutral outcome. In some cases, scenarios may only perform neutrally or positively, in which case the scores would range from 0 to +3. In other cases, all scenarios may perform the same and receive the same score. In all cases, the project team will provide justification for

each score. Where noted in the methodology column of Table 4, the Metro Regional Travel Demand Model (RTDM) or Dynamic Traffic Assignment model will be used in support of the evaluation metrics.

**Table 1. Evaluation Criteria Summary Table**

| Priority Area        | Evaluation Metric   | Methodology  |
|----------------------|---|--|
| <b>Mobility</b>      | Person throughput daily and peak periods  | Person throughput during selected peak and base period, weekday/weekend. Uses RTDM output as part of calculations for weekday and off-model calculation for weekend.   |
|                      | Diversion onto local streets  | Change in auto travel between highways and local roads (local street, collectors, arterials); from traffic analysis. Uses RTDM output as part of calculations.   |
|                      | Vehicle delay   | Hours per day of congested travel on US 26, weekday/weekend  |
|                      | Travel time reliability   | Travel time reliability will be measured by developing the ratio of congested corridor travel time to average corridor travel time for auto and transit modes on US 26. This will be compared to a target average corridor speed of 35 MPH, consistent with the draft Regional Mobility Policy. <sup>1</sup> This will be calculated for a trip originating at the westernmost end of the study area to downtown Portland. Uses RTDM output as part of calculations. |
| <b>Safety</b>        | Addresses crash types most often involving bicyclists and pedestrians                 | Qualitative assessment of the degree to which the scenario 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 would address crashes on the highway and arterial roadway system through application of CMFs or other interventions.  |
| <b>Social Equity</b> | Increase in jobs and places reachable within 30 minutes by any mode of transportation | Isochrone analysis that shows the geographies and number of jobs reachable within 30 minutes from locations that rank highest in Metro’s Equity Focus Areas (top quintile). Uses RTDM output as part of calculations.  |

<sup>1</sup> [https://www.oregonmetro.gov/sites/default/files/2022/10/06/Draft-Regional-Mobility-Policy-09302022\\_0.pdf](https://www.oregonmetro.gov/sites/default/files/2022/10/06/Draft-Regional-Mobility-Policy-09302022_0.pdf)

| Priority Area            | Evaluation Metric  | Methodology   |
|--------------------------|--|---|
|                          | Direct household transportation and housing costs as a percentage of income, compared to no action (doing nothing) | Total trip cost from locations that rank highest in Metro’s Equity Focus Areas within the study area, combined with average rents within those geographies. The trip cost will be determined for driving, transit, and cycling. Trip cost consists of out-of-pocket costs (gas, transit fare) and cost of travel time <sup>2</sup> , by travel mode. This trip cost will be divided by average daily wages of a minimum-wage worker. Uses RTDM output as part of calculations.  |
| <b>Climate Action</b>    | Change in VMT (proxy for GHG emissions) compared to no action  | Compare the existing/baseline VMT to the modeled predicted change. VMT will serve as a proxy for GHG emissions. A per-trip GHG emission estimate will be developed if practical. Emissions factors for freight, personal vehicles, and transit will be used for the calculation. Uses RTDM output as part of calculations.  |
| <b>Economic Vitality</b> | Access to essential destinations   | Number of essential 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 Campus. Metro’s Places of Interest GIS layer will make up the essential destinations, as well as major shopping centers. The analysis will use isochrone maps and Remix.  |
|                          | Freight travel cost index  | <p>Measured as the ratio of driver wages for a given trip segment (using \$1.40 per mile for daytime urban costs) to travel time required to complete the segment. People employed in freight trucking are typically paid per mile travelled, and direct costs (fuel costs, maintenance) increase when freight vehicles are stuck in traffic. The higher this ratio, the more efficient the freight movement is. The index will be calculated for the following segments:</p> <ul style="list-style-type: none"> <li>(1) from west end of corridor on US 26 to Terminal 6 at Port of Portland</li> <li>(2) from west end of corridor on US 26 to Portland International Airport via I-405, I-5, and Columbia Boulevard (route noted in the 2012 Westside Freight Access and Logistics Study)</li> <li>(3) from the west end of the corridor on US 26 to Portland International Airport using Cornelius Pass Road (or new roadway)</li> <li>(4) from the west end of the corridor on US 26 to the OR 217/I-5 interchange.</li> </ul> |

<sup>2</sup> \$14.75 per hour minimum wage, or \$118 per day.

| Priority Area | Evaluation Metric  | Methodology  |
|---------------|--------------------|--|
|               | Freight throughput | Total estimated value of commodities moved per hour in the US 26 corridor between the west end of US 26 and the I-405 interchange, based on commodity flow data provided by Metro. |

CMF = crash modification factor; GHG = greenhouse gas; ODOT = Oregon Department of Transportation; SPIS = Safety Priority Index System; VMT = vehicle miles traveled

## Tracking Metrics

Table 5 shows additional metrics that are commonly reported as part of transportation studies and that further inform stakeholders as to the performance of scenarios. These metrics are measures often expected and generally understood by stakeholders and provide further context for the performance of different scenarios. These metrics will be reported and will provide richer detail about the expected effects of each scenario; they can also help paint a fuller picture of the impacts of investment options that modeling tools cannot fully account for such as transportation demand management (TDM) programs.

Costs, feasibility, and implementation timeframe are all important considerations when considering investment options and scenarios. They will be incorporated into some aspects of the evaluation process (qualitative cost-benefit evaluation; potential scenarios based on implementation timing). These factors have not been included as explicit evaluation criteria in an effort to think broadly about regional needs and not preclude larger investments.

**Table 2. Metrics to Track and Report**

| Priority Area   | Metric   | Notes  |
|-----------------|--|--|
| <b>Mobility</b> | Median trip length, measure by distance  | Travel model output                                |
|                 | Freight travel time (corridor delay, truck volumes)  | Travel model output/Dynamic Traffic Assignment     |
|                 | Reliability of alternate routes  | Travel model output/Dynamic Traffic Assignment     |
|                 | Intersection delay   | From traffic analysis/Dynamic Traffic Assignment   |
|                 | Transit ridership  | Travel model output                                |
|                 | Average daily auto trips   | Travel model output                                |
|                 | Bicycle ridership  | Metro’s travel model output                        |
| <b>Access</b>   | Park and ride utilization and demand   | Based on estimates using travel model              |
|                 | Change in multimodal access: <ul style="list-style-type: none"> <li>• Walking access to transit within 1/2 mile</li> <li>• Biking access to transit within 3 miles</li> <li>• Driving to major transit facility or high frequency transit network</li> </ul> | Generated through Remix (transit) and GIS analysis |

| Priority Area                         | Metric                               | Notes   |
|---------------------------------------|--------------------------------------|---|
| <b>Economic Vitality</b>              | Cost effectiveness                   | Based on order-of-magnitude costs compared to estimated benefits; no specific number will be generated, but alternatives will be ranked on a qualitative scale in terms of their expected benefit-cost ratio. |
| <b>Climate Action and Air Quality</b> | Social cost of carbon                | Using <i>Climate Protection Program Community Climate Investment Instruments</i> (Oregon-specific cost of carbon)   |
|                                       | Particulate matter (PM) distribution | Will provide discussion on the distributional impact of PM emissions at three discrete points in the corridor.  |