Appendix II

Table of Contents

Relevant list of websites

Metro 2018 State of Safety Report and 2020 Fatalities and Serious Injuries Performance Report – https://www.oregonmetro.gov/regional-transportation-safety-plan

Memo

Metro
600 NE Grand Ave.
Portland, OR 97232-2736

Date: July 12, 2019
To: Transportation Policy Alternatives Committee and Interested Parties
From: Grace Cho, Senior Transportation Planner
Ted Leybold, Project and Resource Development Manager
Subject: 2021-2024 MTIP – Proposed Performance Assessment Approach and Methods

Purpose
Provide an overview and gather feedback on the proposed approach to evaluating the 2021-2024 Metropolitan Transportation Improvement Program (MTIP).

Request to TPAC
Provide input and comment to the approach for evaluating the 2021-2024 MTIP to take place in early 2020. Also ask TPAC to help with developing the no-build scenario, which will be important for the 2021-2024 MTIP evaluation by providing project completion information. (Please see subsequent memorandum titled "Request for Agency Review of 2015 Base Year Network for 2021-2024 MTIP Performance Assessment."

Background
As part of federal requirements, Metro, as the lead in developing and implementing the MTIP, must demonstrate how the MTIP as a package of investments 1) advances the goals and outcomes identified in the adopted Regional Transportation Plan (RTP); and 2) makes progress towards achieving MAP-21 performance targets.[1] To facilitate the demonstration and comply with federal regulation, a performance evaluation will be conducted on the package of investments to comprise the 2021-2024 MTIP.

The performance evaluation of the 2021-2024 MTIP is organized by two tracks:
- 2018 RTP priorities
- MAP-21 performance targets

Each track has a proposed approach as they each serve different purposes for the development and demonstration of federal compliance for the 2021-2024 MTIP. The following sections outline the approach and methodology for each area in which the 2021-2024 MTIP will evaluate performance and report.

2018 Regional Transportation Plan
Adopted by the Metro Council in December 2018, the 2018 Regional Transportation Plan (RTP) sets the long-range vision, goals, and outcomes for the regional transportation network. The 2018 RTP also includes policies and a long-range investment strategy for achieving the region's vision, goals, and outcomes for the system. Through the development of the 2018 RTP, four policy priorities – safety, equity, addressing climate change, and managing congestion – were identified to make further near-term progress. Stakeholders and leadership called upon the region to develop policies and refine transportation investments to better achieve outcomes that address the four priorities in the Plan and make more progress in near-term implementation. This was reinforced in the adoption of the 2018 RTP, where the ordinance called out specifically for the 2021-2024 MTIP to make progress in advancing the four priorities. The 2018 RTP priorities were reaffirmed in the adoption of the 2021-2024 MTIP policy direction, which further directs regional partners to

[1] Metropolitan Planning, Content of the Transportation Improvement Program 23 C.F.R. § 450.326

advance transportation investments which will address safety, equity, climate change, and managing congestion.

As a result, the approach to evaluating the 2021-2024 MTIP will primarily use the four 2018 RTP policy priorities as the framework for demonstrating progress towards advancing the goals and outcomes identified in the Plan. This is also one way in which the 2021-2024 MTIP is expected to demonstrate consistency with the long-range transportation plan.[2] The analysis approach will be a system-wide analysis, meaning transportation projects programmed in the MTIP will not be evaluated independently.[3]

To determine the analysis methodology for the 2021-2024 MTIP, a set of measures must be determined for the four 2018 RTP priorities. These measures will assess the performance of the package of investments in the 2021-2024 MTIP as a means of understanding investment progress in implementing the 2018 RTP and possibly inform future areas of focus for investments in the 2024-2027 MTIP. In efforts to remain consistent and guided by the 2018 RTP, Metro staff proposes using the performance measures and Plan targets associated with the 2018 RTP priorities, as appropriate. Table 1 illustrates the crosswalk between the 2018 RTP priorities, outcome being measured, and performance measure and target.[4]

Table 1. Crosswalk Between 2018 RTP Priorities and 2021-2024 MTIP Performance Measures

2018 RTP Priority	Outcome Being Measured	Performance Measure Proposed for 2021-2024 MTIP	2018 RTP Performance Target
Equity	Accessibility Affordability (as a pilot, if possible)	Access to jobs (emphasis on middle-wage) Access to community places System completeness of active transportation network in equity focus areas Housing and transportation cost expenditure and cost burden	No
Safety[5]	Safety investment level Investment on high injury corridors	Level of investment to address fatalities and serious injuries Level of safety investment on high injury corridors	Yes/No[6]

[2] Per federal regulations, the content of the MTIP must demonstrate consistency with the adopted Regional Transportation Plan from a policy and a fiscal manner.
[3] Transportation investments can also be referred to as transportation projects.
[4] The 2018 RTP did not have a performance target associated with every evaluation measure.
[5] Because crashes cannot be projected, this performance measure will take an observed approach looking at the level of safety investment and location of safety investment.
[6] The 2018 RTP established a Vision Zero target of fatalities and serious injuries on the region's transportation system by 2035. The specific performance measures identified for the 2021-2024 MTIP performance assessment do not have an associated performance target, but serve as forward-looking measures to look at safety considerations.

Address Climate Change	Emissions reduction Active transportation system completion	Percent reduction of greenhouse gases per capita System completeness of active transportation network	Yes
Traffic Congestion	Multimodal travel times	Evaluates mid-day and pm peak travel time between regional origin-destination pairs by mode of travel (e.g. transit, bicycle)	No

Key Assumptions, Inputs, and Evaluation Tools

Evaluation Tools

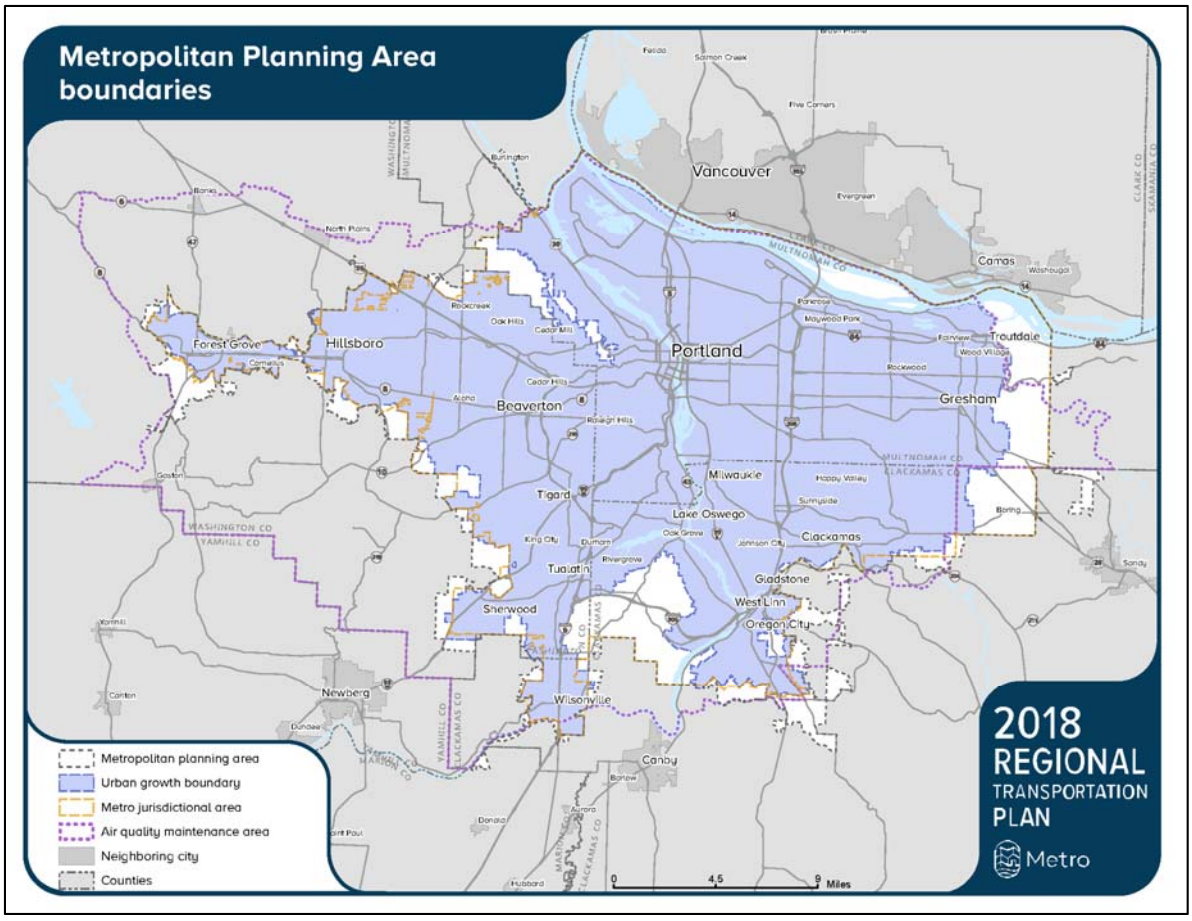
The 2021-2024 MTIP performance evaluation will use three main tools for the purpose of the evaluation of the 2021-2024 MTIP investment package. These tools are:

- Travel Demand Model
- Motor Vehicle Emissions Simulator (MOVES) Model
- Geographic Information Systems (GIS)

Attachment 1 provides a description of each tool.

In addition to the tools, the 2021-2024 MTIP focuses on the investments scheduled to be made on the regional transportation system in the metropolitan planning area (MPA) which is the defined geography for Metro's metropolitan planning organization (MPO) activities. Figure 1 illustrates the MPA.

Figure 1. Metropolitan Planning Area Boundaries



Investment Inputs to Be Evaluated

The investments to be evaluated includes those programmed in the 2021-2024 MTIP. These investments are cooperatively developed and submitted by four main partners: Metro, ODOT, TriMet, and SMART. The investments combined make up the package to be evaluated for performance.

Several of the investments programmed within the MTIP every cycle are programmatic in nature, meaning the investment is generally region-wide and do not have impacts to the movement of people or goods that can be modeled. For example, bus purchase and replacement programs are often programmed in the MTIP because transit agencies receive Federal Transit Administration (FTA) funds for this purpose. Since buses travel all over the transit system and spatial detail are unavailable of the deployment of buses, these programmatic investment will not be quantitatively evaluated in the performance assessment. The suite of transportation investments which are programmatic in nature will be identified, and appended in a list to the evaluation. Programmatic investments may be qualitatively evaluated when relevant impacts to the MTIP performance assessment can be described.

Additionally, investments which are only programmed for project development will not be assessed as part of the 2021-2024 MTIP performance evaluation. This is because at the project development phase of a transportation investment details such as the alignment have not been identified, making it challenging for the evaluation tools to capture the impacts of the potential investment.

Key Assumptions

To conduct that evaluation, several key assumptions have been identified. To the degree possible, the key assumptions are consistent with assumptions used in the evaluation of the 2018 RTP.

A total of three scenarios will be evaluated as part of the 2021-2024 MTIP. These scenarios include:

- Base Year (2015)
- No Build (2024)[7]
- Build (2024)[8]

Table 2 provides further details and assumptions for each network.

Table 2. Scenario and Network Assumptions

[7] If we need to do this to 2027, then we can, but we have a lot of investment assumptions to make
[8] See comment 6

Scenario	Investment Profile	Land Use	Transit Service
Base Year (2015)	The base year includes the transportation investments built and open for service as of 2015. This is the same base year used as part of the 2018 RTP.	Land use assumptions pertaining to population growth, employment, and development will follow according to what was assumed in the 2018 RTP.[9]	The base year includes transit service which were in effect as of 2015. This is the same base year used as part of the 2018 RTP.
No Build (2024)	The 2024 no build assumes no additional transportation investments aside from those projects" 1) completed since 2015 and open for service; 2) funded projects expected to be completed by end of calendar year 2020; and 3) future roadway and bicycle facility projects with committed funding and projected to be complete by 2024.[10]	The land use forecast will follow according to what was assumed in the 2018 RTP. For year 2024, population and employment are interpolated in a straight line to 2024.[11]	The 2024 no build includes transit service which are in effect as of Spring or Fall 2019. (Spring or Fall dates are based on availability of information)
Build (2024)	The 2024 build scenario reflects all the investments identified in the 2021-2024 MTIP. These investments include capital investments and as modeling capabilities allow, maintenance and operations investments. Those investments which are unable to be quantitatively assessed because of a lack of spatial detail will be identified as part of analysis documentation.[12]		The 2024 build assumes transit service levels to be in effect as of the end of calendar year 2024. (Based on assumptions discussed with transit providers)

<u>Equity Focus Areas</u>
Communities included as part of the 2021-2024 MTIP evaluation include:

- People of Color
- People with Lower-Incomes

[9] The adopted 2016 growth forecast was used as part of the 2018 RTP.
[10] Fully committed funding would need to be reflected in the 2021-2024 MTIP programming and financial plan.
[11] This means the land use forecast is estimated based on an interpolation from the base year (2015) forecast to the out year forecast (2027).
[12] These programs may be assessed qualitatively in how these investments play a role in making progress towards the 2018 RTP priorities and/or the MAP-21 federal performance targets.

- People with Limited English Proficiency

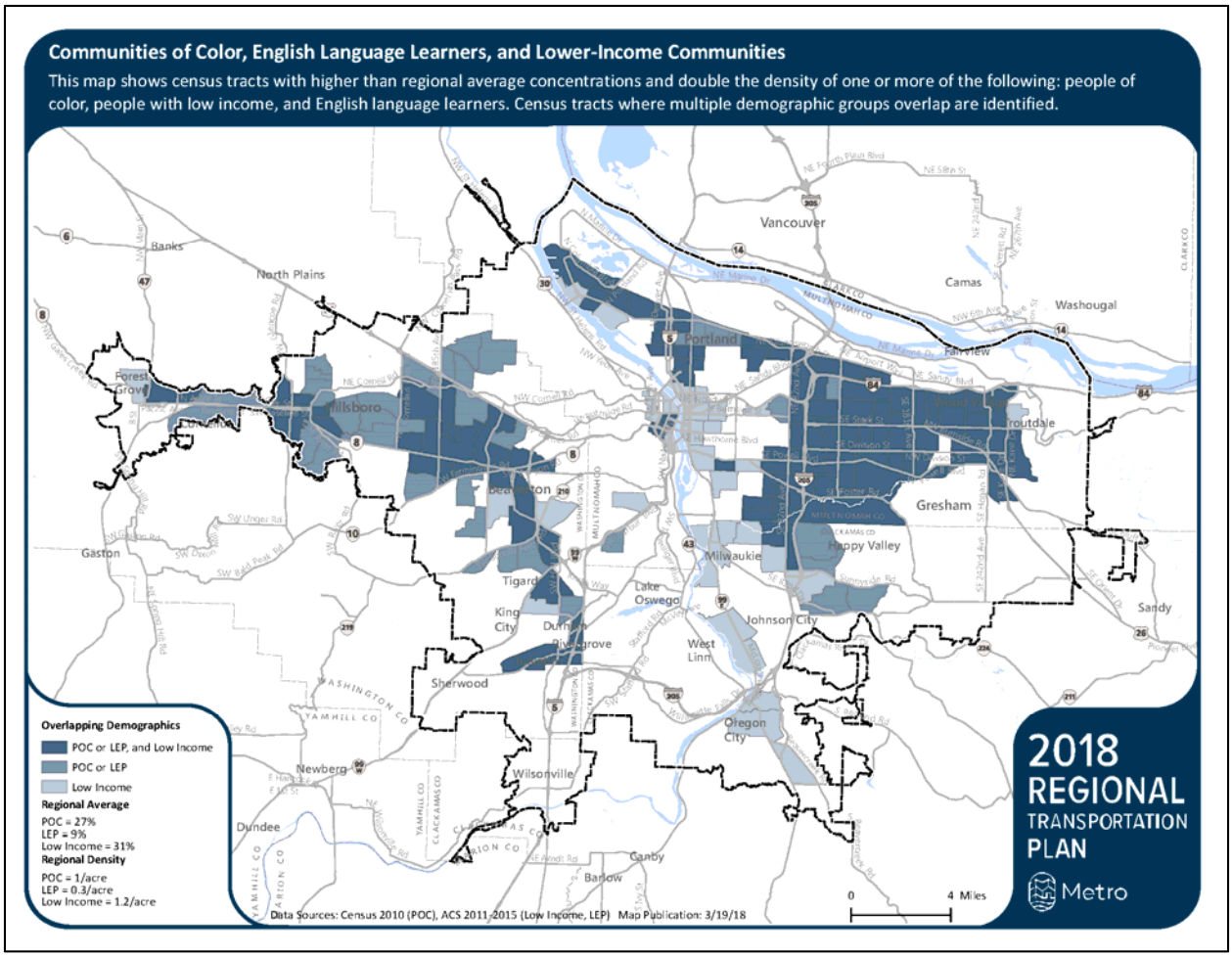
The equity focus areas were developed as part of the final evaluation of the 2018 RTP investment strategy. The Metro Council directed Metro staff to bring further focus around equity and align the evaluation of the 2018 RTP investment strategy closer to the agency-wide Strategic Plan to Advance Racial Equity, Diversity, and Inclusion (SPARDI). Based on the direction, Metro staff developed the equity focus areas which identify the locations of people of color, people with limited English proficiency, and people in poverty at population rates above certain thresholds. The rates have been identified in Table 3. Figure 2 illustrates the equity focus areas.

Table 3. Equity Focus Areas

Community	Geography Threshold
People of Color	The census tracts which are above the regional rate for people of color AND the census tract has twice (2x) the population density of the regional average (regional average is .48 person per acre).
People in Poverty	The census tracts which are above the regional rate for low-income households AND the census tract has twice (2x) the population density of the regional average (regional average is .58 person per acre).
People with Limited English Proficiency	The census tracts which are above the regional rate for low-income households AND the census tract has twice (2x) the population density of the regional average (regional average is .15 person per acre)

Source: Metro, 2018 RTP transportation equity work group

Figure 2. Equity Focus Areas



Sub-Regional Geographies

In recognition that metrics reported at a region-wide scale may have minimal impact to regional performance metrics and that investments can have significant effects to the surrounding communities, the evaluation of the 2021-2024 MTIP investments may be reported at various sub-regional geographies. The selection of the sub-regional geographies will likely be based on the performance measure (e.g. safety, accessibility), but may include city/county or mobility corridors. Results will be provided for the region in a technical appendix if a sub-regional geography is selected for the purposes of reporting.

2021-2024 MTIP Performance Evaluation & Civil Rights Assessment

As part of Metro's federal responsibilities as a MPO, Metro is required to conduct a Civil Right Assessment to fulfill obligations pertaining to *Title VI of the Civil Rights Act of 1964* and *Executive Order 12898 - Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. As a result, since the 2015-2018 MTIP cycle, Metro has conducted a separate performance assessment of the MTIP package of investments specific to looking at outcomes and effects of investments to communities of color and lower-income populations. As part of requirements, a formal determination is provided with the completion of the evaluation.

In recognition the new MAP-21 performance-based requirements and in demonstrating the 2021-2024 MTIP is making progress towards implementing the 2018 RTP, these new pieces to the 2021-2024 MTIP will necessitate several additional analyses of the investment package. To help streamline the work, Metro staff proposes to integrate the Civil Right Assessment into the 2021-2024 MTIP performance assessment. This is also to recognize the 2018 RTP adoption placed emphasis on making near-term progress on four priority areas, of which equity is one.

MAP-21 Performance Based Programming

MAP-21 established 11 national performance measures for metropolitan planning organizations, state departments of transportation, and transit agencies to measure the performance of the system and to further connect investments to increase performance of the transportation system. These 11 national performance measures are:

- Safety
  - Fatalities and Serious Injuries
- Asset Management – Pavement
  - Percentage of pavements of the Interstate System in Good condition
  - Percentage of pavements of the Interstate System in Poor condition
  - Percentage of pavements of the non-Interstate NHS in Good condition
  - Percentage of pavements of the non-Interstate NHS in Poor condition
- Asset Management – Bridge
  - Percentage of NHS bridges classified as in Good condition
  - Percentage of NHS bridges classified as in Poor condition
- Asset Management – Transit
  - Rolling stock – Percent of revenue vehicles that have met or exceeded their useful life benchmark
  - Equipment – Percent of service vehicles that have met or exceeded their useful life benchmark
  - Facilities – Percent of facilities rated below 3 on the condition scale (1=Poor to 5=Excellent)
  - Infrastructure – Percent of track segments with performance restrictions
- National Highway System Performance
  - Percentage of person-miles traveled on the Interstate that are reliable
  - Percentage of person-miles traveled on the non-Interstate NHS that are reliable
- Freight Movement on the Interstate System
  - Truck Travel Time Reliability (TTTR) Index
- Congestion Mitigation and Air Quality[13]
  - Total emission reductions for applicable criteria pollutants
  - Peak hour excessive delay
  - Percent of non-single occupancy vehicle travel

The MAP-21 federal performance measures and target setting primarily uses a monitoring and data observation approach towards measuring performance of the system and transportation investments. In addition, the federal performance-based planning program outlined a prescriptive

[13] Per the Portland Region State Implementation Plan (SIP), Metro, as the MPO, completed its transportation conformity obligations on October 2, 2017. Based on this date and not receiving another non-attainment designation, the region is no longer subject sections of this MAP-21 performance measure. Namely, the region is no longer subject reporting on the Peak-Hour Excessive Delay and Non-Single Occupancy Vehicle Mode Split.

methodology for each performance measure. As a result of the prescriptive method and monitoring approach to performance, the region is expected to draw from existing observed data to measure progress rather than look at projections of future impacts. Therefore, the MAP-21 performance assessment will be different from the performance assessment used to assess progress towards the 2018 RTP priorities.

The area in which the federal performance measure program provides flexibility is in the performance target setting for each measure. Per federal regulations, MPOs, like Metro, may elect to develop region-specific performance targets or may elect to adopt the state targets for the different performance measures. Through the development of the 2018 RTP, the region developed region-specific targets for the upcoming 2 and/or 4-years as well as establishing the baseline metrics for each of the 11 MAP-21 performance measures to compare and assess progress.[14] Attachment 2 illustrates the region's federal performance targets and baseline conditions.

Each of the MAP-21 performance targets are on slightly different 2 and 4-year schedules. As a result, the reporting in progress for meeting federal performance targets will be on different schedules for submission to federal partners. These schedules at times may align to the adoption schedule of different cycles of the MTIP, but may not. At this time, based on the adoption schedule, the following MAP-21 performance targets are expected to have reports submitted.

- Safety
  - Fatalities and Serious Injuries
- Asset Management – Pavement
  - Percentage of pavements of the non-Interstate NHS in Good condition
  - Percentage of pavements of the non-Interstate NHS in Poor condition
- Asset Management – Transit[15]
  - Rolling stock – Percent of revenue vehicles that have met or exceeded their useful life benchmark
  - Equipment – Percent of service vehicles that have met or exceeded their useful life benchmark
  - Facilities – Percent of facilities rated below 3 on the condition scale (1=Poor to 5=Excellent)
  - Infrastructure – Percent of track segments with performance restrictions
- National Highway System Performance
  - Percentage of person-miles traveled on the Interstate that are reliable
  - Percentage of person-miles traveled on the non-Interstate NHS that are reliable
- Freight Movement on the Interstate System
  - Truck Travel Time Reliability (TTTR) Index
- Congestion Mitigation and Air Quality[16]
  - Total emission reductions for applicable criteria pollutants

[14] Not all MAP-21 Performance Targets have requirements for both 2 and 4-year performance targets.
[15] Note, transit agencies are expected to update State of Good Repair targets annually. Reporting from the annual update to the performance target to the National Transit Database will be provided as part of the 2021-2024 MTIP.
[16] Per the Portland Region State Implementation Plan (SIP), Metro, as the MPO, completed its transportation conformity obligations on October 2, 2017. Based on this date and not receiving another non-attainment designation, the region is no longer subject sections of this MAP-21 performance measure. Namely, the region is no longer subject reporting on the Peak-Hour Excessive Delay and Non-Single Occupancy Vehicle Mode Split.

Working in partnership with ODOT and transit agencies, Metro staff will look to collect the most recent reporting, data, and information provided to date on the various federal performance measures. The recent reporting in combination with the programming of projects for fiscal years 2021 through 2024 will provide a quantitative measurement of understanding how well the region is doing towards reaching federal performance targets. A qualitative assessment of the 2021-2024 MTIP will be expected to demonstrate "to the maximum extent practical" the effect of the projects programmed in the MTIP on the achievement of targets. Per federal guidance, the expectation is for Metro to describe in the MTIP how the program of projects contributes to achieving the region's federal performance targets identified in the RTP and linking investment priorities to those targets. The qualitative demonstration should include a written narrative description of how the other performance based planning and programming documents (e.g. asset management plans, highway safety improvement program, congestion mitigation and air quality performance plan) are being implemented through the MTIP. Per federal guidance, the narrative should specifically describe linkages and answer the following questions:

- Are the projects in the MTIP directly linked to implementation of these other (performance based) plans?
- How was the program of projects in the MTIP determined?
- How does the MTIP support achievement of the performance targets?
- Is the MTIP consistent with the other performance based planning documents (asset management plans, SHSP, HSIP, freight plan, CMAQ Performance Plan, CMP, etc.)?
- How was this assessment conducted? What does the assessment show?

As a result of this direction, Metro staff will provide relevant findings from the 2021-2024 MTIP evaluation to help describe linkages and progress towards the region's MAP-21 performance targets. This will be conducted in a narrative format per federal guidance and direction. In addition, Metro will provide any necessary data assessments towards the 2-year and 4-year targets according to the prescribed methodology.[17] The baseline metrics provided as part of MAP-21 reporting in the 2018 RTP will help to understanding how much progress and advancement has been made towards 2 and 4-year performance targets and will be further made through the profile of investments programmed in the MTIP for federal fiscal years 2021 through 2024.

Timeline

Table 4 provides a general timeline of activities pertaining to the 2021-2024 MTIP performance assessment.

Table 4. Timeline of 2021-2024 MTIP Performance Assessment

[17] As referenced, the data assessments will draw from reporting conducted by ODOT and transit agencies on any 2-year performance targets many (but not all) of which are due in 2020.

Activity	Timeframe
Allocation processes administered by ODOT, Metro, and transit agencies completed w/proposed program of projects for fiscal years 2021 through 2024	End of 2019-Early 2020
Develop preliminary 2021-2024 MTIP performance assessment methodology	April – June 2019
Present and gather input on the 2021-2024 MTIP performance assessment methodology at TPAC • Request assistance gathering information on completed projects for the no-build network	July 2019
Finalize the 2021-2024 MTIP performance assessment methodology	Fall 2019
2021-2024 MTIP project data collection	Fall 2019 – January 2020
Data request from ODOT and transit agencies on MAP-21 performance target reporting and datasets (to adjust to region) • Includes any 2-year performance target reporting • Includes any annual reporting and updates to targets	Fall 2019 OR Spring 2020
Perform 2021-2024 MTIP performance assessment • Quantitative analysis of 2021-2024 MTIP relative to 2018 RTP priorities • Quantitative and qualitative discussion of 2021-2024 MTIP performance towards MAP-21 performance targets	January – Mid-March 2020
Results packaged for the 2021-2024 MTIP public review draft	March 2020
Discussion of results at TPAC • In conjunction with public comment period	April 2020
Finalize findings and provide performance recommendations related to the 2021-2024 MTIP • Findings and recommendations to be informed by public comment and TPAC discussion	May 2020

TPAC Discussion Questions

- Based on the information presented and provided, how do TPAC members feel about the evaluation approach for the 2021-2024 MTIP?
- What questions or comments do TPAC members have for the approach to help improve and answer questions TPAC may have?

Attachment 1 – Short Description of Analytical Tools Pertaining to 2021-2024 MTIP Performance Assessment

Travel Demand Model

The travel demand model is a travel behavior model which predicts travel activity levels:

- By mode (bus, rail, car, walk or bike) and on road segments,
- Estimates travel times between transportation analysis zones (TAZ) by time of day.
- Certain out-of-pocket costs perceived by travelers in getting from any one TAZ to any other.

Motor Vehicle Emissions Simulator (MOVES)

The Motor Vehicle Emissions Simulator model is a state-of-the-science emission modeling system that estimates emissions for mobile sources at the national, county, and project level for criteria air pollutants, greenhouse gases, and air toxics. The most recent version of the model is MOVES 2014b, .[18] Metro's current implementation of MOVES was developed for air quality conformity purposes in accordance with all pertinent EPA guidance included in the document, "Using MOVES to Prepare Emission Inventories in State Implementation Plans and Transportation Conformity: Technical Guidance for MOVES2010, 2010a and 2010b" (April 2012).

Geographic Information Systems (GIS)

Geographic Information Systems (GIS) uses spatial data to determine relationships between different data elements and map data. For the 2018 RTP transportation equity evaluation, the transportation investments are mapped to assess the spatial relationships between the investments and historically marginalized communities. In particular, access to a connected transportation system and safety considerations are being assessed through GIS. The main GIS tool used for the transportation equity system evaluation is a proprietary program ArcGIS made by ESRI.

[18] The emissions reported are for vehicle travel occurring within the federally-designated metropolitan planning area boundary (MPA) regardless of where trips begin or end. The on-road vehicle emissions estimates published in association with the 2021 - 2024 MTIP update were produced within a software framework that combines the regional transportation model with EPA's MOVES model, version MOVES2014a. A newer version of MOVES (MOVES2014b) has since been released, but it should be noted that the improvements incorporated into this update pertain almost exclusively to estimates of non-road emissions and are, therefore, not relevant to this analysis.

Attachment 2 – Portland Metropolitan Region MAP-21 Performance Targets and Baselines

Portland Metropolitan Region – MAP-21 Performance Targets and Baselines[19]

Table 1. Safety Targets – Fatalities and Serious Injuries

Safety – Fatalities and Serious Injuries (Regional Targets only)					
Reporting Year (based on a 5-year rolling average)	**Fatalities (People)**	**Fatality Rate (People per 100 Million VMT)**	**Serious Injuries (People)**	**Serious Injury Rate (People per 100 Million VMT)**	**Non-motorized Fatalities and Serious Injuries (People)**
2011-2015 (Base)	62	0.6	458	4.5	113
2014-2018**	58	0.5	426	4.0	105
2015-2019	55	0.5	407	3.8	101
2016-2020	52	0.5	384	3.6	95
2017-2021	49	0.4	357	3.3	88
**2014-2018 is the first period that targets must be established for the region. The 2018 Regional Transportation Plan and 2018 Regional Transportation Safety Strategy set a target of zero traffic deaths and serious injuries by 2035. Metro developed annual targets to reach the 2035 target using the same methodology used by the Oregon Department of Transportation in the Oregon Transportation Safety Action Plan. These measures reflect people killed or seriously injured rather than fatal or serious injury crashes. Serious injuries do not include fatalities.					

* Source: Oregon Department of Transportation.

Table 2. Asset Management – Pavement Condition Targets

Asset management – Pavement Condition Targets				
Performance measure	**Regional 2016 Baseline***	**Regional 2020 Target**	**Regional 2022 Target**	**ODOT Statewide 2020/2022 Targets**
Percent of pavement on the Interstate System in good condition	31%	None	35%	None/35%
Percent of pavement on the Interstate System in poor condition	0.4%	None	0.5%	None/0.5%
Percent of pavement on the non-Interstate NHS in good condition	32%	32%	32%	50%/50%
Percent of pavement on the non-Interstate NHS in poor condition	25%	25%	25%	10%/10%

* Source: Oregon Department of Transportation.

Table 3. Asset Management – Bridge Condition Targets

Asset management – Bridge Condition Targets				
Performance measure	**Regional 2017 Baseline***	**Regional 2020 Target**	**Regional 2022 Target**	**ODOT Statewide 2022 Target**
Percent of NHS bridges classified in good condition	6%	None	5%	10%

[19] See Appendix L of the 2018 RTP at https://www.oregonmetro.gov/public-projects/2018-regional-transportation-plan

2.1 2021-2024 MTIP Performance Assessment – Technical Approach Documentation

Percent of NHS bridges classified in poor condition	1%	None	1%	3%

* Source: Oregon Department of Transportation.

Table 4. National Highway System Performance Targets

National Highway System Performance Targets				
Performance measure	**Regional 2017 Baseline***	**Regional 2020 Target**	**Regional 2022 Target**	**ODOT Statewide 2022 Target**
Percent of person-miles traveled on the Interstate System that are reliable	43%	43%	43%	78%
Percent of person-miles traveled on the non-Interstate NHS that are reliable	66%	66%	66%	78%

* Source: National Performance Management Research Dataset (NPMRDS) for the period Jan. to Dec. 2017.

Table 5. Freight Movement on the Interstate System – Freight Reliability Targets

Freight Movement on the Interstate System – Freight Reliability Targets				
Performance measure	**Regional 2017 Baseline***	**Regional 2020 Target**	**Regional 2022 Target**	**ODOT Statewide 2022 Target**
Truck Travel Time Reliability (TTTR) Index	3.17	3.10	3.10	1.45

* Source: National Performance Management Research Dataset (NPMRDS) for the period Jan. to Dec. 2017.

Table 6. Congestion Mitigation and Air Quality Program – Excessive Delay and Mode Share Targets

Congestion Mitigation and Air Quality Program – Excessive Delay and Mode Share Targets				
Performance measure	**Regional 2017 Baseline**	**Regional 2020 Target**	**Regional 2022 Target**	**ODOT Statewide 2020/2022 Targets**
Annual hours of peak hour excessive delay per capita	22.13*	24.34***	23.96	None/23.96
Percent of non-single occupancy vehicle (Non-SOV) travel	31.4%**	33.1%	33.5%	33.1%/33.5%

* Source: National Performance Management Research Dataset (NPMRDS) for the period Jan. to Dec. 2017.
** Source: U.S. Census Bureau American Community Survey – Journey to Work, 1-year estimates (2017).
*** Note: Two-year target required for MPOs and will be resubmitted to ODOT in the updated CMAQ Baseline Performance Report due in December 2018.

Table 7. Congestion Mitigation and Air Quality Program – On-Road Mobile Source Emissions Targets

Congestion Mitigation and Air Quality – On-Road Mobile Source Emissions Targets				
Performance measure	**Regional 2014-2017 Baseline**	**Regional 2020 Target**	**Regional 2022 Target**	**ODOT Statewide 2020/2022 Targets**
Annual average reduction emissions reduction per day (by pollutant) for all CMAQ-funded projects (Kg/day)				
Particulate matter less than 2.5 microns ($PM_{2.5}$)	N/A	N/A	N/A	.12/.23
Particulate matter less than 10 microns (PM_{10})	N/A	N/A	N/A	363/726.4
Carbon monoxide (CO)	2476.73*	2000*	1840*	584/1168
Volatile organic compounds (VOC)	N/A	N/A	N/A	29.49/58.97
Nitrogen oxides(NO_x)	N/A	N/A	N/A	71.45/142.9
This measure is required for metropolitan areas designated as nonattainment or maintenance as of Oct. 1, 2017. While the region completed its second 10-year Maintenance Plan for Carbon Monoxide on Oct. 2, 2017, the RTP must include this target given the region's status on Oct. 1, 2017. Monitoring and reporting of Portland area regional measures and targets will occur through the Metropolitan Transportation Improvement Program.				

* Source: Portland area CMAQ obligated projects for federal fiscal years 2014 through 2017.

Table 8. Transit Asset Management Targets

Transit Asset Management Targets		
Performance measure	**2018 Baseline**	**2018 Target**
TriMet Rolling Stock – Percent of revenue vehicles that have met or exceeded their useful life benchmark (ULB)		
BU – Bus	15.3%	0%
CU – Cutaway (used for LIFT paratransit)	9.02%	0%
LR – Light rail vehicles	0%	0%
RP – Commuter rail passenger coach	0%	0%
RS – Commuter rail self-propelled passenger car	0%	0%
VN – Van (used for LIFT paratransit)	0%	0%
TriMet Equipment – Percent of service vehicles that have met or exceeded their useful life benchmark (ULB)		
Automobiles	26%	0%
Trucks and other rubber tire vehicles	34%	0%
Steel wheel vehicles	30%	0%
TriMet Facilities – Percent of facilities rated below 3 on the condition scale (1=Poor to 5=Excellent)		
Passenger/Parking facilities	1.03%	10%
Administrative/Maintenance facilities	0%	10%
TriMet Infrastructure – Percent of track segments with performance restrictions		
LR – light rail	4.7%	0.2%
YR – Hybrid rail	3.0%	0.2%

Transit Asset Management Targets		
Performance measure	**2018 Baseline**	**2018 Target**
SMART Rolling Stock – Percent of revenue vehicles that have met or exceeded their useful life benchmark (ULB)	33%	33%
SMART Equipment – Percent of service vehicles that have met or exceeded their useful life benchmark (ULB)	20%	20%
SMART Facilities – Percent of facilities rated below 3 on the condition scale (1=Poor to 5=Excellent)	0%	0%
C-TRAN Rolling Stock – Percent of revenue vehicles that have met or exceeded their useful life benchmark (ULB)	14.5%	20%
C-TRAN Equipment – Percent of service vehicles that have met or exceeded their useful life benchmark (ULB)	17.1%	30%
C-TRAN Facilities – Percent of facilities rated below 2.5 on the condition scale (1=Poor to 5=Excellent)	0%	30%
Each transit provider must update State of Good Repair targets annually and the agency's Transit Asset Management (TAM) Plan must be updated at least every 4 years covering a horizon period of at least 4 years. TriMet's performance measures and targets are monitored and reported in TriMet's TAM Plan. SMART's performance measures and targets are monitored and reported in ODOT's Group TAM Plan. C-TRAN's performance measures and targets are monitored and reported in C-TRAN's TAM Plan.		

Metro expects to review the regional targets for National Highway System Performance (Table 10), Freight Movement on the Interstate System (Table 11) and CMAQ – Excessive Delay and Mode Share (Table 12) as part of the Regional Mobility Policy update identified in Chapter 8 of the 2018 RTP. The review will determine whether adjustments to the 2022 regional targets are warranted. Metro and ODOT will initiate the Regional Mobility Policy update in 2019 in collaboration with other regional partners. The review of performance targets will be coordinated with the Transportation Policy Alternatives Committee (TPAC), ODOT, TriMet, SMART, C-TRAN and the SW Washington Regional Transportation Advisory Committee (RTAC).

Memo

Metro
600 NE Grand Ave.
Portland, OR 97232-2736

Date: Friday, July 12, 2019
To: Transportation Policy Alternatives Committee and Interested Parties
From: Grace Cho, Senior Transportation Planner
Subject: Request for Agency Review of 2015 Base Year Network for 2021-2024 MTIP Performance Assessment

PURPOSE
Metro staff are developing data and tools to support the development of the 2021-2024 MTIP. As part of the 2021-2024 MTIP development, Metro will conduct a performance assessment of the package of investments identified in the 2021-2024 MTIP. A key tool for the performance assessment will be the regional travel demand model. Local government and regional partner input is requested that will be used to create a 2024 no build network for use during the performance assessment. In addition, the information for the 2024 no build network will also help with the development of a 2020 base year network.

ACTION REQUESTED
Local governments and regional partners input is helpful to ensure accuracy of the roadway and bicycle network attributes for both networks. Agencies are requested to review the 2015 base year roadway network and submit requested edits with supporting documentation to Metro.

By October 31st, 2019

1. Please identify all roadway and bicycle facility projects completed since 2015 and those projects expected to be completed by end of calendar year 2020. These projects will be included in a new 2020 base year networks.

2. Please identify all future roadway and bicycle facility projects with committed funding to be included in a new 2024 no build network. It is important to ensure the 2024 no build network displays all roadway capacity and bicycle facility projects for which funding has been committed. This includes fully locally funded projects which are on a regional facility (as identified on the regional system maps).

INSTRUCTIONS FOR RTP ROADWAY NETWORK REVIEW AND SUBMITTING UPDATES
Each jurisdiction should contact Thaya Patton at (503) 797-1767 or by e-mail at thaya.patton@oregonmetro.gov to determine the ideal format for receiving the roadway network for review.

Metro staff can customize .pdf files that contain maps of the 2015 base year network that can be printed and marked up by hand during your review. Additionally, the 2015 base year network is available to view online at the following website.

http://drcmetro.maps.arcgis.com/apps/MapSeries/index.html?appid=8182ae58218c4d578973c23cf9968236

Metro can also provide electronic VISUM version files containing the 2015 base network, which jurisdictions can edit directly. These VISUM version files will substitute for marked up maps. In both instances marked up .pdfs or electronically edited VISUM version files a memo containing a list

of proposed edits by each jurisdiction should also be provided to Metro for records keeping purposes.

There are four main roadway network attributes that should be considered when reviewing the 2015 roadway network:

1. The number of THROUGH lanes. A continuous left turn lane is indicated by ".5," so a typical 3-lane facility would be coded as 1.5 lanes in each direction.

2. The FREE-FLOW speed on the facility. This may not always be the same as the posted speed.

3. The POSTED speed on the facility. This may not always be the same as the free-flow speed.

4. The APPROACH capacity. This is the capacity at an intersection located at the outflow end of a link. General guidelines for arterials are 500-700 for 1 lane, 900-1100 for 1 through lane with auxiliary turn bays, 1200-1400 for 2 lanes and 1500-2100 for 2 through lanes with auxiliary turn bays. Metro staff will review proposed capacity changes to maintain consistency across the region.

5. Intersections where capacity changes have occurred through the addition/subtraction of TURN BAYS. It is sufficient to indicate an intersection has changed from 2015 to 2020. Metro staff will use current aerial photography to update the intersection design in the network. For the 2024 no build network, please provide as much information as possible about intersection design: number of left/right turn bays by approach and turn bay lengths. If this information is not available, Metro staff will use default values.

Prior to October 31st, please have your modeling staff review the above roadway network attributes for accuracy and provide marked up maps and/or VISUM version files and a memo summarizing the proposed changes to grace.cho@oregonmetro.gov. The marked up maps/VISUM files and supporting memo should identify recommended changes to attributes in the 2015 roadway network and list any committed projects that should be added to the 2024 no build roadway network.

INSTRUCTIONS FOR SUBMITTING MTIP BICYCLE NETWORK UPDATES
By October 31st, bicycle facility additions to be included in the 2024 no build (and 2020 base year) bicycle networks should be submitted using shapefiles where available, marked up maps, and written lists describing the location and type of bicycle facility improvement. The memo summarizing the proposed changes should be submitted to grace.cho@oregonmetro.gov.

OTHER MTIP NETWORK UPDATES
Updates to the 2024 no build (and 2020 base year) transit networks will be developed by Metro staff in coordination with TriMet and the South Metro Area Regional Transit (SMART) district.

- Questions about the travel model network assumptions should be directed to Thaya Patton at (503) 797-1767 or by e-mail at thaya.patton@oregonmetro.gov
- Questions about the overall 2021-2024 MTIP process should be directed to Grace Cho at (503) 797-1776 or by e-mail at grace.cho@oregonmetro.gov

Date: January 10, 2020

To: Transportation Policy Alternatives Committee and Interested Parties

From: Grace Cho, Senior Transportation Planner
Ted Leybold, Project and Resource Development Manager

Subject: 2021-2024 MTIP – General Updates and Evaluation Approach Check In

Purpose
Provide an update on the approach to evaluating the 2021-2024 Metropolitan Transportation Improvement Program (MTIP).

Request to TPAC
Those TPAC members awarded 2022-2024 Regional Flexible Funds will be asked to provide a project schedule by phase to help inform the analysis.

Background
As part of federal requirements, Metro, as the lead in developing and implementing the MTIP, must demonstrate how the MTIP as a package of investments 1) advances the goals and outcomes identified in the adopted Regional Transportation Plan (RTP); and 2) makes progress towards achieving MAP-21 performance targets.[1] To facilitate the demonstration and comply with federal regulation, a performance evaluation will be conducted on the package of investments to comprise the 2021-2024 MTIP.

Summary of 2021-2024 MTIP Evaluation Approach
In July 2019, Metro staff presented a draft evaluation approach for the 2021-2024 MTIP for feedback and discussion. As discussed, the performance evaluation approach for the 2021-2024 MTIP will use two evaluation lenses for the assessment:

- 2018 RTP priorities
- MAP-21 performance targets

Each lens has a different approach as they each serve different purposes for the development and demonstration of federal compliance for the 2021-2024 MTIP. The 2021-2024 MTIP evaluation will take a system-wide analysis approach to assess the performance of the package of investments. This means transportation projects programmed in the 2021-2024 MTIP will not be evaluated independently.[2]

To determine the analysis methodology for the 2021-2024 MTIP, a set of measures must be determined for the four 2018 RTP priorities. These measures will assess the performance of the package of investments in the 2021-2024 MTIP as a means of understanding investment progress in implementing the 2018 RTP and possibly inform future areas of focus for investments in the 2024-2027 MTIP. In efforts to remain consistent the 2021-2024 MTIP evaluation will use the same performance measures associated with the 2018 RTP priorities: safety, equity, climate change, and congestion management. Table 1 provides a crosswalk of the 2018 RTP evaluation measures.

Table 1. Crosswalk Between 2018 RTP Priorities and 2021-2024 MTIP Performance Measures

2018 RTP Priority	Outcome Being Measured	Performance Measure Proposed for 2021-2024 MTIP
Equity	Accessibility & Affordability (as a pilot, if possible)	• Access to jobs (emphasis on middle-wage) • Access to community places

[1] Metropolitan Planning, Content of the Transportation Improvement Program 23 C.F.R. § 450.326
[2] Transportation investments can also be referred to as transportation projects.

		• System completeness of active transportation network in equity focus areas • Housing and transportation cost expenditure and cost burden
Safety[3]	Safety investment & Investment on high injury corridors	• Level of investment to address fatalities and serious injuries • Level of safety investment on high injury corridors
Address Climate Change	Emissions reduction & Active transportation system completion	• Percent reduction of greenhouse gases per capita • System completeness of active transportation network
Traffic Congestion	Multimodal travel times	• Evaluates mid-day and pm peak travel time between regional origin-destination pairs by mode of travel (e.g. transit, bicycle, auto)

For the MAP-21 performance measures and targets approach, Metro will work closely with ODOT and transit agency staff to collect the necessary relevant data to report on the following federal performance measures and the regionally identified performance targets:

- Safety
- Asset Management – Pavement
- Asset Management – Bridge
- Asset Management – Transit
- National Highway System Performance
- Freight Movement on the Interstate System
- Congestion Mitigation and Air Quality[4]

Because of the prescriptive nature of the MAP-21 performance measures, the assessment and reporting of performance of the 2021-2024 MTIP will be qualitative in nature and will attempt to report on the latest observed data collected by partners.

Further detail on the 2021-2024 MTIP evaluation approach can be found appended to this memorandum. (TPAC memorandum from July 2019)

Updates to the Evaluation Approach for the 2021-2024 MTIP

Since July 2019, Metro staff has collected project data from jurisdictions, coordinated with key MTIP partner agencies (e.g. ODOT, TriMet, and SMART) and worked on refining the scope and schedule for developing the overall 2021-2024 MTIP. During the autumn and early winter 2019, several key decisions related to the development of the overall 2021-2024 MTIP will influence the approach and evaluation of the 2021-2024 MTIP. To accommodate these decisions, Metro staff will use the following approaches to the analysis.

Six-Year Programming

Due to the Portland metropolitan region being subject to obligation targets Metro will employ a six-year MTIP for the purposes of programming projects and developing a realistic timeframe for project

[3] Because crashes cannot be projected, this performance measure will take an observed approach looking at the level of safety investment and location of safety investment.

[4] Per the Portland Region State Implementation Plan (SIP), Metro, as the MPO, completed its transportation conformity obligations on October 2, 2017. Based on this date and not receiving another non-attainment designation, the region is no longer subject sections of this MAP-21 performance measure. Namely, the region is no longer subject reporting on the Peak-Hour Excessive Delay and Non-Single Occupancy Vehicle Mode Split.

delivery.[5] The decision to move to a six-year MTIP is to help encourage partners to develop realistic project delivery schedules as well as better manage the financial constraint of the 2021-2024 MTIP.

A six-year MTIP will include the programming for the upcoming six federal fiscal years. This means, the 2021-2024 MTIP will include federal fiscal years 2021 through 2026, but will only have the financial capacity for the first four federal fiscal years, 2021 through 2024. Ultimately, this change in the MTIP programming will not impact the amount of funding available to allocate towards projects, but will provide a more realistic schedule for when projects will get implemented and the tracking of federal spending.

However, from the perspective of the 2021-2024 MTIP evaluation, the programming of projects and its individual phases will influence and impact how the analysis is performed. The 2021-2024 MTIP analysis assumes projects to be completed and open for service by the last year of the MTIP – in this case 2024. Recognizing the six-year MTIP provides more options for projects to identify when it will enter into the project engineering, right-of-way, or construction phases, the assumption that projects will be open for service in federal fiscal year 2024 is no longer valid. Based on when the right-of-way and construction phase is programmed within the six-year timeframe (2021-2026), the programming will dictate whether the project will be assessed as part of the 2021-2024 MTIP evaluation. Projects which program right-of-way or construction starting in fiscal years 2025 and 2026 will not be included as part of the 2021-2024 MTIP evaluation. These projects will be carried over and assessed as part of the 2024-2027 MTIP. The projects not evaluated, but included in the 2021-2024 MTIP will be appended as part of the analysis to provide transparency as to what was evaluated and what was not.

Locally Funded Projects

As part of Metro's request to local jurisdictions for developing the 2021-2024 MTIP modeling networks, many local jurisdictions submitted roadway and bicycle network projects which are fully funded locally, but completing gaps, creative connectivity, or upgrading the regional roadway or bicycle network. While these locally funded projects do not need to be programmed formally in the MTIP, the projects help provide a comprehensive picture of the upcoming capital investments to be made. Recognizing the role of these locally funded projects, as appropriate and based on the date of when the project is open for service, the project will be included in the no-build and/or build networks for the modeling analysis of the 2021-2024 MTIP. These projects will be identified as locally-funded projects and a total dollar amount of all locally-funded projects will be provided in order to express the magnitude of fully local investment relative to federal funds. The analysis of the 2021-2024 MTIP evaluation results will qualitatively discuss the effects of these locally funded investments relative to the federal capital investments identified in the 2021-2024 MTIP.

Sub-regional Analysis Geographies and Equity Focus Areas

In the July 2019 presentation outlining the 2021-2024 MTIP evaluation approach, Metro proposed conducting sub-regional analysis as part of the analysis. The sub-regional analysis is in response for region-wide system analyses to report on performance at a more localized scale. While individual projects will not be evaluate, the package of investments in the 2021-2024 MTIP will look at how projects perform in the following sub-regions in addition to the entire region.

- City of Portland
- Clackamas County
- Multnomah County
- Washington County

[5] The six-year MTIP is only applicable to Metro funded projects (i.e. Regional Flexible Funds). ODOT and transit projects will only program through federal fiscal year 2024.

In addition, the equity focus areas within each sub-region will be aggregated and evaluated within sub-region to see how the package of investments in the 20214-2024 MTIP performs at a regional aggregate scale and at a sub-regional scale.

Finally, a slight update and modified version of the Equity Focus Areas will be used as a sub-regional geography for the 2021-2024 MTIP evaluation. The modification is based on updated demographic data coming from the U.S. Census Bureau's American Community Survey (ACS) most recent rolling 5-year data release. A total of 15 census tracts changed status from either being an equity focus area to not or not being an equity focus area and becoming one, based on the density of certain demographic populations.

Timeline

Table 2 provides a general timeline of activities pertaining to the 2021-2024 MTIP performance assessment.

Table 4. Timeline of 2021-2024 MTIP Performance Assessment

Activity	Timeframe
Allocation processes administered by ODOT, Metro, and transit agencies completed w/proposed program of projects for fiscal years 2021 through 2024	End of 2019-Early 2020
Finalize the 2021-2024 MTIP performance assessment methodology	Fall 2019
2021-2024 MTIP project data collection	Fall 2019 – January 2020
Data request from ODOT and transit agencies on MAP-21 performance target reporting and datasets (to adjust to region) • Includes any 2-year performance target reporting • Includes any annual reporting and updates to targets	Winter 2019/2020
Perform 2021-2024 MTIP performance assessment • Quantitative analysis of 2021-2024 MTIP relative to 2018 RTP priorities • Quantitative and qualitative discussion of 2021-2024 MTIP performance towards MAP-21 performance targets • Develop draft findings of the results • Package analysis results and submit as part of the 2021-2024 MTIP public review draft	January – Mid-March 2020
Discussion of results and draft findings at TPAC • Release the public review draft of the 2021-2024 MTIP • Open the public comment period	April 3, 2020
Close the public comment period	May 4, 2020
Finalize findings and provide performance recommendations related to the 2021-2024 MTIP • Findings and recommendations to be informed by public comment and TPAC discussion	May 2020
Present adoption draft of 2021-2024 MTIP with included performance assessment results to TPAC	June 5, 2020

Short Description of Analytical Tools Pertaining to 2021-2024 MTIP Performance Assessment

Travel Demand Model

The travel demand model is a travel behavior model which predicts travel activity levels:

- By mode (bus, rail, car, walk or bike) and on road segments,
- Estimates travel times between transportation analysis zones (TAZ) by time of day.
- Certain out-of-pocket costs perceived by travelers in getting from any one TAZ to any other.

Motor Vehicle Emissions Simulator (MOVES)

The Motor Vehicle Emissions Simulator model is a state-of-the-science emission modeling system that estimates emissions for mobile sources at the national, county, and project level for criteria air pollutants, greenhouse gases, and air toxics. The most recent version of the model is MOVES 2014b, .[1] Metro's current implementation of MOVES was developed for air quality conformity purposes in accordance with all pertinent EPA guidance included in the document, "Using MOVES to Prepare Emission Inventories in State Implementation Plans and Transportation Conformity: Technical Guidance for MOVES2010, 2010a and 2010b" (April 2012).

Geographic Information Systems (GIS)

Geographic Information Systems (GIS) uses spatial data to determine relationships between different data elements and map data. For the 2018 RTP transportation equity evaluation, the transportation investments are mapped to assess the spatial relationships between the investments and historically marginalized communities. In particular, access to a connected transportation system and safety considerations are being assessed through GIS. The main GIS tool used for the transportation equity system evaluation is a proprietary program ArcGIS made by ESRI.

[1] The emissions reported are for vehicle travel occurring within the federally-designated metropolitan planning area boundary (MPA) regardless of where trips begin or end. The on-road vehicle emissions estimates published in association with the 2021 - 2024 MTIP update were produced within a software framework that combines the regional transportation model with EPA's MOVES model, version MOVES2014a. A newer version of MOVES (MOVES2014b) has since been released, but it should be noted that the improvements incorporated into this update pertain almost exclusively to estimates of non-road emissions and are, therefore, not relevant to this analysis.

2.3 List of Transportation Projects Evaluated in the 2021-2024 MTIP Performance Assessment

2021-2024 MTIP Performance Assessment - Projects Evaluated by Performance Measure

Project Name	Project Description	Project Type	Total Programming	Applicable Phases	Access to Jobs	Access to Community Places	Level of Investment to address Fatalities and Serious Injuries	Level of Safety Investment on High Injury Corridors	Greenhouse Gas Emissions Reduction	Active Transportation Network System Completeness	Multi-Modal Travel Times	Mode Split and Miles Traveled
Systemic signals and illumination (Beaverton)	Improvements at various intersections in the City of Beaverton including signals, lighting, signing and curb ramp upgrades to improve safety.	Transportation System Management	$ 2,071,600	PE, RW, CN, OT	No	No	Yes	Yes	No	No	No	No
OR210: SW Scholls Ferry Rd - SW Hall Blvd ITS	Implement Adaptive Signal Control Technologies (ASCT) to adjust traffic signal to actual conditions. ASCT continuously distributes green light time equitably to all traffic movements and therefore helps to reduce congestion.	Transportation System Management	$ 2,507,523	PE, CN, OT	No	No	No	No	No	No	No	No
Pedestrian & Bike improvements (Beaverton)	Install lighting, pedestrian signal modifications, green conflict markings, and advance warning signs to improve safety for pedestrians and bicycle riders.	Active Transportation	$ 750,158	PE, CN	No	No	Yes	Yes	No	No	No	No
Council Creek Trail	Refine the type, size location, and construction cost estimate of the Council Creek Trail. The trail is envisioned as a multiuse pathway for pedestrians, bicyclists, and other nonmotorized travelers and a critical link connecting the cities of Banks, Forest Grove, Cornelius and Hillsboro to a larger western Washington County regional trail network	Active Transportation	$ 1,345,950	PLAN, PD	No	No	No	No	No	Yes	No	No
Trolly Trail Bridge	Complete final design, engineering, and permitting for the Trolley Bridge. The bridge would be located where the original trolley bridge was situated and the design of the new bridge would attempt to recapture the character of the historic bridge.	Trail	$ 1,228,800	PLAN, PD	No	No	No	No	No	Yes	No	No
City of Gresham safety project	Intersection improvements, upgrade to curb ramps, utility relocation, signal work, medians, traffic separators, striping and signing to improve safety.	Roads and Bridges	$ 1,596,000	PE, RW, UR, CN	No	No	Yes	Yes	No	No	No	No
NE Cleveland Ave: SE Stark ST - NE Burnside	Complete phase two of the project by improving substandard section of Cleveland Ave between Stark and Burnside. Project will fill gap in by providing bike lanes, sidewalks, curbs and gutters to improve safety and accessability.	Active Transportation	$ 4,188,203	PE, RW, CN	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Lighting and rectangular rapid flash beacons (Gresham)	Install lighting and rectangular rapid flash beacons (RRFBs) with warning signs to increase visibility and improve safety for pedestrians.	Active Transportation	$ 627,832	PE, RW, CN	No	No	Yes	Yes	No	No	No	No
Division Street Complete Street	Construct and complete a gap in the regional active transportation network by constructing new bicycle and pedestrian facilities, relocating utility poles, and making intersections ADA compliant on Division between Birdsdale and Wallula Avenues.	Active Transportation	$ 5,240,760	PE, RW, UR, CN	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
SE 129th Avenue - bike lane and sidewalk project	Add sidewalks and bike lanes to improve bicycle and pedestrian safety.	Active Transportation	$ 4,476,761	PE, RW, CN	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Monroe Street Greenway	Create a nearly 4-mile, continuous, low-stress bikeway from downtown Milwaukie to the I-205 Multi-Use Path	Active Transportation	$ 3,860,788	CN	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Beavercreek Rd: Molalla Ave - S Maplelane Rd (Oregon City)	Improvements including signals, signs, flashing lights and signal connectivity improvements to increase safety on this road.	Transportation System Management	$ 1,215,378	PE, CN	No	No	Yes	Yes	No	Yes	No	No
Highway 99E Bicycle and Pedestrian Improvements	1. Close the gap and provide safe pedestrian and bicycle access. 2. Provide a complete street design for McLoughlin Boulevard from 10th Street to the 99E tunnel.	Active Transportation	$ 673,000	PLAN, PD	No	No	Yes	Yes	No	Yes	No	No
SW Barbur Blvd: SW Caruthers St - SW Capitol Hwy	Install two closed-circuit television (CCTV) cameras, move one CCTV camera to a different location, and install 288 count fiber optic cable along project limits in order to solve a data "bottleneck" where multiple agencies that share fiber optics are hitting capacity limits.	Transportation System Management	$ 590,661	PE, CN	No	No	No	No	No	Yes	No	No
Central City in Motion	Develop a strategy that identifies multimodal safety projects and prioritizes investments in the Portland central city.		$ 6,129,499	PL, PE, RW, CN	No	No	No	No	No	Yes	No	No

2.3 List of Transportation Projects Evaluated in the 2021-2024 MTIP Performance Assessment

2021-2024 MTIP Performance Assessment - Projects Evaluated by Performance Measure

Project Name	Project Description	Project Type	Total Programming	Applicable Phases	Access to Jobs	Access to Community Places	Level of Investment to address Fatalities and Serious Injuries	Level of Safety Investment on High Injury Corridors	Greenhouse Gas Emissions Reduction	Active Transportation Network System Completeness	Multi-Modal Travel Times	Mode Split and Miles Traveled
City of Portland safety project	Intersection improvements, upgrade to curb ramps, utility relocation, signal work, medians, traffic separators, striping and signing to improve safety.	Roads and Bridges	$ 7,286,750	PE, RW, UR, CN	No	No	Yes	Yes	No	No	No	No
I-205 undercrossing (Sullivan's Gulch)	Provide safe access across I-205 for bicyclists and pedestrians by improving local street corridors on the west side of I-205 and constructing an east-west bicycle and pedestrian undercrossing.	Active Transportation	$ 3,590,190	PE, RW, CN	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Seventies neighborhood greenway	Traffic calming and way-finding elements on local streets, paving, crossing improvements, and a multi-use path through Rose City Golf Course to address a gap in north-south bicycle and pedestrian facilities near 82nd avenue.	Active Transportation	$ 5,010,706	PE, RW, UR, CN	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Central Systemic Signals and Illumination (Portland)	Improvements at various intersections in the City of Portland including signals, lighting, signing and traffic median upgrades to improve safety.	Transportation System Management	$ 1,859,554	PE, RW, UR, CN	No	No	Yes	Yes	No	No	No	No
NW Thurman Street bridge over Macleay Park (Portland)	Paint the bridge to extend the life of the structure.	Roads and Bridges	$ 4,885,290	PE, CN	No	No	No	No	No	No	No	No
Brentwood-Darlington bike/ped improvements	Construct sidewalk infill on SE Flavel St and SE Duke St, the main east-west collector streets in the neighborhood, to improve pedestrian accessibility and safety.	Active Transportation	$ 6,206,422	PR, RW, UR, CN, OT	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
NE Halsey Street bike/ped/transit improvements	Signal and bus stop improvements, intersection redesigns, and high-priority crossings on NE Halsey between 65th and 92nd. Install a bikeway on Halsey from 65th to 92nd, and a multi-use path connection from 82nd to improve access.	Active Transportation	$ 5,108,289	PE, RW, UR, CN, OT	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Jade and Montavilla multimodal improvements	Construct multi-modal improvements on key pedestrian and bicycle routes within and connecting to the Jade District and Montavilla Neighborhood Centers to improve access.	Active Transportation	$ 7,793,842	PE, RW, UR, CN, OT	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NE 12th Ave over I-84 & Union Pacific RR bridge (Portland)	Install protective screening on the bridge to meet current safety standards.	Other	$ 2,181,244	PE, CN	No	No	No	No	No	No	No	No
OR99W/SW Barbur Blvd area: Sidewalk Infill (Portland)	Complete sidewalk projects at multiple locations near and around OR99W (SW Barbur Blvd) in Portland and install flashing lights at the intersection of SW 40th Ave and SW Huber St to create a safer environment for pedestrians along this section of transportation corridor.	Active Transportation	$ 1,938,487	PE, CN	No	No	Yes	Yes	No	Yes	No	No
NE Airport Way Arterial Corridor management	Installation of electronic message signs, update traffic signal controllers, CCTV cameras, fiber communication and other infrastructure along Airport Way from 82nd Ave to Riverside Parkway which will be integrated into the City's, ODOT's and TriMet's Transportation Operation Centers.	Transportation System Management	$ 1,200,000	PE, CN, OT	No	No	No	No	No	Yes	No	No
City of Portland Transportation Demand Management	Through the Metro Regional Transportation Options program, Portland will conduct outreach and education to connect residents on available bike/pedestrian/transit transportation alternatives and options.	TSMO/TDM	$ 185,445	OT	No	No	No	No	No	No	No	No
SE Mt Scott Blvd:101st Ave - 104th Ave (Portland)	Install guardrail and reflective delineators. Improve curve signage to increase safety on this section.	Roads and Bridges	$ 97,941	PE, CN	No	No	Yes	No	No	Yes	No	No
SE Foster Rd: Barbara Welch Rd - Jenne Rd (Portland)	Install rumble strips on this section of road to improve safety on this section.	Roads and Bridges	$ 170,443	PE, CN	No	No	Yes	No	No	Yes	No	No
W Burnside at SW St Clair Ave (Portland)	Install a pedestrian hybrid beacon to increase pedestrian crossing safety.	Active Transportation	$ 616,881	PE, CN	No	No	Yes	No	No	No	No	No
NE Killingsworth St: MLK Jr Blvd - 33rd Ave (Portland)	Install pedestrian crossing islands to allow pedestrians to cross one direction of traffic flow at a time. Install advance pedestrian signals to allow pedestrians to advance into the intersection prior to vehicle movements to increase visibility and safety.	Active Transportation	$ 411,872	PE, CN	No	No	Yes	Yes	No	Yes	No	No

2.3 List of Transportation Projects Evaluated in the 2021-2024 MTIP Performance Assessment

2021-2024 MTIP Performance Assessment - Projects Evaluated by Performance Measure

Project Name	Project Description	Project Type	Total Programming	Applicable Phases	Access to Jobs	Access to Community Places	Level of Investment to address Fatalities and Serious Injuries	Level of Safety Investment on High Injury Corridors	Greenhouse Gas Emissions Reduction	Active Transportation Network System Completeness	Multi-Modal Travel Times	Mode Split and Miles Traveled
SE Belmont St: 7th Ave - 34th Ave (Portland)	Install lighting at 21 intersections to improve visibility and safety.	Transportation System Management	$ 285,588	PE, CN	No	No	Yes	Yes	No	Yes	No	No
SE Division St: 148th Ave - 174th Ave (Portland)	Convert existing two-way left turn lane to a raised median to improve safety on this section.	Roads and Bridges	$ 2,595,887	PE, CN	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SE Stark St: 148th Ave - 162nd Ave (Portland)	Convert existing two-way left turn lane to a raised median to improve safety on this section.	Roads and Bridges	$ 1,408,655	PE, CN	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NE Fremont St: 102nd Ave - 122nd Ave (Portland)	Install speed bumps to reduce vehicle speeds to 30 MPH to improve safety on this section.	Roads and Bridges	$ 180,421	PE, CN	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SW Shattuck Rd at OR10 (Portland)	Rebuild traffic signal to increase visibility and accommodate left turn signal heads and phases on Shattuck Road to improve safety at this intersection.	Roads and Bridges	$ 1,136,751	PE, RW, CN	No	No	Yes	No	No	No	No	No
SE Gladstone St at Cesar Chavez Blvd (Portland)	Install left turn lanes and upgrade the signal with larger heads and backplates to improve safety at this intersection.	Roads and Bridges	$ 977,932	PE, CN	No	No	Yes	No	No	No	No	No
SE Flavel St at 72nd Ave (Portland)	Rebuild the traffic signal adding left turn capability and add lighting to improve safety at this intersection.	Roads and Bridges	$ 1,020,365	PE, CN	No	No	Yes	Yes	No	No	No	No
Stark Washington Corridor Improvements	1. Reconfigure travel lanes on SE Washington St/SE Stark St couplet from SE 92nd Ave to SE 106th Ave to improve corridor safety. 2. Reallocate one travel lane in each direction to add striped, designated on street parking, designated turn pockets and protected bike lanes. 3. Construct pedestrian refuge islands between bike lane and travel lanes. 4. Stripe pedestrian crossing locations and bike crossing locations along the couplet. 5. Construct traffic signal modifications at SE 94th Ave, SE 96th Ave, SE 99th Ave, SE 102nd Ave and SE 103rd Dr on SE Stark St. 6. Construct traffic signal modifications at SE 94th Ave, SE 96th Ave, SE 99th Ave, SE 102nd Ave, SE 103rd Dr and SE 106th Ave on SE Washington St. 7. Install bike signals at SE 96th Ave and SE 103rd Dr on SE Stark St. 8. Install bike signals at SE 94th Ave, SE 99th Ave, SE 102nd Ave and SE 106th Ave on SE Washington St. 9. Install pedestrian signal improvements at SE 96th Ave, SE 99th Ave and SE 103rd Dr on SE Stark St. 10. Install pedestrian signal improvements at SE 94th Ave, SE 99th Ave, SE 102nd Ave and SE 106th Ave on SE Washington St.	Active Transportation	$ 5,332,000	PE, RW, UR, CN	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

2021-2024 MTIP Performance Assessment - Projects Evaluated by Performance Measure

Project Name	Project Description	Project Type	Total Programming	Applicable Phases	Access to Jobs	Access to Community Places	Level of Investment to address Fatalities and Serious Injuries	Level of Safety Investment on High Injury Corridors	Greenhouse Gas Emissions Reduction	Active Transportation Network System Completeness	Multi-Modal Travel Times	Mode Split and Miles Traveled
122nd Avenue Corridor Improvements	Add enhanced pedestrian crossing(s) at: NE 122nd Ave/Beech St intersection; NE 122nd Ave/ Brazee S/Sacramento St intersection; NE 122nd Ave/Hancook St intersection; NE 122nd Ave between Wasco St and Multnomah St. At each crossing location, elements will include: Supplemental lighting to meet current PBOT lighting standards, ADA-compliant curb ramps, marked crosswalk and crossing treatments, potentially active or enhanced treatment such as a Rectangular Rapid Flashing Beacons (RRFB) with medians, Pedestrian Hybrid Beacons or half signals. Add crosswalk at transit stop with narrowed travel lanes, reduced corner radii (e.g. truck apron), rectangular Rapid Flashing Beacon (RRFB) or pedestrian signal, lighting, especially at crosswalks – pedestrian scale (10-15 feet), preferably poised over sidewalk, bike priority treatments at intersections and crossings, including advance stop lines, bike boxes, bicycle priority signals, high-intensity activated crosswalk (HAWK) signals, user-activated signals, transit priority treatments (e.g. queue jumps, transit signal priority), move transit stop to far side of signal Include storm water mitigation improvements as required and include Intelligent Transportation System (ITS) elements (I.e. signal timing and speed detection	Active Transportation	$ 4,543,700	PE, RW, UR, CN	No	No	Yes	Yes	No	Yes	No	No
Willamette Boulevard Active Transportation Corridor	The signature element of this project is a proposed world class cycle track on N Willamette between N Rosa Parks Way and the University of Portland campus. This investment would also include improved transit amenities and enhanced pedestrian crossings. From the University of Portland campus, an enhanced bikeway is envisioned connecting to the St Johns Town Center.	Active Transportation	$ 4,456,000	PE, RW, UR, CN	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Martin Luther King Boulevard Safety and Access to Transit	This project will focus on providing enhanced pedestrian crossings at regular spacing along MLK Jr Blvd to ensure safety and access to transit. Includes streetscape improvements such as pedestrian scale lighting	Active Transportation	$ 2,623,000	PE, RW, UR, CN	No	No	Yes	Yes	No	Yes	No	No
Cully-Columbia Freight Improvements	Reconstruct the intersection of Alderwood Rd at NE Columbia Blvd, install a permanent traffic signal at this intersection, construct sidewalks along the south side of NE Columbia Blvd from Alderwood Rd to Cully Blvd and a multi-use path on the north side of Columbia Blvd between Cully and Alderwood that continues north on Alderwood. Operations will be improved with an exclusive right turn lane from Alderwood to westbound Columbia and dual side by side left turn pockets on Columbia Blvd between Alderwood and Cully.	Roads and Bridges	$ 3,434,193	PE, RW, UR, CN	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
OR99W (Barbur Blvd): MP 8.01 to MP 11.50	Install lighting at 72nd Ave, Main & Johnson, McKenzie, School, Walnut, Frewing, Garrett, Park, Royalty Parkway, and Durham Rd to increase safety at these locations.	Transportation System Management	$ 1,000,000	PE, RW, UR, CN	No	No	Yes	Yes	No	Yes	No	No
North Dakota Street: Fanno Creek Bridge	Construct a new single span bridge on the same alignment because the existing bridge is failing. Raise the vertical grade line to improve site distance approaching the railroad crossing.	Roads and Bridges	$ 4,824,890	PE, RW, CN	No	No	No	No	No	No	No	No

2021-2024 MTIP Performance Assessment - Projects Evaluated by Performance Measure

Project Name	Project Description	Project Type	Total Programming	Applicable Phases	Access to Jobs	Access to Community Places	Level of Investment to address Fatalities and Serious Injuries	Level of Safety Investment on High Injury Corridors	Greenhouse Gas Emissions Reduction	Active Transportation Network System Completeness	Multi-Modal Travel Times	Mode Split and Miles Traveled
Red Rock Creek Trail	PLan for a two-mile trail improvement extends from the Fanno Creek Regional Trail (FCRT) on the southwest to SW 64th Street at Pacific Hwy on the northeast and is comprised of four distinct trail segments including the Rail Road Crossing Multi-Use Path (MUP) Bridge, Hunziker Core industrial area, the Hwy 217 MUP Bridge, and the Tigard Triangle Plan District.	Trail	$ 314,055	PLAN, PD	No	No	No	No	No	Yes	No	No
OR43: Arbor Dr - Hidden Springs Rd	Construct a new cycle track and sidewalk along OR-43 from Arbor Dr to Hidden Springs Rd and extend the roadway from Hidden Springs Rd to Old River Rd to provide a safe and critical link for bicycle riders and pedestrians along this section of roadway.	Active Transportation	$ 6,118,203	PE, RW, CN	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Jennings Ave: OR99E to Oatfield Rd	Construct sidewalk on the north side of the road and bike lanes on both sides of the road to provide safe bicycle and pedestrian facilities to connect local residents with nearby schools, businesses and transportation options.	Active Transportation	$ 4,040,213	PE, RW, CN	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Systemic signals and illumination (Clackamas)	Improvements at various intersections in Clackamas County including signals, lighting, signing and traffic median upgrades to improve safety.	Transportation System Management	$ 1,098,900	PE, RW, UR, CN	No	No	Yes	Yes	No	No	No	No
232nd Drive at MP 0.3	Emergency relief response to stabilize, reconstruct, and reinforce roadway damaged in March 2017 disaster event.	Roads and Bridges	$ 575,000	PE, RW, CN	No	No	No	No	No	No	No	No
S Redland Rd: OR213 - Springwater Rd (Clackamas County)	Install high friction surface treatment (HFST), signs and edgeline/fog line markings on curves to improve driver control in this area.	Roads and Bridges	$ 334,358	PE, CN	No	No	Yes	No	No	Yes	No	No
SE Johnson Creek Blvd: 79th Pl - 82nd Ave (Clackamas County)	Install a signal at 79th Ave. Allow only right-in, right-out movement at 80th Ave and the Fred Meyer driveway to increase safety at these locations.	Roads and Bridges	$ 1,583,644	PE, RW, CN	Yes	Yes	Yes	No	Yes	No	Yes	Yes
Courtney Avenue Bicycle and Pedestrian Improvements	Sidewalks - Install 6,100 lineal feet of 6 foot wide sidewalks Landscape Buffer – Install minimum 5 foot wide landscape buffer on both sides Narrow Travel Lanes – Reduce existing 12 foot wide travel lanes to 10 foot width Raised Crosswalks – Add a speed table with raised crosswalks at the intersection of Linden Lane and Courtney Avenue Buffered Bikeway – Add 6 foot wide bike lanes with 2 foot wide marked buffer for entire length on both sides Bike Safety Features – Construct bike box with ingress lanes on both sides of the intersection of Courtney Avenue and McLoughlin Blvd. Bicycle Detection –At intersection with McLoughlin Blvd Stormwater Improvements – addition of rain gardens in landscape strip on both sides of road	Active Transportation	$ 5,079,992	CN	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Clackamas County Industrial Area ITS	1. TRUCK SIGNAL PRIORITY & ADVANCED TRAFFIC SIGNAL CONTROLLERS (ATC) - 31 Radar Detection Units (14 intersections), 52 ATC Units with signal optimization 2. UPS BATTERY BACKUP – 25 units (one per intersection) 3. TRAFFIC SURVEILLANCE CAMERAS – 3 units (one per intersection) 4. VEHICLE COUNT STATIONS – 4 locations 5. TRAVEL TIME PERFORMANCE MEASUREMENT – 6 units (one per intersection)	Transportation System Management	$ 1,219,815	CN	No	No	No	No	No	Yes	No	No
Willamette Greenway Trail: Columbia Blvd Bridge	Construct a bicycle and pedestrian bridge over Columbia Boulevard and an extension of the Willamette Greenway Trail to provide a connection from the existing termini in Chimney Park to the south end of the landfill bridge over the south Columbia Slough.	Active Transportation	$ 2,612,381	PE, RW, CN	Yes	Yes	Yes	No	Yes	No	Yes	Yes
Portland Metro planning	Portland Metro MPO planning funds for Federal fiscal year 2021. Projects will be selected in the future through the MPO process.	Other	$ 2,815,941	PL	No	No	No	No	No	No	No	No

2.3 List of Transportation Projects Evaluated in the 2021-2024 MTIP Performance Assessment

2021-2024 MTIP Performance Assessment - Projects Evaluated by Performance Measure

Project Name	Project Description	Project Type	Total Programming	Applicable Phases	Access to Jobs	Access to Community Places	Level of Investment to address Fatalities and Serious Injuries	Level of Safety Investment on High Injury Corridors	Greenhouse Gas Emissions Reduction	Active Transportation Network System Completeness	Multi-Modal Travel Times	Mode Split and Miles Traveled
Regional MPO planning	Funding for Metro to meet Metropolitan Planning Organization mandates, established through the federal regulations.	Other	$ 1,515,521	PL	No	No	No	No	No	No	No	No
Regional Travel Options Program	Funding for the Regional Travel Options (RTO) program that implements strategies to help diversify people's trip choices, reduce pollution and improve mobility.	Regional Travel Options	$ 2,982,732	OT	No	No	No	No	No	No	No	No
Transit Oriented Development Program	Works directly with developers and local jurisdictions to create vibrant downtowns, main streets and station areas by helping to change land use patterns near transit.	Transit-Oriented Development	$ 3,393,696	OT	No	No	No	No	No	No	No	No
Transportation system Mgmt & operations/ITS	Funding to provide strategic and collaborative program management including coordination of activities for TransPort Transportation System Management and Operations (TSMO) committee.	Transportation System Management	$ 2,008,055	OT	No	No	No	No	No	No	No	No
Corridor and systems planning	Conduct planning level work that emphasizes the integration of land use and transportation in corridors. The Corridors and Systems Planning Program determines regional system needs, functions, desired outcomes, performance measures, investment strategies.	Corridor and System Planning	$ 636,432	PL	No	No	No	No	No	No	No	No
Stark Street multimodal connections	Close the existing east-west gap in bicycle and pedestrian travel and improve safety by constructing sidewalks and bike lanes on the north side and part of the south side of SE Stark Street between SW 257th Ave and S Troutdale Rd.	Active Transportation	$ 4,114,377	PE, RW, CN	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SW 257th Dr at Sturges Dr/Cherry Park Rd (Multnomah County)	Install green painted "bike boxes" at the approaches of SW Sturges Drive and SW Cherry Park Road to the intersection of SW 257th Drive to increase safety and visibility for vulnerable road users.	Active Transportation	$ 47,869	PE, CN	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hawthorne Bridge Ramp to OR99E (Portland)	Replace the bridge driving surface and repair the joints on the east and west approaches to repair vehicle damage.	Roads and Bridges	$ 9,553,990	PE, CN	No	No	No	No	No	No	No	No
Morrison St.: Morrison (Willamette River) Bridge (Portland)	Strengthen the Morrison and Belmont Viaducts on the east side of the Willamette River to avoid posting the bridge for less than legal loads.	Roads and Bridges	$ 9,007,529	PE, CN	No	No	No	No	No	Yes	No	No
Morrison Street: Willamette River (Morrison) Bridge	Remove existing lead-based paint and apply new protective paint. Remove current debris from bridge bearings, paint. Add a maintenance access catwalk for the fixed river spans.	Roads and Bridges	$ 5,000,000	CN	No	No	No	No	No	Yes	No	No
Sandy Boulevard from Gresham to 230th Avenue	Conduct and complete design engineering, including all studies such as hydrology/hydraulics, geotech, environmental and traffic. It also includes survey and preliminary roadway design (15%) that includes road layouts and pipes/culvert sizes enough to show any right-of-way acquisition especially at culvert crossings. Project does not include right-of-way acquisition, environmental permitting, and wetland mitigations	Roads and Bridges	$ 1,275,985	PLAN, PD	No	No	No	No	No	Yes	No	No
OR213 (82nd Ave): SE Foster Rd - SE Thompson Rd	Repave/rehabilitate roadway, upgrade curb ramps, and add surface protection to Johnson Creek Bridge to remove ruts from vehicle wear and provide a safer travel surface. Enhance pedestrian crossings at SE Thompson, SE Glencoe, SE Clatsop, and SE Cooper. Sidewalk infill from SE Clatsop - SE Lindy to enable safer pedestrian travel.	Roads and Bridges	$ 79,470,752	PE, RW, UR, CN	No	No	Yes	Yes	No	Yes	No	No
I-5 Rose Quarter Improvement Project	Planning, project development, and right of way efforts of the Broadway-Weidler facility plan and the N/NE Quadrant , which identified transportation investments that would result in improved safety and operations as well as supporting economic growth. Proposed multi-modal improvements include: ramp-to-ramp (auxiliary) lanes, highway shoulders, highway covers, new overcrossing, I-5 southbound ramp relocation, new bike and pedestrian crossing, and improved bike and pedestrian facilities	Throughways	$ 129,391,997	PE, RW	Yes	Yes	No	No	Yes	Yes	Yes	Yes

2021-2024 MTIP Performance Assessment - Projects Evaluated by Performance Measure

Project Name	Project Description	Project Type	Total Programming	Applicable Phases	Access to Jobs	Access to Community Places	Level of Investment to address Fatalities and Serious Injuries	Level of Safety Investment on High Injury Corridors	Greenhouse Gas Emissions Reduction	Active Transportation Network System Completeness	Multi-Modal Travel Times	Mode Split and Miles Traveled
OR8: SW Hocken Ave - SW Short St	Design and construct streetscape, safety, and operational improvements on Canyon Rd in Beaverton between SW Hocken Ave and SW Short St. Upgrade or replace signals, improve access for pedestrians, and provide streetscape enhancements. Upgrade City of Beaverton water line near the intersection of SW Hocken Ave and Canyon Rd.	Roads and Bridges	$ 30,304,185	PE, RW, CN	Yes	Yes	No	No	Yes	Yes	Yes	Yes
US26 (Powell Blvd): SE 99th Ave - East City Limits	Widen street to three lanes (inclusive of a center turn lane) with sidewalks and buffered bike lanes or other enhanced bike facility and to add enhanced pedestrian and bike crossings. This project is intended to provide a safer continuous travel facility for multiple modes of travel and allow for a more connected neighborhood.	Roads and Bridges	$ 105,000,000	PE, RW, UR, CN	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
OR213 at NE Glisan St and NE Davis St	Upgrade the signal at the Glisan St intersection and modify the Davis St intersection to increase safety.	Transportation System Management	$ 9,646,569	PE, RW, UR, CN, OT	No	No	Yes	Yes	No	No	No	No
OR99W: Tualatin River northbound bridge	Replace the bridge travel surface and joints to maintain the bridge condition and ensure continued safety of this structure.	Roads and Bridges	$ 2,302,900	PE, CN	No	No	No	No	No	Yes	No	No
OR99E: Clackamas River (Mcloughlin) Bridge	Design for a future project to repaint the bridge. The paint is required to protect this steel structure from corrosion.	Roads and Bridges	$ 250,000	PE	No	No	No	No	No	Yes	No	No
OR210 over OR217	Pave the bridge surface, replace the bridge expansion joints, and patch the bridge columns.	Roads and Bridges	$ 2,863,363	PE, CN	No	No	No	No	No	No	No	No
I-5 over 26th Avenue Bridge	Replace the bridge to ensure connectivity. Complete a Value Engineering study, which will evaluate the functions of the project with the objective of enhancing the total project value.	Roads and Bridges	$ 34,351,000	PE, RW, CN	No	No	No	No	No	No	No	No
OR99E Over UPRR at Baldwin Street Bridge	Perform bridge rail retrofit; replace expansion joints; patch and seal cracks, and add protective screening to improve structural issues and safety.	Roads and Bridges	$ 5,413,543	PE, RW, CN	No	No	No	No	No	Yes	No	No
I-5 over NE Hassalo Street and NE Holladay Street (Portland)	Replace the deck for the southbound portion of the bridge to repair damage incurred over time by vehicles and weathering.	Roads and Bridges	$ 5,000,000	PE, CN	No	No	No	No	No	Yes	No	No
US26: Glencoe Rd - Cornelius Pass Rd	Pavement resurfacing and bridge work to repair rutting and wear in order to keep this section of roadway safe for travel.	Roads and Bridges	$ 23,784,430	PE, CN	No	No	No	No	No	Yes	No	No
US30B: Bridge over private driveway (Portland)	Repairs to prevent concrete fragments breaking off and falling from the structure. Repair bridge driving surface to restore the travel surface and extend the life of the structure.	Roads and Bridges	$ 1,944,036	PE, RW, CN	No	No	No	No	No	Yes	No	No
US30B: St Johns (Willamette River) Bridge	Repairs of the columns and arched concrete connection between the columns to prevent concrete fragments breaking off and falling from the structure. This project will increase safety and extend the life of the structure.	Roads and Bridges	$ 13,284,662	PE, RW, CN	No	No	No	No	No	Yes	No	No
OR120: Columbia Slough Bridge (Portland)	Study to determine the alignment and construction method for a future bridge replacement of the existing timber structure that is obsolete, costly to continuously repair, and can no longer support heavier loads.	Roads and Bridges	$ 500,000	PL	No	No	No	No	No	Yes	No	No
US30: Troutdale (Sandy River) Bridge	Repair bridge footing erosion to protect the structure from further damage.	Roads and Bridges	$ 4,969,054	PE, RW, CN, OT	No	No	No	No	No	Yes	No	No
OR99W: Rock Creek Bridge	Install new bridge rail to meet current safety standards.	Roads and Bridges	$ 763,184	PE, CN	No	No	No	No	No	Yes	No	No
US30: Watson Rd - NW Hoge Ave	Repair or replace culverts in poor condition along this corridor to prevent further damage and possible collapse.	Culvert	$ 1,524,000	PE, CN	No	No	No	No	No	Yes	No	No
US30: NW Saltzman Rd - NW Bridge Ave	Repave roadway, upgrade curb ramps to current standards, improve access management, and address drainage as needed to restore the pavement surface and improve safety and accessibility.	Roads and Bridges	$ 8,518,704	PE, RW, UR, CN	No	No	No	No	No	Yes	No	No

2.3 List of Transportation Projects Evaluated in the 2021-2024 MTIP Performance Assessment

2021-2024 MTIP Performance Assessment - Projects Evaluated by Performance Measure

Project Name	Project Description	Project Type	Total Programming	Applicable Phases	Access to Jobs	Access to Community Places	Level of Investment to address Fatalities and Serious Injuries	Level of Safety Investment on High Injury Corridors	Greenhouse Gas Emissions Reduction	Active Transportation Network System Completeness	Multi-Modal Travel Times	Mode Split and Miles Traveled
I-84: Fairview - Marine Drive	Repave a section of I-84 between Fairview and Marine Dr to repair vehicle rutting damage and keep the roadway safe for travel. Install a full signal upgrade at NE 238th Ave to increase safety at this location.	Roads and Bridges	$ 10,928,497	PE, RW, CN	No	No	No	No	No	Yes	No	No
I-84: I-205 - NE 181st Avenue	Remove and replace asphalt surface to repair rutted pavement. Seal the driving surface of four bridges.	Roads and Bridges	$ 17,646,066	PE, CN	No	No	No	No	No	Yes	No	No
I-5: I-205 Interchange - Willamette River	Remove and replace asphalt surface to repair pavement ruts and damage from vehicles. This includes the driving surface of 6 bridges.	Roads and Bridges	$ 18,996,983	PE, CN	No	No	No	No	No	Yes	No	No
OR99W: I-5 - McDonald St	Repave roadway, fill in sidewalk and bike lane gaps, upgrade curb ramps to current standards, improve access management, and address drainage as needed. Includes full signal upgrade at Johnson/Main. This project will repair rutting and surface damage from vehicles and allow safer travel for motor vehicle operators, bicycle riders and pedestrians.	Roads and Bridges	$ 57,958,910	PE, RW, CN	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
OR224: SE 17th Ave - OR213	Design for a future construction project to repair cracking, rutting and wear to keep this section safe for travel.	Roads and Bridges	$ 2,617,734	PE	No	No	No	No	No	Yes	No	No
I-5: E Burnside St - Marquam Bridge	Study to determine the construction method for a future pavement resurfacing project to eliminate ruts and prevent future failures.	Roads and Bridges	$ 700,000	PL	No	No	No	No	No	Yes	No	No
I-84: NE Martin Luther King Jr Blvd - I-205	Design for a future pavement resurfacing project to repair ruts and surface wear.	Roads and Bridges	$ 1,000,000	PE	No	No	No	No	No	Yes	No	No
OR8: SW Watson Ave - SW 110th Ave (Beaverton)	Install larger signal heads, reflective backboards, pedestrian countdown signals and left turn phasing where feasible to increase safety on this section of roadway.	Roads and Bridges	$ 5,243,315	PE, RW, CN	No	No	Yes	Yes	No	Yes	No	No
US26: OR217 - Cornell Rd	Repave roadway and ramps to improve pavement condition, extend service life and maintain safety standards. Apply high friction surface pavement treatment (HFST) on OR217 at US26 westbound ramp curved section to help drivers maintain control of vehicles in wet conditions. Bridge maintenance on the structure over OR217 to prevent deterioration.	Roads and Bridges	$ 30,453,075	PE, RW, CN	No	No	No	No	No	Yes	No	No
Central Systemic Signals and Illumination (ODOT)	Improvements at various intersections in the City of Portland including signals, lighting, signing and traffic median upgrades to improve safety.	Transodotation System Management	$ 4,370,300	PE, RW, CN	No	No	Yes	Yes	No	No	No	No
East Systemic Signals and Illumination (ODOT)	Improvements at various intersections in Clackamas County including signals, lighting, signing and traffic median upgrades to improve safety.	Transportation System Management	$ 3,209,075	PE, RW, CN	No	No	Yes	Yes	No	Yes	No	No
West Systemic Signals and Illumination (ODOT)	Improvements at various intersections in Washington County including signals, lighting, signing and traffic median upgrades to improve safety.	Transportation System Management	$ 6,980,500	PE, RW, CN	No	No	Yes	Yes	No	No	No	No
Road safety audit implementation	Address unanticipated safety improvements as identified	Other	$ 1,689,244	OT	No	No	Yes	Yes	No	No	No	No
OR99W (Barbur Blvd) at SW Capitol Hwy	Prohibit northbound left turns from OR99W onto I-5 ramp and redirect traffic flow through jug handle; Install eastbound right turn lane and new signal at Taylors Ferry; Address median gaps and striping; Add/improve signage; Install reflectorized backplates. This project is expected to improve system and intermodal connectivity, public safety, and accessibility.	Roads and Bridges	$ 2,975,700	PE, RW, CN	Yes	Yes	Yes	No	Yes	No	Yes	Yes
OR8 at River Rd	Full signal upgrade with lighting and curb ramp upgrades at the intersection of OR8 and River Rd in the City of Hillsboro to improve pedestrian safety.	Transportation System Management	$ 3,805,215	PE, RW, CN, OT	No	No	Yes	Yes	No	Yes	No	No

2021-2024 MTIP Performance Assessment - Projects Evaluated by Performance Measure

Project Name	Project Description	Project Type	Total Programming	Applicable Phases	Access to Jobs	Access to Community Places	Level of Investment to address Fatalities and Serious Injuries	Level of Safety Investment on High Injury Corridors	Greenhouse Gas Emissions Reduction	Active Transportation Network System Completeness	Multi-Modal Travel Times	Mode Split and Miles Traveled
Regionwide ITS improvements and upgrades	Install new or upgraded variable message signs (VMS), travel-time signs, network/communication technology, and other intelligent transportation system (ITS) functionality at various locations in Multnomah, Washington, Clackamas, and Hood River counties. This project will provide drivers and ODOT staff with information on road conditions and enable the appropriate response.	Transportation System Management	$ 1,746,000	PE, CN	No	No	No	No	No	No	No	No
Region 1 Bike Ped Crossings	Bike and pedestrian improvements on 82nd Ave (OR-213), McLoughlin (OR-99E), Powell (US-26), and OR8 at Baseline. Includes flashing lights, medians, illumination, crosswalks, tree trimming/removal, bike lane striping, sidewalks, curb ramps and other improvements to increase safety at these locations.	Active Transportation	$ 6,671,704	PE, RW, CN	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
I-205 Exit Ramps at SE Division St	Improvements on NB and SB I-205 exit ramps at SE Division street. Work includes lane adjustments, ramp widening, safety islands, signal work, illumination, signing, resurfacing and ADA improvements as necessary to increase safety at this location.	Throughways	$ 3,712,964	PE, RW, UR, CN	Yes	Yes	No	No	Yes	Yes	Yes	Yes
US30 at Bridge Ave ramps	Tree hazard removal and pinned mesh installation to prevent rockfalls.	Other	$ 3,463,704	PE, CN	No	No	No	No	No	Yes	No	No
Portland Metro/surrounding area traffic monitoring & control	Purchase traffic monitoring and control systems equipment such as cameras and communication infrastructure to improve incident response within the ODOT Region 1 area located in Clackamas, Hood River, Multnomah and Washington Counties	Transportation System Management	$ 700,000	OT	No	No	No	No	No	No	No	No
Portland Metro and surrounding areas variable message signs	Replacement and installation of Variable Message Signs (VMS) signs to improve operations and provide real time travel information throughout the ODOT Region 1 area located in Clackamas, Hood River, Multnomah and Washington Counties.	Transportation System Management	$ 1,642,522	PE, CN	No	No	No	No	No	No	No	No
I-5: Marquam Bridge - Capitol Highway	Install Variable Advisory Speed (VAS) and truck warning signs to improve safety by informing drivers of expected downstream conditions.	Transportation System Management	$ 7,902,178	PE, RW, UR, CN	No	No	No	No	No	Yes	No	No
Portland Metro and surrounding areas traffic signal upgrades	Replace signal heads with Light Emitting Diode (LED) fittings to increase safety by enhancing visibility throughout the ODOT Region 1 area located in Clackamas, Hood River, Multnomah and Washington Counties.	Transportation System Management	$ 200,000	CN	No	No	No	No	No	No	No	No
Portland Metro and surrounding areas pavement marking	Restriping and replacement of raised pavement markers to update road markings and ensure continued visibility throughout the ODOT Region 1 area located in Clackamas, Hood River, Multnomah and Washington Counties.	Transportation System Management	$ 200,000	CN	No	No	No	No	No	No	No	No
Portland Metro and surrounding areas signal detection	Signal detection upgrades and replacements to respond to the identified need throughout the ODOT Region 1 area located in Clackamas, Hood River, Multnomah and Washington Counties. A signal detector notifies the signal controller of the presence of a vehicle or multiple vehicles stopped and waiting to enter an intersection or freeway onramp.	Transportation System Management	$ 200,000	CN	No	No	No	No	No	No	No	No
OR224 at SE Monroe St	Full signal upgrade to replace the signal that is outdated and intersection modifications to increase safety for pedestrians and cyclists.	Transportation System Management	$ 11,101,649	PE, RW, UR, CN	No	No	Yes	No	No	No	No	No
OR8 at 174th Ave, Armco Ave, Main St and A&B Row	Full signal rebuild and sidewalk installations at the Main St intersection. Install flashing lights at the other intersections to increase safety at these locations.	TSMO/TDM	$ 15,487,410	PE, RW, UR, CN	No	No	Yes	No	No	No	No	No

2.3 List of Transportation Projects Evaluated in the 2021-2024 MTIP Performance Assessment

2021-2024 MTIP Performance Assessment - Projects Evaluated by Performance Measure

Project Name	Project Description	Project Type	Total Programming	Applicable Phases	Access to Jobs	Access to Community Places	Level of Investment to address Fatalities and Serious Injuries	Level of Safety Investment on High Injury Corridors	Greenhouse Gas Emissions Reduction	Active Transportation Network System Completeness	Multi-Modal Travel Times	Mode Split and Miles Traveled
Portland Metro and surrounding areas traffic monitoring	Install and replace damaged and obsolete traffic monitoring cameras so that highway conditions are continually monitored and there is an appropriate response to incidents throughout the ODOT Region 1 area located in Clackamas, Hood River, Multnomah and Washington Counties.	Transportation System Management	$ 645,000	CN	No	No	No	No	No	No	No	No
Portland Metro and surrounding areas rockfall mitigation	This study will identify rockfall risks and tree hazards to develop a mitigation strategy and help ensure the roadway remains safe from this type of threat throughout the ODOT Region 1 area located in Clackamas, Hood River, Multnomah and Washington Counties.	Other	$ 250,000	PL	No	No	No	No	No	No	No	No
OR224: SE 17th Ave - Rainbow Campground	Improvements including signs, stop bars, rumble strips, signals, reflectorized back plates and lighting to increase safety on this section of highway.	Roads and Bridges	$ 1,865,202	PE, RW, UR, CN	No	No	Yes	Yes	No	Yes	No	No
US30: Sandy River - OR35	Signage and signal improvements to increase the visibility of intersections and improve safety along this highway.	Transportation System Management	$ 577,497	PE, RW, CN, OT	No	No	Yes	No	No	Yes	No	No
US26: SE 8th Ave - SE 87th Ave	Update signals and improve intersection warning signage to improve safety on this section of highway.	Transportation System Management	$ 103,897	PE, RW, CN	No	No	Yes	Yes	No	Yes	No	No
OR99W: OR217 - SW Sunset Blvd & US30B: Kerby - 162nd Ave	Upgrade signals, replace or modify signs and road markings, install lighting and bike lane conflict markings to improve safety on this section.	TSMO/TDM	$ 2,495,797	PE, RW, UR, CN	No	No	Yes	Yes	No	Yes	No	No
Portland Metro & surrounding area audible crosswalk signals	Install audible crosswalk signal replacements to improve accessibility for pedestrians crossing at various locations throughout the ODOT Region 1 area located in Clackamas, Hood River, Multnomah and Washington Counties.	TSMO/TDM	$ 200,000	CN	No	No	No	No	No	No	No	No
OR213: I-205 - OR211	Improvements including signals, reflectorized back plates, advance intersection warning signs, flashing lights, radar detection units and stop bars to increase safety on this section of highway.	Roads and Bridges	$ 536,748	PE, RW, UR, CN	No	No	Yes	No	No	No	No	No
US30B (Lombard): N Newman Ave – N Boston Ave	Pavement resurfacing and extend transition from a 3-lane to a 4-lane corridor up to Boston Ave. Install an enhanced pedestrian crossing with a median island at N Delaware Ave	Roads and Bridges	$ 6,012,784	PE, RW, UR, CN	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Portland Metro and surrounding area operations	Install traffic controllers, and operational improvements as needed at various locations to improve traffic flow throughout the ODOT Region 1 area located in Clackamas, Hood River, Multnomah and Washington Counties.	Transportation System Management	$ 867,155	PE, CN, OT	No	No	No	No	No	No	No	No
OR212/224 Arterial management	Implement a variety of treatments including upgrading traffic signal controllers and enhanced radar detection to improve safety, mobility and reliability along the congested industrial OR212/224 corridor.	Transportation System Management	$ 2,800,000	PE, CN, OT	No	No	No	No	No	No	No	No
I-5: Boone (Willamette River) Bridge	Pave the surface of the bridge to remove ruts and repair the bridge expansion joints to provide a safe and even travel surface. Upgrade the bridge to reduce seismic risks.	Roads and Bridges	$ 3,450,000	PE, CN	No	No	No	No	No	Yes	No	No
OR8: SE Brookwood Ave - OR217	Install fiber optic cable where gaps exist in order to operate traffic control and monitoring systems and rapidly respond to incidents.	Transportation System Management	$ 3,927,163	PE, RW, CN	No	No	No	No	No	Yes	No	No
Washington County safety, bike and pedestrian improvements	Upgrade street lighting, signals, signs, striping, and install stop approach activated warning system on sections of the Hillsboro - Silverton Highway (OR219), Farmington Road (OR10) and Tualatin Valley Highway (OR8). Install buffered bike lanes on sections of OR8 and OR10. Install flashing lights at OR10 at 195th Ave. This project aims to to increase safety at these locations.	TSMO/TDM	$ 3,672,931	PE, RW, UR, CN	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

2.3 List of Transportation Projects Evaluated in the 2021-2024 MTIP Performance Assessment

2021-2024 MTIP Performance Assessment - Projects Evaluated by Performance Measure

Project Name	Project Description	Project Type	Total Programming	Applicable Phases	Access to Jobs	Access to Community Places	Level of Investment to address Fatalities and Serious Injuries	Level of Safety Investment on High Injury Corridors	Greenhouse Gas Emissions Reduction	Active Transportation Network System Completeness	Multi-Modal Travel Times	Mode Split and Miles Traveled
US26/OR213 curb ramps	Design and construct curb ramps and pedestrian signals in compliance with the Americans with Disabilities Act (ADA) standards to improve access for people with disabilities.	Active Transportation	$ 1,605,000	PE, RW, UR, CN	No	No	No	No	No	No	No	No
Oregon Transportation Network - TriMet FFY22	Urbanized public transit capital funding for Federal fiscal year 2022. Funds will be transferred to FTA for delivery. Projects and programs to be determined based on funding requirements.	Transit	$ 12,488,853	OT	No	No	No	No	No	No	No	No
NE Columbia Blvd: Cully Blvd & Alderwood Rd	Install or replace a signal and construct a taper on Columbia Blvd's east leg at Alderwood for future side-by-side left-turn lanes between Cully and Alderwood. Construct sidewalks at the Columbia/Alderwood intersection and on N side to Cully. The project will keep Columbia Blvd a viable freight route while enhancing neighborhood connections and improving safety.	Roads and Bridges	$ 5,058,349	PE, RW, UR, CN	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Smart Senior & Disabled Program	Services & Facility Improvements for Elderly & Disabled Customers	Transit	$ 51,250	OT	No	No	No	No	No	No	No	No
Smart bus and bus facilities (capital)	Bus and bus facility upgrades to ensure continued service.	Transit	$ 105,200	OT	No	No	No	No	No	No	No	No
SMART bus replacement and technology	Maintenance and bus fleet replacement & software to ensure continued service.	Transit	$ 373,448	OT	No	No	No	No	No	No	No	No
TriMet bus purchase	Bus purchase to enhance the existing fleet.	Transit	$ 4,459,587	OT	No	No	No	No	No	No	No	No
TriMet bus & rail preventive maintenance	Capital maintenance for bus and rail to ensure continued service.	Transit	$ 83,974,964	OT	No	No	No	No	No	No	No	No
Regional High Capacity Transit Bond Payment	Funding to meet the existing commitment to pay off GARVEE bonded debt that made a regional contribution to the Portland-Milwaukie Light Rail project, the Portland-Lake Oswego Transit Project, and costs of acquiring	Transit	$ 23,838,180	OT	No	No	No	No	No	No	No	No
TriMet Elderly & Disabled Program	Services and facility improvements in excess of Americans with Disabilities Act (ADA) requirements.	Transit	$ 2,495,821	OT	No	No	No	No	No	No	No	No
Bus & rail preventive maintenance (RFFA-2021)	Capital maintenance for bus & rail (Regional Flexible Fund Allocation Fund Exchange) to ensure continued service.	Transit	$ 2,793,658	OT	No	No	No	No	No	No	No	No
Max redline extension to gateway double track	Design pocket track at Fair Complex/Hillsboro Airport MAX station, enabling extended Red Line service, turnaround combined with new track work, a new station at Gateway, and new track work at Portland Airport MAX station to improve system operations.	Transit	$ 10,000,000	PE, RW, UR, CN	Yes	Yes	No	No	Yes	Yes	Yes	Yes
TriMet Preventive Maintenance (TOD)	Funding to support TriMet's Preventive Maintenance 2021 program	Transit	$ 3,782,120	OT	No	No	No	No	No	No	No	No
Beaverton Creek Trail:Westside Trail-SW Hocken Ave	Construct a 1.5-mile long, 12-foot wide regional trail consisting of paving, bridges/boardwalks, lighting, road right-of-way improvements, environmental mitigation and bicycle/pedestrian amenities and site furnishings. This section of trail will provide an off-street, safer and more pleasant transportation option to connect with light-rail, bus lines, employment and commercial areas as well as providing recreation opportunities for walkers, joggers and cyclists.	Active Transportation	$ 5,834,596	PL, PE, CN	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
OR217: OR10 - OR99W	On OR217, add a southbound auxiliary lane from OR10 to OR99W and a northbound auxiliary lane from OR99W to SW Scholl's Ferry Rd (OR210) to improve safety and traffic reliability. Pave road, add protective screening, and bridge updates on Allen Blvd and Denny Rd structures. Pave road, replace joints, and repair deteriorating concrete columns on OR210 over OR217 structure. Add sidewalks and bike lanes to the Hall Blvd (OR141) over OR217 overcrossing to improve bicycle and pedestrian connectivity.	Throughways	$ 395,002,517	PE, RW, CN, OT	Yes	Yes	No	No	Yes	Yes	Yes	Yes

2.3 List of Transportation Projects Evaluated in the 2021-2024 MTIP Performance Assessment

2021-2024 MTIP Performance Assessment - Projects Evaluated by Performance Measure

Project Name	Project Description	Project Type	Total Programming	Applicable Phases	Access to Jobs	Access to Community Places	Level of Investment to address Fatalities and Serious Injuries	Level of Safety Investment on High Injury Corridors	Greenhouse Gas Emissions Reduction	Active Transportation Network System Completeness	Multi-Modal Travel Times	Mode Split and Miles Traveled
Basalt Creek Ext: Grahams Ferry Rd-Boones Ferry Rd	Construct a new arterial roadway providing industrial freight access in the Basalt Creek Planning Area. The extension of the parkway is an east-west alignment crossing the Seely Ditch with a 600 ft long bridge.	Roads and Bridges	$ 35,245,551	PE, RW, CN	Yes	Yes	No	No	Yes	Yes	Yes	Yes
OR8 corridor safety & access to transit II	Improve safety and access to transit for pedestrians and cyclists along OR-8. Work includes: bike lane from SW 182nd Ave to SW 153rd Dr., pedestrian crossings, and separated walkway and bike lane across Rock Creek Bridge.	Active Transportation	$ 3,742,902	PE, RW, CN	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cornelius Pass Road Arterial Corridor Management	Implement a variety of Intelligent Transportation System (ITS) treatments including variable message signs, rural curve warning systems and rural weather stations to enhance safety and mobility in rural and suburban Washington and Multnomah Counties.	Transportation System Management	$ 2,800,000	PE, CN, OT	No	No	No	No	No	No	No	No
NW West Union Rd at Neahkahnie Ave (Washington County)	Widen West Union at Neahkahnie and install a left turn lane to allow through traffic to keep moving and give turning vehicle drivers more time to evaluate turns, thereby improving safety at his location.	Roads and Bridges	$ 1,083,270	PE, RW, CN	Yes	Yes	Yes	No	Yes	No	Yes	Yes
Aloha Safe Access to Transit	Construct critical walking facilities along 174th, 182nd, 187th, and 192nd avenues through the Aloha Town Center and crossing improvements along 185th Avenue.	Active Transportation	$ 3,827,559	CN	No	No	Yes	Yes	No	Yes	No	No
Cornelius Pass Bicycle and Pedestrian Bridge over US 26	Identify the type, size and location of a grade-separated crossing to the east of the Cornelius Pass –US26 interchange, along the alignment of the Oregon Electric Railway Trail. Complete sufficient design (20-30% drawings) to estimate construction cost with sufficient confidence to pursue additional required funding to complete design and construct.	Active Transportation	$ 628,110	PLAN, PD	No	No	No	No	No	Yes	No	No
Division Transit Project	Construct a 15 mile bus rapid transit line which includes expanded bus stations, transit signal priority, and longer buses.	Transit			No	No	No	No	No	Yes	No	No
Columbia Bus base	Build a new bus garage in at 4421 NE Columbia Boulevard to to store and maintain vehicles, and send buses into service on new and existing routes.	Transit			No	No	No	No	No	No	No	No
Note: PL = Planning, PE = Preliminary Engineering, RW = Right of Way, CN = Construction, OT = Other; UR = Utility Relocation												

2021-2024 MTIP Performance Assessment - Projects Not Included in the Evaluation

Project Name	Project Description	Project Type	Total Programming	Applicable Phases	Access to Jobs	Access to Community Places	Level of Investment to address Fatalities and Serious Injuries	Level of Safety Investment on High Injury Corridors	Greenhouse Gas Emissions Reduction	Active Transportation Network System Completeness	Multi-Modal Travel Times	Mode Split and Miles Traveled
OR210: SW Scholls Ferry Rd - SW Hall Blvd ITS	Implement Adaptive Signal Control Technologies (ASCT) to adjust traffic signal to actual conditions. ASCT continuously distributes green light time equitably to all traffic movements and therefore helps to reduce congestion.	Transportation System Management	$ 2,507,523	PE, CN, OT	No	No	No	No	No	No	No	No
NW Thurman Street bridge over Macleay Park (Portland)	Paint the bridge to extend the life of the structure.	Roads and Bridges	$ 4,885,290	PE, CN	No	No	No	No	No	No	No	No
NE 12th Ave over I-84 & Union Pacific RR bridge (Portland)	Install protective screening on the bridge to meet current safety standards.	Other	$ 2,181,244	PE, CN	No	No	No	No	No	No	No	No
City of Portland Transportation Demand Management	Through the Metro Regional Transportation Options program, Portland will conduct outreach and education to connect residents on available bike/pedestrian/transit transportation alternatives and options.	TSMO/TDM	$ 185,445	OT	No	No	No	No	No	No	No	No
North Dakota Street: Fanno Creek Bridge	Construct a new single span bridge on the same alignment because the existing bridge is failing. Raise the vertical grade line to improve site distance approaching the railroad crossing.	Roads and Bridges	$ 4,824,890	PE, RW, CN	No	No	No	No	No	No	No	No
232nd Drive at MP 0.3	Emergency relief response to stabilize, reconstruct, and reinforce roadway damaged in March 2017 disaster event.	Roads and Bridges	$ 575,000	PE, RW, CN	No	No	No	No	No	No	No	No
Portland Metro planning	Portland Metro MPO planning funds for Federal fiscal year 2021. Projects will be selected in the future through the MPO process.	Other	$ 2,815,941	PL	No	No	No	No	No	No	No	No
Regional MPO planning	Funding for Metro to meet Metropolitan Planning Organization mandates, established through the federal regulations.	Other	$ 1,515,521	PL	No	No	No	No	No	No	No	No
Regional Travel Options Program	Funding for the Regional Travel Options (RTO) program that implements strategies to help diversify people's trip choices, reduce pollution and improve mobility.	Regional Travel Options	$ 2,982,732	OT	No	No	No	No	No	No	No	No
Transit Oriented Development Program	Works directly with developers and local jurisdictions to create vibrant downtowns, main streets and station areas by helping to change land use patterns near transit.	Transit-Oriented Development	$ 3,393,696	OT	No	No	No	No	No	No	No	No
Transportation system Mgmt & operations/ITS	Funding to provide strategic and collaborative program management including coordination of activities for TransPort Transportation System Management and Operations (TSMO) committee.	Transportation System Management	$ 2,008,055	OT	No	No	No	No	No	No	No	No
Corridor and systems planning	Conduct planning level work that emphasizes the integration of land use and transportation in corridors. The Corridors and Systems Planning Program determines regional system needs, functions, desired outcomes, performance measures, investment strategies.	Corridor and System Planning	$ 636,432	PL	No	No	No	No	No	No	No	No
Hawthorne Bridge Ramp to OR99E (Portland)	Replace the bridge driving surface and repair the joints on the east and west approaches to repair vehicle damage.	Roads and Bridges	$ 9,553,990	PE, CN	No	No	No	No	No	No	No	No
OR210 over OR217	Pave the bridge surface, replace the bridge expansion joints, and patch the bridge columns.	Roads and Bridges	$ 2,863,363	PE, CN	No	No	No	No	No	No	No	No
I-5 over 26th Avenue Bridge	Replace the bridge to ensure connectivity. Complete a Value Engineering study, which will evaluate the functions of the project with the objective of enhancing the total project value.	Roads and Bridges	$ 34,351,000	PE, RW, CN	No	No	No	No	No	No	No	No
Regionwide ITS improvements and upgrades	Install new or upgraded variable message signs (VMS), travel-time signs, network/communication technology, and other intelligent transportation system (ITS) functionality at various locations in Multnomah, Washington, Clackamas, and Hood River counties. This project will provide drivers and ODOT staff with information on road conditions and enable the appropriate response.	Transportation System Management	$ 1,746,000	PE, CN	No	No	No	No	No	No	No	No
Portland Metro/surrounding area traffic monitoring & control	Purchase traffic monitoring and control systems equipment such as cameras and communication infrastructure to improve incident response within the ODOT Region 1 area located in Clackamas, Hood River, Multnomah and Washington Counties	Transportation System Management	$ 700,000	OT	No	No	No	No	No	No	No	No

2.4 List of Transportation Projects Not Evaluated in the 2021-2024 MTIP Performance Assessment

2021-2024 MTIP Performance Assessment - Projects Not Included in the Evaluation

Project Name	Project Description	Project Type	Total Programming	Applicable Phases	Access to Jobs	Access to Community Places	Level of Investment to address Fatalities and Serious Injuries	Level of Safety Investment on High Injury Corridors	Greenhouse Gas Emissions Reduction	Active Transportation Network System Completeness	Multi-Modal Travel Times	Mode Split and Miles Traveled
Portland Metro and surrounding areas variable message signs	Replacement and installation of Variable Message Signs (VMS) signs to improve operations and provide real time travel information throughout the ODOT Region 1 area located in Clackamas, Hood River, Multnomah and Washington Counties.	Transportation System Management	$ 1,642,522	PE, CN	No	No	No	No	No	No	No	No
Portland Metro and surrounding areas traffic signal upgrades	Replace signal heads with Light Emitting Diode (LED) fittings to increase safety by enhancing visibility throughout the ODOT Region 1 area located in Clackamas, Hood River, Multnomah and Washington Counties.	Transportation System Management	$ 200,000	CN	No	No	No	No	No	No	No	No
Portland Metro and surrounding areas pavement marking	Restriping and replacement of raised pavement markers to update road markings and ensure continued visibility throughout the ODOT Region 1 area located in Clackamas, Hood River, Multnomah and Washington Counties.	Transportation System Management	$ 200,000	CN	No	No	No	No	No	No	No	No
Portland Metro and surrounding areas signal detection	Signal detection upgrades and replacements to respond to the identified need throughout the ODOT Region 1 area located in Clackamas, Hood River, Multnomah and Washington Counties. A signal detector notifies the signal controller of the presence of a vehicle or multiple vehicles stopped and waiting to enter an intersection or freeway onramp.	Transportation System Management	$ 200,000	CN	No	No	No	No	No	No	No	No
Portland Metro and surrounding areas traffic monitoring	Install and replace damaged and obsolete traffic monitoring cameras so that highway conditions are continually monitored and there is an appropriate response to incidents throughout the ODOT Region 1 area located in Clackamas, Hood River, Multnomah and Washington Counties.	Transportation System Management	$ 645,000	CN	No	No	No	No	No	No	No	No
Portland Metro and surrounding areas rockfall mitigation	This study will identify rockfall risks and tree hazards to develop a mitigation strategy and help ensure the roadway remains safe from this type of threat throughout the ODOT Region 1 area located in Clackamas, Hood River, Multnomah and Washington Counties.	Other	$ 250,000	PL	No	No	No	No	No	No	No	No
Portland Metro & surrounding area audible crosswalk signals	Install audible crosswalk signal replacements to improve accessibility for pedestrians crossing at various locations throughout the ODOT Region 1 area located in Clackamas, Hood River, Multnomah and Washington Counties.	TSMO/TDM	$ 200,000	CN	No	No	No	No	No	No	No	No
Portland Metro and surrounding area operations	Install traffic controllers, and operational improvements as needed at various locations to improve traffic flow throughout the ODOT Region 1 area located in Clackamas, Hood River, Multnomah and Washington Counties.	Transportation System Management	$ 867,155	PE, CN, OT	No	No	No	No	No	No	No	No
OR212/224 Arterial management	Implement a variety of treatments including upgrading traffic signal controllers and enhanced radar detection to improve safety, mobility and reliability along the congested industrial OR212/224 corridor.	Transportation System Management	$ 2,800,000	PE, CN, OT	No	No	No	No	No	No	No	No
US26/OR213 curb ramps	Design and construct curb ramps and pedestrian signals in compliance with the Americans with Disabilities Act (ADA) standards to improve access for people with disabilities.	Active Transportation	$ 1,605,000	PE, RW, UR, CN	No	No	No	No	No	No	No	No
Oregon Transportation Network - TriMet FFY22	Urbanized public transit capital funding for Federal fiscal year 2022. Funds will be transferred to FTA for delivery. Projects and programs to be determined based on funding requirements.	Transit	$ 12,488,853	OT	No	No	No	No	No	No	No	No
Smart Senior & Disabled Program	Services & Facility Improvements for Elderly & Disabled Customers	Transit	$ 51,250	OT	No	No	No	No	No	No	No	No
Smart bus and bus facilities (capital)	Bus and bus facility upgrades to ensure continued service.	Transit	$ 105,200	OT	No	No	No	No	No	No	No	No
SMART bus replacement and technology	Maintenance and bus fleet replacement & software to ensure continued service.	Transit	$ 373,448	OT	No	No	No	No	No	No	No	No
TriMet bus purchase	Bus purchase to enhance the existing fleet.	Transit	$ 4,459,587	OT	No	No	No	No	No	No	No	No

2.4 List of Transportation Projects Not Evaluated in the 2021-2024 MTIP Performance Assessment
2021-2024 MTIP Performance Assessment - Projects Not Included in the Evaluation

Project Name	Project Description	Project Type	Total Programming	Applicable Phases	Access to Jobs	Access to Community Places	Level of Investment to address Fatalities and Serious Injuries	Level of Safety Investment on High Injury Corridors	Greenhouse Gas Emissions Reduction	Active Transportation Network System Completeness	Multi-Modal Travel Times	Mode Split and Miles Traveled
TriMet bus & rail preventive maintenance	Capital maintenance for bus and rail to ensure continued service.	Transit	$ 83,974,964	OT	No	No	No	No	No	No	No	No
Regional High Capacity Transit Bond Payment	Funding to meet the existing commitment to pay off GARVEE bonded debt that made a regional contribution to the Portland-Milwaukie Light Rail project, the Portland-Lake Oswego Transit Project, and costs of acquiring transit buses.	Transit	$ 23,838,180	OT	No	No	No	No	No	No	No	No
TriMet Elderly & Disabled Program	Services and facility improvements in excess of Americans with Disabilities Act (ADA) requirements.	Transit	$ 2,495,821	OT	No	No	No	No	No	No	No	No
Bus & rail preventive maintenance (RFFA-2021)	Capital maintenance for bus & rail (Regional Flexible Fund Allocation Fund Exchange) to ensure continued service.	Transit	$ 2,793,658	OT	No	No	No	No	No	No	No	No
TriMet Preventive Maintenance (TOD)	Funding to support TriMet's Preventive Maintenance 2021 program	Transit	$ 3,782,120	OT	No	No	No	No	No	No	No	No
Cornelius Pass Road Arterial Corridor Management	Implement a variety of Intelligent Transportation System (ITS) treatments including variable message signs, rural curve warning systems and rural weather stations to enhance safety and mobility in rural and suburban Washington and Multnomah Counties.	Transportation System Management	$ 2,800,000	PE, CN, OT	No	No	No	No	No	No	No	No
Columbia Bus base	Build a new bus garage in at 4421 NE Columbia Boulevard to to store and maintain vehicles, and send buses into service on new and existing routes.	Transit			No	No	No	No	No	No	No	No
Note: PL = Planning, PE = Preliminary Engineering, RW = Right of Way, CN = Construction, OT = Other; UR = Utility Relocation												

Clarification of Programming and Analysis of Particular Capital Projects Not in the 2021-2024 MTIP

The analysis, programming and adoption of investments in the 2021-24 MTIP is a 12 month process. While the analysis and programming take place, capital investments continue to progress through the project engineering, design, and right-of-way acquisition phases. Capital investments seek inclusion in the MTIP when looking to access federal funding, reaching certain milestones in their project development progress, and/or when securing funding commitments that provide financial certainty. The financial certainty allows projects to be programmed in the MTIP.

To analyze the performance and anticipated effects of the 2021-2024 MTIP, Metro staff must anticipate which projects are likely to be included in the final list of projects to allow for the analysis to be completed within the 12 month schedule. This is why the list of investments assessed as part of the 2021-2024 MTIP performance analysis is different from the list of investments presented as part of the public comment draft. Part of the assessment Metro staff undertakes is identifying the capital investments in the region likely to be constructed during the 2021 through 2024 timeframe. This identification includes looking at what project development milestones have already been programmed, what project development milestones are being programmed for the 2021-2024 MTIP, and/or looking at project schedules for the anticipated opening dates in 2021 through 2024.

In parallel to the Metro staff process for identifying which capital investments get included in the 2021-2024 MTIP performance assessment, the capital investments are also undergoing review to ensure funding commitments have been met. For these large-scale projects, these funding commitments are often done by phase and therefore phases of the project only get programmed when full funding commitments have been secured.

In light of these parallel processes occurring with the compilation and assessment of the 2021-2024 MTIP, the following are clarifications regarding the status of capital projects that were included in the analysis of the 2021-2024 MTIP investments on transportation system performance, but are not included as part of the 2021-2024 MTIP public comment draft for funding commitment reasons.

Division Transit Project.
At the time Metro staff developed the list of investments to include in the 2021-2024 MTIP performance assessment, the project schedule for the Division Transit Project identified the region's first bus rapid transit (BRT) project to open for service in 2022. This schedule remains in place and understanding the project would be in construction from 2019 through 2022, Metro staff assumed the project to be included in the 2021-2024 MTIP and therefore included the project in the 2021-2024 MTIP performance assessment.

As the MTIP analysis proceeded, the Division Transit Project aligned its local match funding commitments for a federal Small Starts funding application. It was not known at the time exactly when FTA would commit funding to the project or over how many federal fiscal years the FTA funding would be provided to the project. Subsequently, FTA awarded the project its entire federal funding amount in federal fiscal Year 2020. The project was then amended into the current 2018-2021 MTIP. As all of the funding needed to fully fund the projects was then obligated in federal fiscal year 2020, it was determined the project does not need to be included in the 2021-2024 MTIP. As the project impacts are new to the upcoming MITP cycle and the project is scheduled to open for service during in federal fiscal year 2023, it is appropriate to include the project as a part of the system performance analysis for the 2021-2024 MTIP.

Interstate 5 Rose Quarter Project

As part of the initial draft list of programming of projects ODOT proposed to include in the 2021-2024 MTIP, the Interstate 5 Rose Quarter project included funding for preliminary engineering and right-of-way phases for 2021. Typically the programming of a right-of-way phase is a sign of commitment the project will move into construction as land and properties are being acquired for project delivery purposes. In anticipation of this project entering the right-of-way and construction phases as a part of the 2021-2024 MTIP, the project was included in the analysis of the 2021-2024 MTIP.

After going through the project prioritization process, two developments arose with the project. First, the project wanted to advance funding to begin the right-of-way phase up to federal fiscal year 2020 to prevent delays to the project schedule. Second, the cost estimates for the project increased and the funding already committed to the project does not fully cover the cost of the construction phase. Therefore, the construction phase is currently not ready to be programmed in the TIP until the funding gap is addressed. At this time, there is currently not proposed programming for this project in the public comment draft of the 2021-2024 MTIP, even though the amendment to advance the right-of-way phase to FFY 2020 has not been approved by the Federal Highway Administration at this time. As the 2018-21 MTIP amendment process has its own public comment process, Metro staff felt it would be confusing to have proposed programming of the project right-of-way phase for federal fiscal year 2021 in the 2021-2024 MTIP while also having a proposed programming amendment to include the project in the current 2018-21 MTIP for FFY 2020. Staff also anticipates that ODOT may identify additional funds to cover the construction phase cost in the near future and the project is anticipated to proceed during the 2021-24 MTIP timeframe. Therefore, it is still appropriate to include the project as a part of the system performance analysis for the 2021-24 MTIP.

MAX Red Line Extension

The MAX Red Line Extension project has been in project development for several years. With an opening date scheduled in 2023-2024, it was anticipated that TriMet would have secured a funding commitment for the construction phase of this project by the time the draft 2021-24

MTIP would be ready for its public comment period. In further consultation with FTA staff, the project has not progressed enough in securing FTA funding to propose FTA funds as reasonably available or committed to the project just yet. The commitment of those funds is expected in the near future and may still be proposed as a part of the Adoption Draft of the 2021-24 MTIP or as a "transition amendment" immediately upon federal approval of the 2021-24 MTIP. To ensure consistency between the project's request for FTA funding in this timeframe and understanding the projects role in its contribution to the effects on the region's transportation system performance, it is appropriate that it remains as a part of the MTIP performance analysis.

Evaluation Measure Title: **Access to Jobs**

Purpose and Goals

Overall Purpose: The evaluation measure assesses the following for the region's transportation system, region-wide and select sub-regions, in equity focus areas

1) Number and percentage of jobs (by wage profile: low, middle, high, and all jobs) reached in a given time window by different travel modes (auto, transit, bike, walk), region-wide and select sub-regions, for equity focus areas and non-equity focus areas. .

2) The change in the number and percentage of jobs reached with the 2024 No Build and 2040 Build investment strategies by wage profile and mode for the region and select sub-regions, in equity focus areas, and in non-equity focus areas.

3) Comparison of differences in the number and percentage of low and middle-wage jobs reached in a given time window and by different travel modes for the region and select sub-regions for equity focus areas and non-equity focus areas.

Methodology Description:

The evaluation measure is calculated by using forecasted data from MetroScope to identify and geographically distribute jobs throughout the region, including categorized low-wage and middle-wage jobs (defined in assumptions). The analysis determines the weighted average number of jobs, with emphasis on low and middle-wage jobs, reached using the existing transportation system by travel mode (automobile, transit, bicycle, and walking) in a given travel time window for the entire region and select sub-regions, equity focus areas, and non-equity focus areas to determine 2024 No Build conditions. The next step is to conduct the same assessment under the 2024 Build investments, with a particular emphasis on the change in access to low and middle-wage jobs in equity focus areas and non-equity focus areas between the No Build and Build scenarios.

Output Units: Weighted average of jobs and change in jobs, by wage profile, accessed by mode (Auto; Transit; Bike; Walk)

Dataset Used:

Dataset	Type of Data
Geospatial project information for proposed transportation projects	GIS
Employment/jobs	Forecasted
U.S. Bureau of Labor Statistics – Quarterly Census of Employment and Wages (2018)	Observed

Tools Used for Analysis: Metro's Travel Demand Model, Metro's MetroScope Model

Key Assumptions to Method*:*

- Definition of Low-Wage Jobs: Jobs which pay an annual salary between $0 - $44,999.
- Definitions of Middle-Wage Jobs: Jobs which pay an annual salary between $45,000 – $70,000.

Methods for Defining and Identifying All Jobs: The projections (total jobs) and geographic distribution of employment is based on underlying U.S. Bureau of Labor Statistics data and assumptions regarding growth for the employment industries in MetroScope. (See MetroScope documentation regarding employment forecast.)

Methods for Defining and Identifying Low and Middle-Wage Jobs: The annual salary band was based on the average household size of three (3) and a combination of different income, program eligibility, and self-sufficiency definitions (HUD median income, University of Washington self-sufficiency index, federal poverty level, and uniform relocation assistance and real property acquisition act) The definition of low and middle-wage jobs is not taking into consideration employer benefits provided as part of the identification of wages.

Distribution of Low and Middle-Wage Jobs Assumptions: The distribution of low and middle-wage jobs is based on underlying U.S. Bureau of Labor Statistics data and assumptions regarding growth for the employment industries in MetroScope. (See MetroScope documentation on Metro's website regarding employment industry forecast assumptions.) Low and middle-wage jobs were determined by the wage profile of each MetroScope industry, looking at the percentage of jobs, which paid within the annual salary range. This range was applied to the employment forecast for the future year to determine the distribution.

Travel Time Windows by Mode:

- Automobile – 30 minutes*
- Transit – 45 minutes*
- Bicycle – 30 minutes
- Walk – 20 minutes

*Includes access and egress times. In order to avoid cliff-effects of having strict travel time thresholds, results are the averages of travel times +/- 5 minutes of the above/below travel time windows by mode listed above.

Travel Time Assumptions: Travel time windows by mode were developed with information from the Oregon Household Activity Survey (OHAS) and research from around the country on travel time by different modes for different types of trips. Additionally, internal Metro staff consultation was conducted and work groups were provided the opportunity to give input.

Transit Service Networks Used:

- Peak – Represented as transit service running from 4pm – 6pm

- Off-Peak – Represented as transit service running from 12pm – 1pm

Evaluation Measure Title: **Access to Community Places**

Purpose and Goals

Overall Purpose: The evaluation measure looks to assess the following for the region's transportation system, region-wide, in equity focus areas, and in non-equity focus areas.

1) Number and percentage of existing community places (i.e. places which provide services or items) reached on the existing transportation system by travel mode (e.g. driving, transit, biking, and walking) in a given travel time, region-wide, in equity focus areas, and in non-equity focus areas .
2) The change in the number and percentage of existing community places reached across travel modes with the 2024 No Build and 2024 Build investment strategies region-wide and select sub-regions, in equity focus areas, and in non-equity focus areas.
3) Compare the differences between the number and percentage of community places accessible in equity focus areas to the entire region by travel mode with the 2024 No Build and 2024 Build investment strategies.

Methodology Description:

The Access to Community Places performance measure is calculated by using existing data from the U.S. Bureau of Labor Statistics to identify the existing community places which provide key services and/or daily needs (defined in assumptions) for people in the region. The analysis determines the weighted average of community places reached using existing transportation system by different travel mode (automobile, transit, bicycle, and walking) in a given travel time window for the entire region and select sub-regions, equity focus areas, and non-equity focus areas to determine base year conditions. The same assessment is to conduct for no-build and build conditions to determine the weighted average number of community places accessible without investment. Then a comparison between the No Build and Build investment strategies determines the investments impact on accessibility to community places by mode for the entire region and select sub-regions, equity focus areas, and non-equity focus areas. The report out for this measure will show the percent change in access to community places by mode for each package.

Output Units: Number and percent change of community places accessed by mode (# - Auto; # - Transit; # - Bike; # - Walk)

Key Assumptions to Method:

Dataset Used:

Dataset	Type of Data
Geospatial project information for proposed transportation projects	GIS

U.S. Bureau of Labor Statistics – North American Industry Classification System (NAICS) codes (2018)	Observed

Tools Used for Analysis: Metro Travel Demand Model and ArcGIS

Definitions of Places: Selection of places in the North American Industry Classification System (NAICS) codes. Codes include those used as part of TriMet's Transit Equity Index with select additions based on consultation with 2018 RTP work groups, TPAC, and Metro Planning and Development Department and Diversity, Equity, and Inclusion staff. Table E.10 provides the full list of NAICS codes.

Table E.10. NAICS Codes for Community Places

Category	NAICS Code	Geography
Civic	491110	Postal Service
	519120	Libraries and Archives
	611110	Elementary and Secondary Schools
	611210	Junior/Community Colleges
	611310	Colleges, Universities, and Professional Schools
	624110	Child and Youth Services
	624120	Services for the Elderly and Persons with Disabilities
	624190	Other Individual and Family Services
	624210	Community Food Services
	624229	Other Community Housing Services
	624230	Emergency and Other Relief Services
	624310	Vocational Rehabilitation Services
	624410	Child Day Care Services
	624221	Temporary Shelters
	813110	Religious Organizations
Essential Retail	444130	Hardware Stores
	446110	Pharmacies and Drug Stores
	452111	Department Stores

	452990	All Other General Merchandise Stores
	812111	Barber Shops
	812112	Beauty Salons
	812310	Coin-Op Laundry
	812320	Dry Cleaning and Laundry Service
Financial/Retail	522110	Commercial Banking
	522120	Savings Institutions
	522130	Credit Unions
Food	445110	Supermarkets and Other Grocery (except convenience) Stores
Medical	621111	Offices of Physicians (except Mental Health Specialists)
	621112	Office of Physicians, Mental Health Specialists
	621210	Offices of Dentists
	621310	Offices of Chiropractors
	621320	Offices of Optometrists
	621330	Offices of Mental Health Practitioners (except Physicians)
	621340	Offices of Physical, Occupational, and Speech Therapists and Audiologists
	621391	Offices of Podiatrists
	621399	Offices of All Other Miscellaneous Health Practitioners
	621410	Family Planning Centers
	621420	Outpatient Mental Health and Substance Abuse Centers
	621491	HMO Medical Centers
	621492	Kidney Dialysis Centers
	621498	All Other Outpatient Care Centers
	621512	Diagnostic Imaging Centers
	622110	

	622210	General Medical and Surgical Hospitals
	622310	Psychiatric and Substance Abuse Hospitals
		Specialty (except Psychiatric and Substance Abuse) Hospitals

Source: U.S. Census Bureau, North American Industry Classification System

Travel Time Windows by Mode:

- Automobile – 20 minutes*
- Transit – 30 minutes*
- Bicycle – 20 minutes
- Walk – 20 minutes

*Includes access and egress times. In order to avoid cliff-effects of having strict travel time thresholds, results are the averages of travel times +/- 5 minutes of the above travel time windows by mode listed above.

Transferring Equity Data from Tract to Transportation Analysis Zone

Three equity variables[1] that constitute the identification of tracts as having a significant percentage of historically marginalized communities were converted to transportation analysis zones based on a simple majority-area rule, such that transportation analysis zones were flagged if greater than 50% of their area overlapped with tracts that exceeded HMC thresholds.

Each equity variable was evaluated independently, in order to enable the evaluation of combinations of equity variables across transportation analysis zones. The two combinations of interest were the overlap of People of Color with limited English proficiency and the overlap of all three variables (including low income).

[1] People of Color, limited English proficiency, and low income

Evaluation Measure Title: **Access to Travel Options – System Connectivity and Completeness**

Purpose and Goals

Overall Purpose: To identify how the package of future transportation investments will increase the connectivity and completeness of the pedestrian, bicycle, trail and roadway network and increase access to transit through the development of sidewalks, bikeways, trails and new street connections within the metropolitan planning area, and in equity focus areas.[1]

The **Access to Travel Options – System Completeness and Connectivity** performance measure assess the following questions for the region's transportation system within the metropolitan planning area (MPA), in equity focus areas, and non-equity focus areas:

1) How many miles of the planned regional pedestrian, bicycle, trail and street networks are completed? How many miles are left to complete?
2) What percentage of existing arterials have pedestrian and bicycle facilities?
3) What percentage of streets with bikeways and sidewalks within ½ mile of transit stops and stations are completed?

Methodology Description:

1) Regional system completeness: Use a geospatial analysis to determine how much of the planned regional pedestrian, bike, trail and street networks are completed in the 2021-2024 MTIP. Determine results for the following three geographies at the transportation analysis zone (TAZ) level: within the MPA and in equity focus areas. Determine results for the base year (2019) and each of the 2021-2024 MTIP.

    a) Calculate the **miles** of existing facilities on the regional system for the base year (2019).

    b) Calculate **miles** of proposed 2021-2024 MTIP.

    c) Calculate the **percent** completeness for regional networks, both in the base year of 2015 and the 2021-2024 MTIP.

2) Arterial streets: Use a geospatial analysis to determine completeness of sidewalk and on-street bike networks on arterial streets. This follows the same methodology of (1) Regional system completeness, subset to only arterial streets.
3) 2040 Centers and station communities: Use a geospatial analysis to determine how much of the planned regional sidewalk, on-street bike and street networks are completed within 2040 analysis centers and station communities. This follows the same methodology of (1) Regional system completeness, subset to 2040 analysis centers and station communities.
4) Transit stops (access to transit): Use a geospatial analysis to determine how much of the planned regional pedestrian, bike, trail and street networks are completed within a walking

[1] Equity focus areas are areas with high concentrations (compared to the regional average) of people of color, people with low-incomes, and people with limited English proficiency.

distance to transit. This follows the same methodology of (1) Regional system completeness, subset to the area within ½ mile from light rail stops, ⅓ mile from street car stops, and ¼ mile from bus stops; existing and planned stops.

Output Units: Miles and percentage (%) of bikeways, sidewalks, trails and new street connections, region-wide within MPA and in equity focus areas.

Key Assumptions to Method

Dataset Used:

Dataset	Type of Data
Line features in a GIS for projects proposed for the 2021-2024 MTIP - sidewalk, bikeway, trail and new street connection projects	GIS data provided by jurisdictions and agencies
Line features in a GIS for existing (constructed) sidewalks, bikeways, trails, and streets	RLIS GIS data (August 2019)[2]
Line features in a GIS for planned regional bicycle, pedestrian and roadway networks	GIS MTIP

Tools Used for Analysis: Python/ GIS Pro

Definitions:

Connectivity is defined as the density of street intersections in the regional system.

Completeness is defined as the percentage of the regional system that has been completed, and the percentage of regional streets that have completed bikeways and sidewalks.

New Street Connection Project is a project that creates a new street where none existed before; street widening projects are not new street connections.

Bikeway Project is a project that fills a gap in the regional bikeway network. Bikeways included in larger street projects will be included in this analysis.

Sidewalk Project is a project that fills a gap in the regional pedestrian network. Sidewalks included in larger street projects will be included in this analysis.

[2] For the system completeness measures, specifically sidewalks, other datasets were explored as RLIS sidewalks have not been updated recently. The most likely candidate was Open Street Map (OSM) and Metro staff did a verification analysis using OSM sidewalks data to confirm the sidewalk completeness measure. From the verification analysis, the amount of gaps filled (i.e. the increase in system completeness) was similar using both RLIS and OSM sidewalk data. Despite OSM having significantly higher baseline completeness, due to its more recent vintage, Metro staff decided to use the RLIS data in order to keep consistent with datasets used as part of the 2018 RTP analysis in addition to having a clear understanding of the data nuances and limitations.

Trail Project is a project that fills a gap in the regional trail network.

Evaluation Measure: **Level of Investment in Safety Projects**

Purpose

Overall purpose: To identify the level of investment in projects that have the primary purpose of reducing crashes and to identify where those projects are located.

Transportation Equity Purpose: To look at how the region's future transportation investments addresses transportation safety Equity Focus Areas.

The **Share of Safety Projects** performance measure will assess the following questions:

1) How many and what percentage of the region's proposed transportation projects are identified as safety projects (projects with the primary purpose of reducing crashes), region-wide, on high injury corridors and in Equity Focus Areas?
2) What percentage of the total transportation investment package (cost) is attributed to safety projects region-wide, on high injury corridors and in Equity Focus Areas?
3) Is there a difference of transportation safety investment levels (cost) in Equity Focus Areas?

Methodology

The method for calculating the **Level of Investment in Safety Projects** performance measure will entail:

1. Projects in the 2021-2024 MTIP are identified as Safety Projects (see Definition below). Only capital projects are identified. The analysis does not include programmatic projects or projects without a specific geographic location.
2. Using GIS, identify which Safety Projects and intersect with an Equity Focus Area. Results are added as attributes to the 2021-2024 MTIP project list.
3. Using GIS, identify which Safety Projects and intersect with a High Injury Corridor. Results are added as attributes to the 2021-2024 MTIP project list. At least 10% of the project length needs to be along a High Injury Corridor in order to be considered in this category.
4. In the Excel 2021-2024 MTIP project list, calculate the number of Safety Projects region-wide, in Equity Focus Areas and on High Injury Corridors.
5. In the Excel 2021-2024 MTIP project list, calculate the cost of Safety Projects region-wide, in Equity Focus Areas and on High Injury Corridors.

Output Units

- Map of safety projects overlaid with High Injury Corridors and Equity Focus Areas.
- Information as shown in the following table.

	2021-2024 MTIP
Number and percent of **safety projects** with the primary purpose of reducing crashes	# and %
Number and percent of **safety projects** on a High Injury Corridor	# and %

Number and percent of **safety projects** in Equity Focus Areas	# and %
Total estimated investment in **safety projects**	$
Total estimated investment in **safety projects** in Equity Focus Areas	$

Dataset Used

Dataset	Type of Data
2021-2024 MTIP project list in Excel – sorted by primary purpose, safety benefit, time period, financially constrained, equity focus area, high injury corridor Geospatial information for projects identified as Safety Projects	Project information provided by jurisdictions and reviewed by Metro staff

Tools Used for Analysis: ArcGIS, Excel

Definitions

Safety Projects

A project in the 2021-2024 MTIP which has the primary purpose reducing fatal and severe injury crashes or reducing minor/non-injury crashes by addressing a documented safety problem at a documented high injury or high risk location with one or more proven safety counter measures. Local agencies identified the primary purposes of projects using criteria provided by Metro. Metro staff reviewed the attributes to ensure that project descriptions and elements were consistent with those that would reduce crashes. Projects without a specific geographic location, including programs, are excluded.

Safety countermeasures

Actions taken to decrease the number of traffic injuries and fatalities, either through systemic or hot spot safety projects. Safety countermeasures may include geometric design, engineering solutions, systemic safety projects, signalization, signs, markings and operational upgrades and intelligent transportation systems. Countermeasures should be selected based on analytical techniques that prove effectiveness. Examples of proven safety countermeasures include, but are not limited to, FHWA's nine proven safety countermeasures: road diets, medians and pedestrian crossing islands, pedestrian hybrid beacons, roundabouts, access management, retroreflective backplates, safety edge, enhanced curve delineation, and rumble strips. Systemic safety projects are applied over an entire road/corridor to reduce crashes and risks along the entire roadway/corridor.

Safety Benefit Projects

Metro staff determined which projects were Safety Benefit Projects. Projects without a specific geographic location, including programs, are excluded. A Safety Benefit Project is a project that includes design features that increase safety for one or more roadway user, but may not necessarily address an identified safety issue at an identified high injury or high risk location, including:

- Any project with the primary purpose reducing fatal and severe injury crashes or reducing minor/non-injury crashes (Safety Projects)
- All regional trail projects
- All projects with the primary purpose "Build a Complete Street"
- All projects with the primary purpose "Increase Travel Options"
- Projects with the primary purpose of "Improve Freight Access" that include project elements of rail crossing improvements and separating freight from other modes of travel
- Projects with the primary purpose of "Increase System Efficiency" that include treatments that have a safety benefit
- Projects that identify reduce fatal and severe injury crashes or reduce crashes as secondary objective

Note: All MTIP projects are "Safety Benefit" projects so further sub-analysis was not performed for this category.

Equity Focus Areas
Areas with high concentrations (compared to the regional average) of people of color, people with low-incomes and people with limited English proficiency.

High Injury Corridors
Roadway segments identified by Metro where the highest concentrations of fatal and severe injury crashes involving people in cars, biking and walking occur on the Regional Transportation Network. Corridors and intersections were analyzed to determine aggregate crash scores based on the frequency and severity of crashes.

Evaluation Measure Title: **Climate Change**

Purpose and Goals
Overall Purpose: To identify how the package of future transportation investments will affect the greenhouse gas emissions per capita from transportation sources and determine whether the region is making progress towards its state and regional targets.

Questions to Be Addressed:
The **Climate Change** performance measure looks to address the following questions for the region's transportation system:

1) How many tons of greenhouse gasses are estimated to be emitted under the 2021-2024 MTIP investment package? Are there notable differences between this estimate and those for a baseline (2015) and no-build scenario?
2) What is the estimated per capita greenhouse gas emissions rate associated with the 2021-2024 MTIP investment package? Are the per capita of greenhouse gas emissions increasing, decreasing, or holding steady with the investments package? What is the per capita greenhouse gas emissions change in proportion to population growth?
3) How does the proposed set of transportation investments move the region towards its regional greenhouse gas target?

Methodology Description:
The **Climate Change** performance measure is calculated using Metro's established mobile source emissions estimation methodology, which combines vehicle activity data from the regional transportation model with emission rates from EPA's MOVES model. Multi-modal network alternatives are developed within the regional transportation model based on existing networks and proposed projects and policies, and the model estimates average weekday regional travel activity for each alternative. The proposed projects represent the 2021-2024 MTIP investment package. For the purposes of this performance measure, the key output from the regional transportation model is daily vehicle miles traveled (VMT) occurring within the federally-designated metropolitan planning area (MPA) boundary regardless of where trips begin or end. These VMT are broken out by road type, average speed, and vehicle type.

The emission rates used in the 2021-2024 MTIP analysis were produced by MOVES2014a. A newer version of MOVES (MOVES2014b) has since been released, but the improvements incorporated into that update pertain almost exclusively to estimates of non-road emissions and are therefore not relevant to the calculation of this performance measure. MOVES is configured in accordance with EPA conformity guidance, which requires detailed inputs characterizing local fleet composition, fuels, vehicle ages, and inspection/maintenance programs. In addition, Oregon's adoption of the California low-emission vehicle (LEV) standards and zero-emission vehicle (ZEV) program is accounted for in Metro's MOVES implementation.

In combining the VMT from the regional transportation model with the emission rates from MOVES, the analysis determines the amount of daily combined passenger and freight vehicle emissions for each air pollutant of interest for the 2021-2024 MTIP investment package.

The analysis determines the tons of transportation-related greenhouse gas emissions for the entire region for base year conditions (2015), no-build conditions (2024), and build conditions (2024). The no-build conditions includes only those transportation investments that are completed since 2015 and open for service or fully funded projects expected to be completed by end of calendar

year 2020. The build conditions includes the package of transportation investments in the 2021-2024 MTIP.

In addition to an estimate of total daily greenhouse gas (GHG) emissions, the Climate Change performance measure includes estimated annual per capita GHG emissions as well. In the absence of a known factor that accounts for travel differences between weekdays and weekends, the conversion of average weekday to annual emissions uses a factor of 365. Annual per capita emissions estimates are included in an effort to be consistent with the units and calculations used in setting targets associated with the Climate Smart Strategy (CSS). For these purposes, the absolute and relative change from 2015 base year annual per capita GHG emissions is reported for each of the 2021-2024 MTIP.

A separate appendix in the 2018 RTP is devoted to monitoring implementation of the CSS, which relied on a different emissions estimation toolkit than the one described here in establishing GHG reduction targets. Since the primary tool used in that effort accounts for emission from light-duty vehicles only, a separate set of GHG emissions estimates associated with passenger vehicles only is included. These estimates reflect the removal of freight vehicle VMT from the regional transportation model output via post-processing as well as a separate set of MOVES emission rates for passenger vehicles only. While the light-duty vehicle emissions behind the CSS targets include local service and delivery vehicles, this type of vehicle activity is not accounted for in Metro's current transportation model and this is an acknowledged source of inconsistency.

Output Units: per capita greenhouse gas emissions and percent (%) reduction from 2015 levels.

Key Assumptions to Method:

Dataset Used:

Dataset	Type of Data
Geospatial project information for proposed transportation projects	GIS
Greenhouse gas emissions	Forecasted

Tools Used for Analysis: Metro Travel Demand Model, ArcGIS, EPA Emissions Model – MOVES2014a

Evaluation Measure Title: **Active Transportation and Transit Mode Share**

Purpose and Goals

Overall Purpose: To identify whether the package of future transportation investments will increase

A) Walking, Bicycling and Transit usage (total and share):
   - Systemwide
B) Non-driving travel (total and share):
   - Central City
   - Regional Centers
   - Mobility Corridors
   - Sub-regions (Portland, urban Washington County, urban Clackamas County, East Multnomah County)
C) Non-Single Occupancy Vehicle (total and share) including trips to, from and within specified geography *(per Transportation Planning Rule requirements)*
   - Regionwide
   - Sub-regions (Portland, urban Washington County, urban Clackamas County, East Multnomah County)
   - 2040 design types

Questions to Be Addressed:

The **Active Transportation and Transit Mode Share** performance measures look to assess the following questions for the region's transportation system:

1) What is the share of travel utilizing non-driving modes across the region and within various sub-geographies?

Methodology Description:

Mode Share is a direct output of the regional travel model. Modal accessibility functions were estimated as an input to the mode choice modes. For each trip purpose, they measure the utility of choosing one of seven discrete modes. Drive alone, Drive with passenger, Transit by walk access – Transit by park-and-ride access, bike, and walk. Probabilities are applied to distributed trips to determine the number of trips by each mode.

Output Units:

% share of travel by a given mode.

Key Assumptions to Method:

Dataset Used:

Dataset	Type of Data
Geospatial project information for proposed transportation projects	observed
Share of travel by mode	forecasted

Tools Used for Analysis: Metro Travel Demand Model,

Other assumptions:

For analysis by sub-regional geography, staff included all transportation analysis zones (TAZs) within the sub-region. Any TAZ crossing sub-regional boundaries has been assigned to the sub-region for which the majority of the area of the TAZ is located.

Evaluation Measure Title: **Multi-modal Travel Times**

Purpose and Goals

Overall Purpose: To identify whether the package of future transportation investments will change the travel times between key origin-destinations for the mid-day and 2-hr PM peak

Questions to Be Addressed:

The **Multi-modal travel times** performance measure looks to assess the following questions for the region's transportation system:

1) How long does it take to travel between key regional origin and destinations by auto, bicycle, transit and truck.

Methodology Description:

Evaluates the time it takes to travel between key regional origin and destinations by auto, bicycle, transit and truck.

Output Units: Minutes of travel time.

Key Assumptions to Method: Auto, bicycle, and transit travel times are for the one hour mid-day and one hour PM peak travel times and are based on a zone-to-zone analysis. Truck travel times are not zone-tozone based. Truck travel times add a mid-day hour for trucks (2-3 PM), use the regional freight network, and start and/or end at a major industrial site (rail yard, intermodal facility, industrial site, etc.).

Dataset Used:

Dataset	Type of Data
Geospatial project information for proposed transportation projects	GIS
Travel times by mode	Forecasted

Tools Used for Analysis: Metro Travel Demand Model

Other assumptions:

Includes "in vehicle" travel times, not the amount of time to get to and from the automobile, bicycle or transit vehicle. When a tour-based model is available in the future, this measure will include the full travel time for each mode.

Region Weighted Average Accessibility

2021-2024 MTIP Performance Assessment - Access to Jobs - Results Totals

All values are averaged by total # of Transportation Analysis Zones (TAZ) meeting criteria AND weighted by # of households in those TAZs

Job Access -- All Jobs	(2024 Build - 2024 No Build)					
	AP	AOP	TP	TOP	B	W
Region (All)	8290	5196	8450	8796	-215	0
Non-Equity Focus Areas	9243	5715	7144	7443	-199	0
Equity Focus Areas	6739	4352	10574	10996	-241	0

Job Access -- All Jobs	(2024 Build - 2024 No Build)					
	AP	AOP	TP	TOP	B	W
City of Portland (All)	13	8	19	20	0	0
City of Portland Non-Equity Focus Areas	15	9	14	16	0	0
City of Portland Equity Focus Areas	10	7	27	26	0	0

Job Access -- All Jobs	(2024 Build - 2024 No Build)					
	AP	AOP	TP	TOP	B	W
Washington County (All)	15	9	5	7	0	0
Washington County Non-Equity Focus Areas	15	9	4	7	0	0
Washington County Equity Focus Areas	15	12	11	8	0	0

Job Access -- All Jobs	(2024 Build - 2024 No Build)					
	AP	AOP	TP	TOP	B	W
Clackamas County (All)	14	9	9	8	-1	0
Clackamas County Non-Equity Focus Areas	14	8	8	6	0	0
Clackamas County Equity Focus Areas	14	11	10	12	-1	0

Job Access -- All Jobs	(2024 Build - 2024 No Build)					
	AP	AOP	TP	TOP	B	W
East Multnomah County	12	8	24	28	0	0
East Multnomah County Non-Equity Focus Areas	8	6	2	5	0	0
East Multnomah County Equity Focus Areas	14	9	35	39	0	0

Job Access -- Low-Wage Jobs	(2024 Build - 2024 No Build)					
	AP	AOP	TP	TOP	B	W
Region (All)	4169	2626	4228	4416	-105	0
Non-Equity Focus Areas	4653	2882	3597	3759	-98	0
Equity Focus Areas	3382	2210	2641	5485	-116	0

Job Access -- Low-Wage Jobs	(2024 Build - 2024 No Build)					
	AP	AOP	TP	TOP	B	W
City of Portland (All)	6	4	10	10	0	0
City of Portland Non-Equity Focus Areas	7	5	7	8	0	0
City of Portland Equity Focus Areas	5	3	14	13	0	0

Job Access -- Low-Wage Jobs	(2024 Build - 2024 No Build)					
	AP	AOP	TP	TOP	B	W
Washington County (All)	8	5	2	4	0	0
Washington County Non-Equity Focus Areas	8	5	2	4	0	0
Washington County Equity Focus Areas	8	6	5	4	0	0

Job Access -- Low-Wage Jobs	(2024 Build - 2024 No Build)					
	AP	AOP	TP	TOP	B	W
Clackamas County (All)	7	5	4	4	0	0
Clackamas County Non-Equity Focus Areas	7	4	4	3	0	0
Clackamas County Equity Focus Areas	7	5	5	6	-1	0

Job Access -- Low-Wage Jobs	(2024 Build - 2024 No Build)					
	AP	AOP	TP	TOP	B	W
East Multnomah County	6	4	12	14	0	0
East Multnomah County Non-Equity Focus Areas	4	3	1	2	0	0
East Multnomah County Equity Focus Areas	7	4	18	20	0	0

Job Access -- Medium-Wage Jobs	(2024 Build - 2024 No Build)					
	AP	AOP	TP	TOP	B	W
Region (All)	2040	1282	2098	2171	-53	0
Non-Equity Focus Areas	2275	1415	1764	1829	-49	0
Equity Focus Areas	1659	1067	2641	2726	-60	0

Job Access -- Medium-Wage Jobs	(2024 Build - 2024 No Build)					
	AP	AOP	TP	TOP	B	W
City of Portland (All)	3	2	5	5	0	0
City of Portland Non-Equity Focus Areas	4	2	3	4	0	0
City of Portland Equity Focus Areas	2	2	7	7	0	0

Job Access -- Medium-Wage Jobs	(2024 Build - 2024 No Build)					
	AP	AOP	TP	TOP	B	W
Washington County (All)	4	2	1	2	0	0
Washington County Non-Equity Focus Areas	4	2	1	2	0	0
Washington County Equity Focus Areas	4	3	3	2	0	0

Job Access -- Medium-Wage Jobs	(2024 Build - 2024 No Build)					
	AP	AOP	TP	TOP	B	W
Clackamas County (All)	3	2	2	2	0	0
Clackamas County Non-Equity Focus Areas	3	2	2	1	0	0
Clackamas County Equity Focus Areas	4	3	2	3	0	0

Job Access -- Medium-Wage Jobs	(2024 Build - 2024 No Build)					
	AP	AOP	TP	TOP	B	W
East Multnomah County	3	2	6	7	0	0
East Multnomah County Non-Equity Focus Areas	2	1	1	1	0	0
East Multnomah County Equity Focus Areas	4	2	8	10	0	0

Job Access -- High-Wage Jobs	(2024 Build - 2024 No Build)					
	AP	AOP	TP	TOP	B	W
Region (All)	2,080	1,287	2,124	2,209	-57	0
Non-Equity Focus Areas	2,316	1,418	1,784	1,856	-52	0
Equity Focus Areas	1,698	1,076	2,677	2,785	-66	0

Job Access -- High-Wage Jobs	(2024 Build - 2024 No Build)					
	AP	AOP	TP	TOP	B	W
City of Portland (All)	3	2	5	5	0	0
City of Portland Non-Equity Focus Areas	4	2	4	4	0	0
City of Portland Equity Focus Areas	2	2	7	7	0	0

Job Access -- High-Wage Jobs	(2024 Build - 2024 No Build)					
	AP	AOP	TP	TOP	B	W
Washington County (All)	4	2	1	2	0	0
Washington County Non-Equity Focus Areas	4	2	1	2	0	0
Washington County Equity Focus Areas	4	3	3	2	0	0

Job Access -- High-Wage Jobs	(2024 Build - 2024 No Build)					
	AP	AOP	TP	TOP	B	W
Clackamas County (All)	4	2	2	2	0	0
Clackamas County Non-Equity Focus Areas	3	2	2	1	0	0
Clackamas County Equity Focus Areas	4	3	3	3	0	0

Job Access -- High-Wage Jobs	(2024 Build - 2024 No Build)					
	AP	AOP	TP	TOP	B	W
East Multnomah County	3	2	6	7	0	0
East Multnomah County Non-Equity Focus Areas	2	1	1	1	0	0
East Multnomah County Equity Focus Areas	4	2	9	10	0	0

Note: AP = Automobile Peak Period, AOP = Automobile Off-Peak Period, TP = Transit Peak Period, TOP = Transit Off-Peak Period, B = Bicycle, W = Walk

Region Weighted Average Accessibility

All values are averaged by total # of Transportation Analysis Zones (TAZs) meeting criteria AND weighted by # of households in those TAZs

2021-2024 MTIP Performance Assessment - Access to Community Places - Result Totals

Community Places - - All Community	(2024 Build - 2024 No Build)						Places -- All Community Places	(2024 Build - 2024 No Build)						Access to Community Places - - All Community Places	(2024 Build - 2024 No Build)						Places -- All Community Places	(2024 Build - 2024 No Build)						Access to Community Places -- All Community Places	(2024 Build - 2024 No Build)					
	AP	AOP	TP	TOP	B	W		AP	AOP	TP	TOP	B	W		AP	AOP	TP	TOP	B	W		AP	AOP	TP	TOP	B	W		AP	AOP	TP	TOP	B	W
Region (All)	39	27	38	37	-1	0	City of Portland (All)	39	0	38	0	-1	0	Washington County (All)	39	9	38	7	-1	0	Clackamas County (All)	39	0	38	0	-1	0	East Multnomah County (All)	0	0	0	0	0	0
Non-Equity Focus Areas	41	28	33	33	0	0	City of Portland Non-Equity Focus Areas	41	0	33	0	0	0	Washington County Non-Equity Focus Areas	41	9	33	7	0	0	Clackamas County Non-Equity Focus Areas	41	0	33	0	0	0	East Multnomah County Non-Equity Focus Areas	0	0	0	0	0	0
Equity Focus Areas	35	26	44	45	-1	0	City of Portland Equity Focus Areas	35	0	44	0	-1	0	Washington County Equity Focus Areas	35	12	44	8	-1	0	Clackamas County Equity Focus Areas	35	0	44	0	-1	0	East Multnomah County Equity Focus Areas	0	0	0	0	0	0

Community Places - All Others	(2024 Build - 2024 No Build)						Access to Community Places - All Others	(2024 Build - 2024 No Build)						Access to Community Places - All Others	(2024 Build - 2024 No Build)						Access to Community Places - All Others	(2024 Build - 2024 No Build)						Access to Community Places - All Others	(2024 Build - 2024 No Build)					
	AP	AOP	TP	TOP	B	W		AP	AOP	TP	TOP	B	W		AP	AOP	TP	TOP	B	W		AP	AOP	TP	TOP	B	W		AP	AOP	TP	TOP	B	W
Region (All)	23	16	23	22	0	0	City of Portland (All)	23	0	23	0	0	0	Washington County (All)	23	2	23	2	0	0	Clackamas County (All)	23	0	23	0	0	0	East Multnomah County (All)	0	0	0	0	0	0
Non-Equity Focus Areas	24	17	20	19	0	0	City of Portland Non-Equity Focus Areas	24	0	20	0	0	0	Washington County Non-Equity Focus Areas	24	2	20	2	0	0	Clackamas County Non-Equity Focus Areas	24	0	20	0	0	0	East Multnomah County Non-Equity Focus Areas	0	0	0	0	0	0
Equity Focus Areas	21	15	27	27	-1	0	City of Portland Equity Focus Areas	21	0	27	0	-1	0	Washington County Equity Focus Areas	21	3	27	2	-1	0	Clackamas County Equity Focus Areas	21	0	27	0	-1	0	East Multnomah County Equity Focus Areas	0	0	0	0	0	0

Community Places-- Food	(2024 Build - 2024 No Build)						Access to Community Places-- Food	(2024 Build - 2024 No Build)						Access to Community Places-- Food	(2024 Build - 2024 No Build)						Access to Community Places-- Food	(2024 Build - 2024 No Build)						Access to Community Places-- Food	(2024 Build - 2024 No Build)					
	AP	AOP	TP	TOP	B	W		AP	AOP	TP	TOP	B	W		AP	AOP	TP	TOP	B	W		AP	AOP	TP	TOP	B	W		AP	AOP	TP	TOP	B	W
Region (All)	1	1	1	1	0	0	City of Portland (All)	0	0	0	0	0	0	Washington County (All)	1	0	1	0	0	0	Clackamas County (All)	1	0	1	0	0	0	East Multnomah County (All)	1	0	1	0	0	0
Non-Equity Focus Areas	1	1	1	1	0	0	City of Portland Non-Equity Focus Areas	0	0	0	0	0	0	Washington County Non-Equity Focus Areas	1	0	1	0	0	0	Clackamas County Non-Equity Focus Areas	1	0	1	0	0	0	East Multnomah County Non-Equity Focus Areas	1	0	1	0	0	0
Equity Focus Areas	1	1	2	2	0	0	City of Portland Equity Focus Areas	0	0	0	0	0	0	Washington County Equity Focus Areas	1	0	2	0	0	0	Clackamas County Equity Focus Areas	1	0	2	0	0	0	East Multnomah County Equity Focus Areas	1	0	2	0	0	0

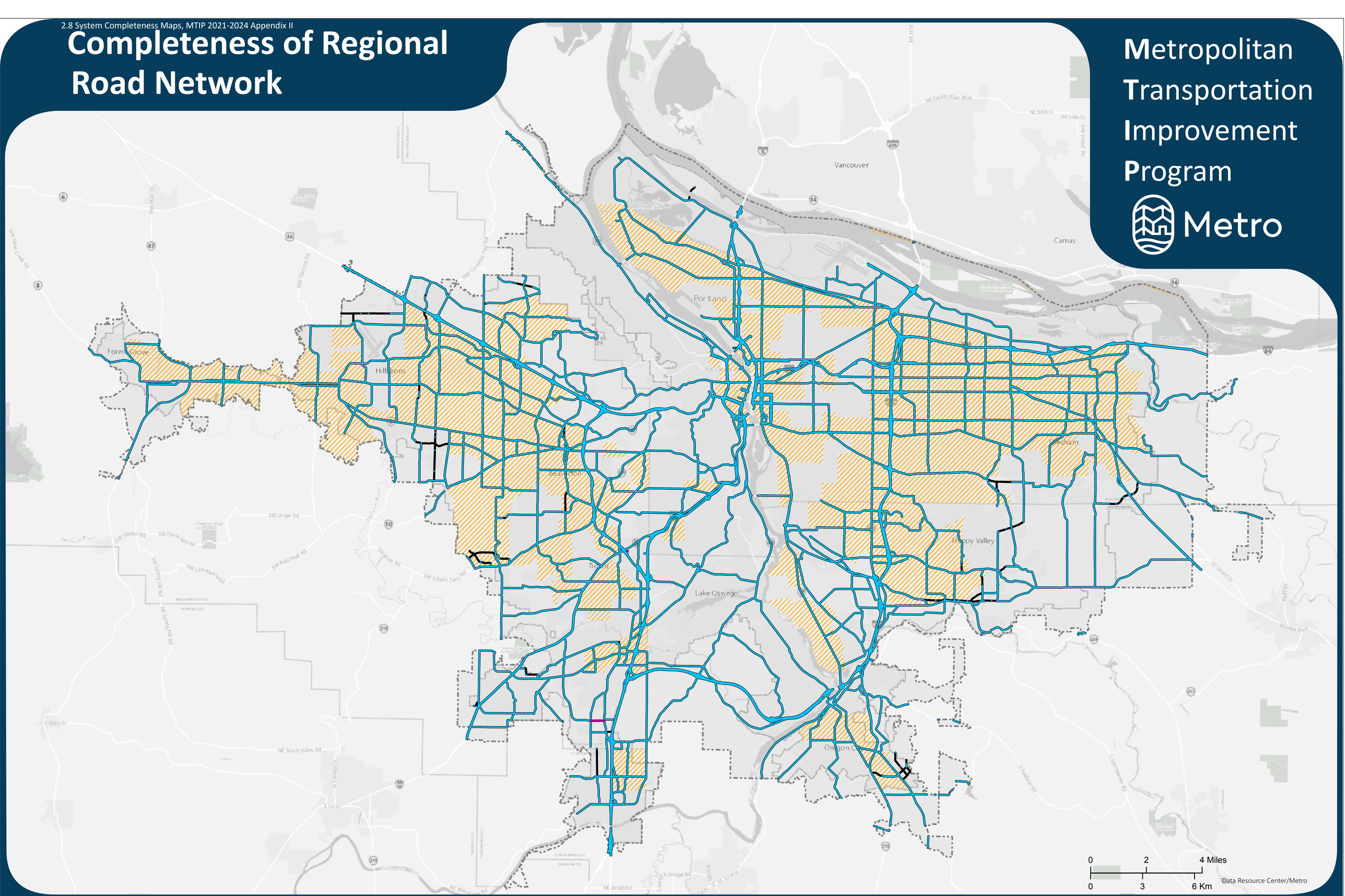
Community Places - Medical	(2024 Build - 2024 No Build)						Access to Community Places - Medical	(2024 Build - 2024 No Build)						Access to Community Places - Medical	(2024 Build - 2024 No Build)						Access to Community Places - Medical	(2024 Build - 2024 No Build)						Access to Community Places - Medical	(2024 Build - 2024 No Build)					
	AP	AOP	TP	TOP	B	W		AP	AOP	TP	TOP	B	W		AP	AOP	TP	TOP	B	W		AP	AOP	TP	TOP	B	W		AP	AOP	TP	TOP	B	W
Region (All)	15	10	14	14	0	0	City of Portland (All)	0	0	0	0	0	0	Washington County (All)	15	0	14	0	0	0	Clackamas County (All)	15	0	14	0	0	0	East Multnomah County (All)	15	0	14	0	0	0
Non-Equity Focus Areas	16	10	13	12	0	0	City of Portland Non-Equity Focus Areas	0	0	0	0	0	0	Washington County Non-Equity Focus Areas	16	0	13	0	0	0	Clackamas County Non-Equity Focus Areas	16	0	13	0	0	0	East Multnomah County Non-Equity Focus Areas	16	0	13	0	0	0
Equity Focus Areas	13	11	15	16	0	0	City of Portland Equity Focus Areas	0	0	0	0	0	0	Washington County Equity Focus Areas	13	0	15	0	0	0	Clackamas County Equity Focus Areas	13	0	15	0	0	0	East Multnomah County Equity Focus Areas	13	0	15	0	0	0

Note: AP = Automobile Peak Period, AOP = Automobile Off-Peak Period, TP = Transit Peak Period, TOP = Transit Off-Peak Period, B = Bicycle, W = Walk

Completeness of Regional Road Network

Metropolitan Transportation Improvement Program

Metro



— Planned regional road network

— completed with MTIP 2021-24 project

— Existing road

Transportation analysis zones ⬚ Metropolitan Planning Area

▬ Non-EFA

▨ EFA

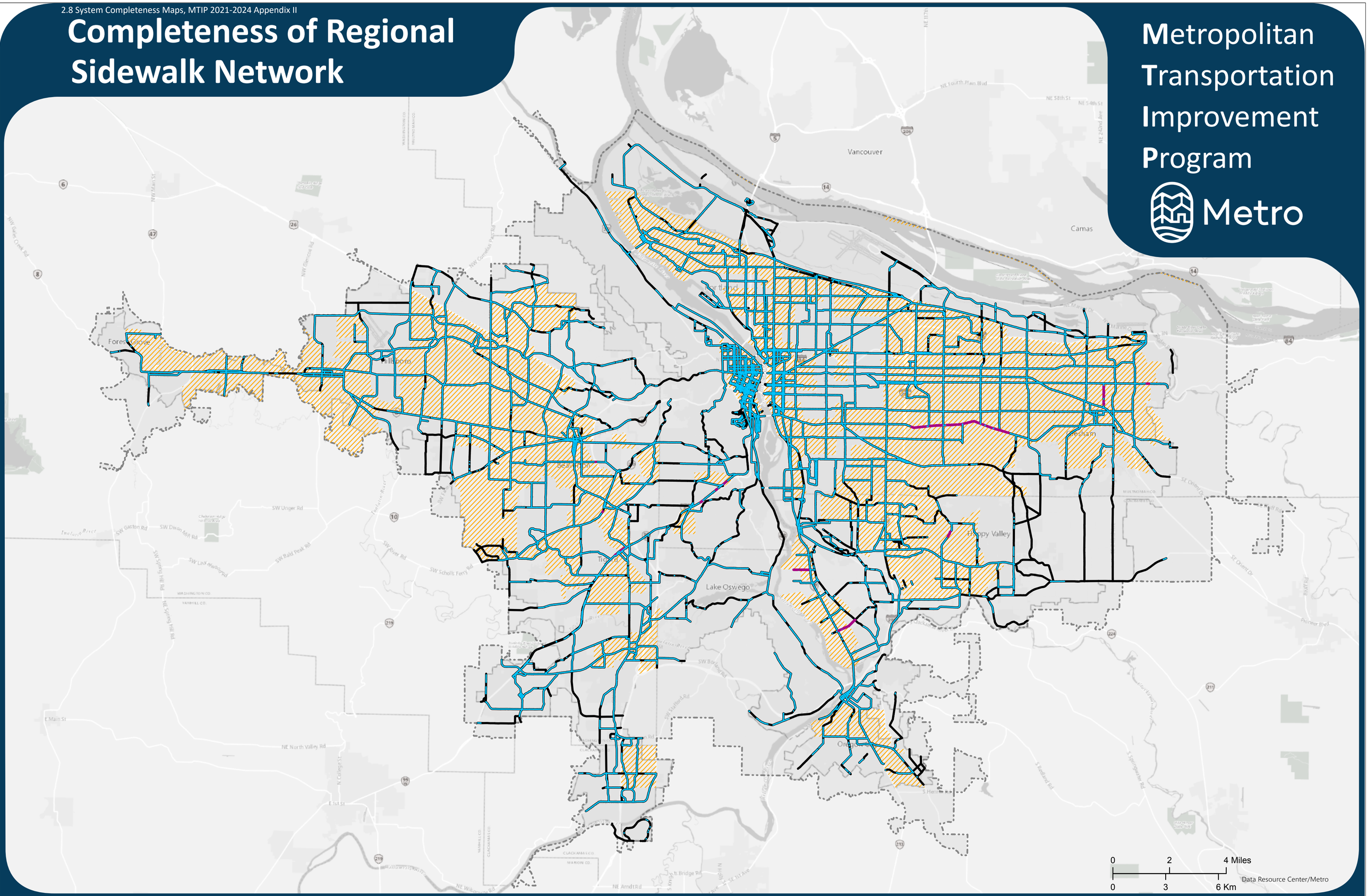
May 2020

This information is for discussion purposes and does not necessarily reflect current or future policy decisions of the Metro Council. The information is subject to change pending final modeling and analysis in 2020.

Completeness of Regional Sidewalk Network

Metropolitan Transportation Improvement Program

Metro



— Planned regional sidewalk network

— Existing sidewalk

— completed with MTIP 2021-24 project

Transportation analysis zones

Non-EFA

EFA

Metropolitan Planning Area

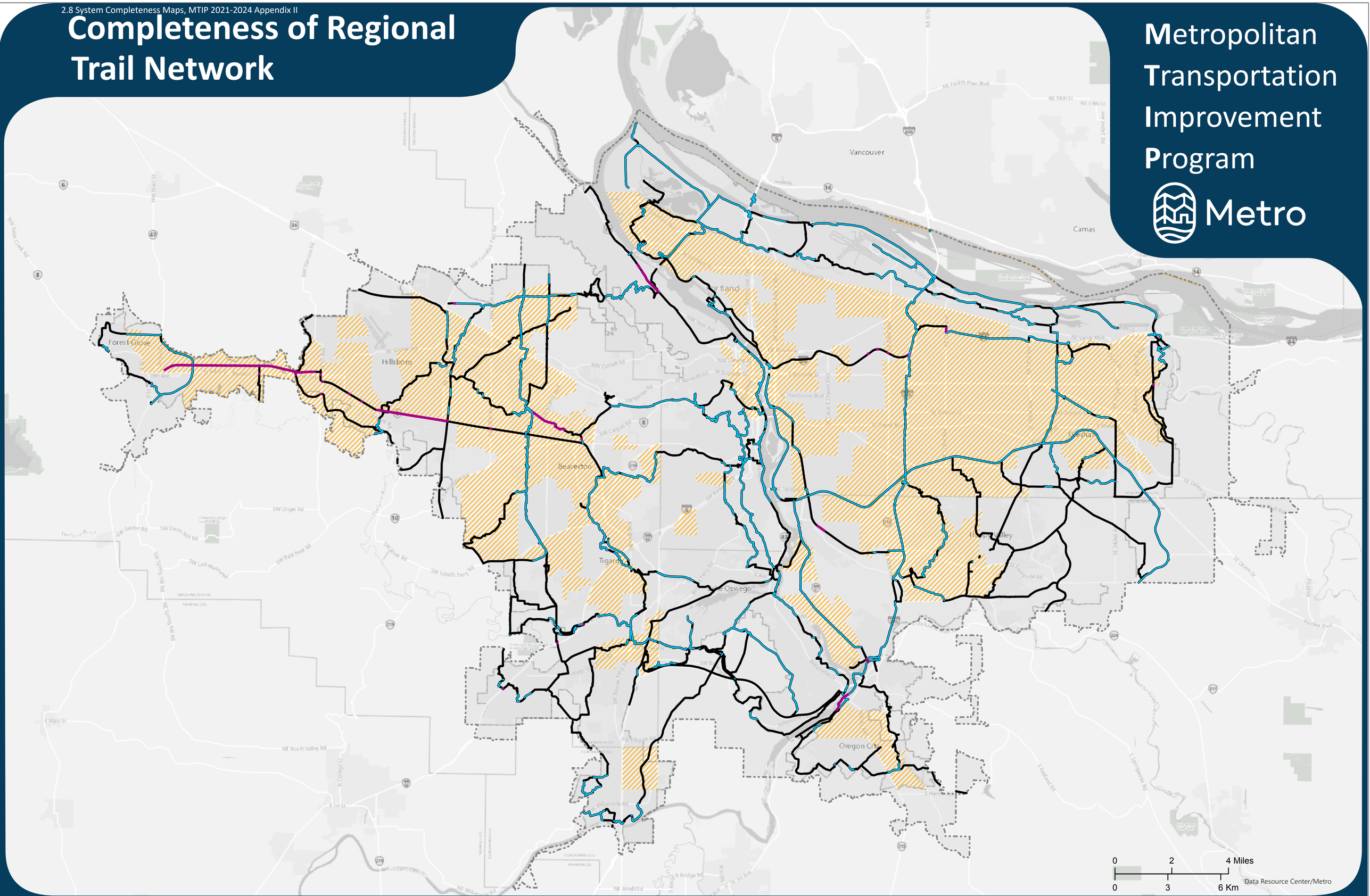
May 2020

This information is for discussion purposes and does not necessarily reflect current or future policy decisions of the Metro Council. The information is subject to change pending final modeling and analysis in 2020.

Completeness of Regional Trail Network

Metropolitan Transportation Improvement Program

Metro



— Planned regional trail network
— Existing trails
— completed with MTIP 2021-24 project

Transportation analysis zones
Metropolitan Planning Area
Non-EFA
EFA

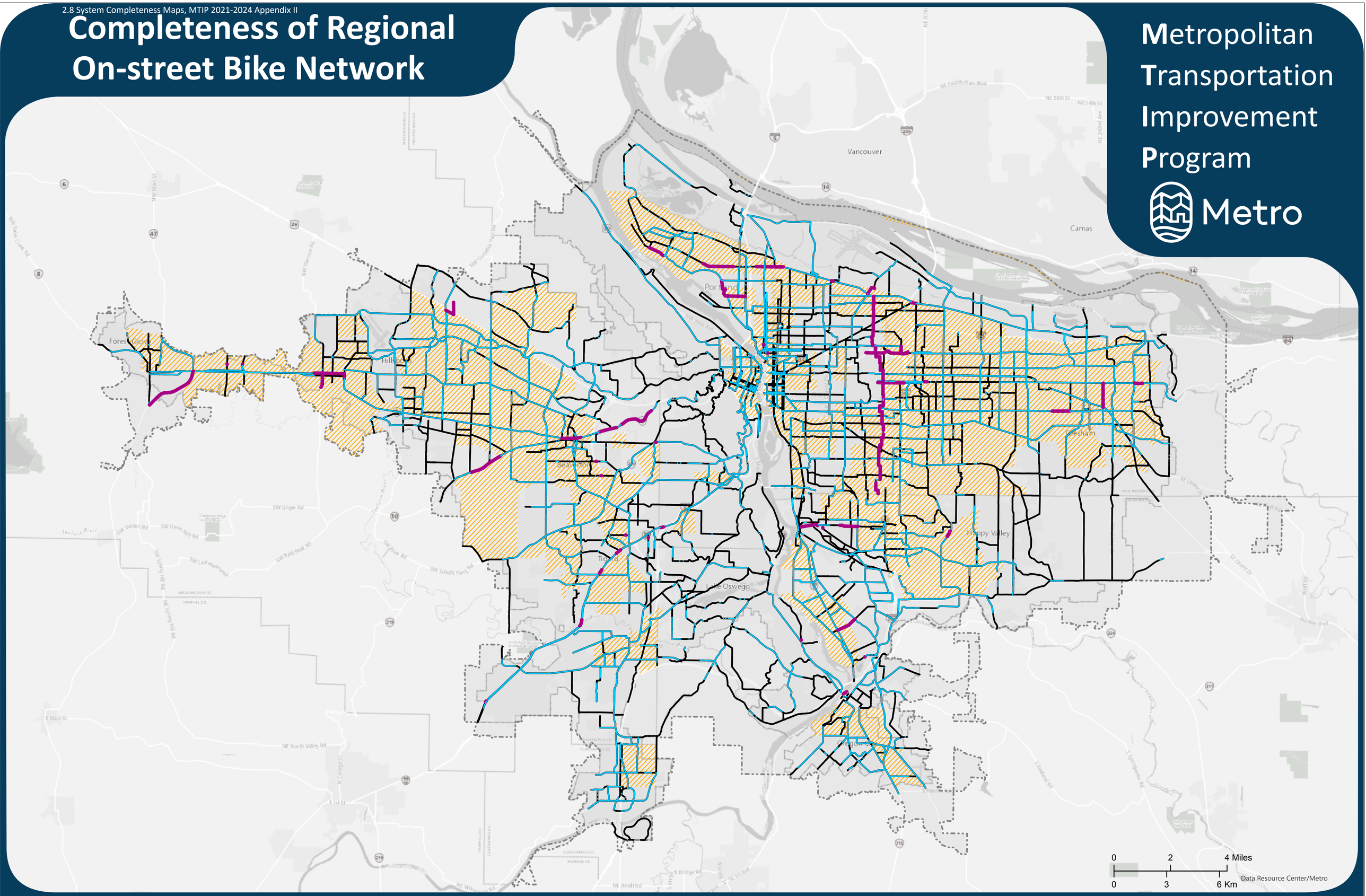
May 2020

This information is for discussion purposes and does not necessarily reflect current or future policy decisions of the Metro Council. The information is subject to change pending final modeling and analysis in 2020.

Completeness of Regional On-street Bike Network

Metropolitan Transportation Improvement Program

Metro



— Planned regional on-street bike network
— completed with MTIP 2021-24 project
— Existing on-street bikeways

Transportation analysis zones
Metropolitan Planning Area
Non-EFA
EFA

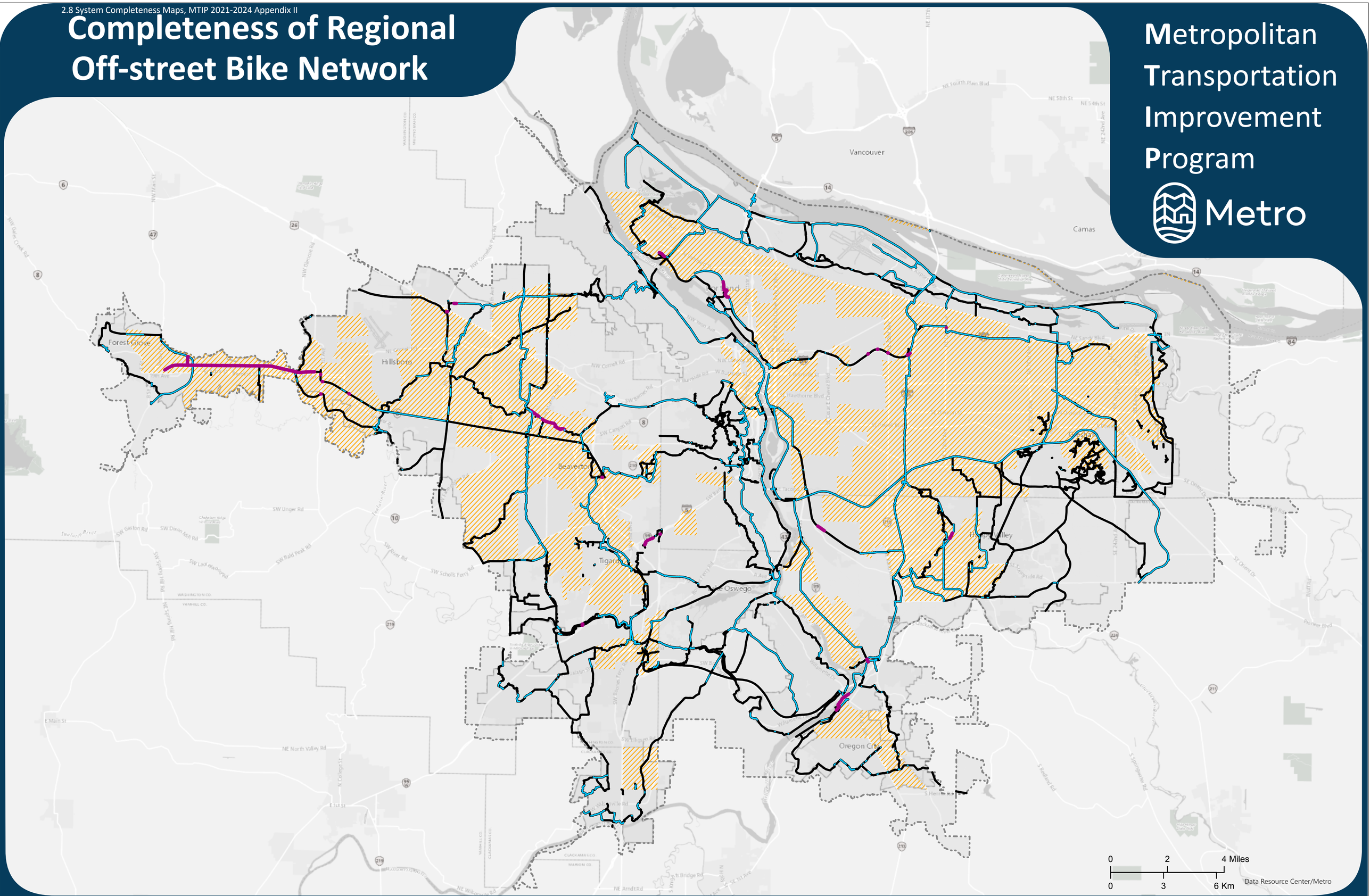
May 2020

This information is for discussion purposes and does not necessarily reflect current or future policy decisions of the Metro Council. The information is subject to change pending final modeling and analysis in 2020.

Completeness of Regional Off-street Bike Network

Metropolitan Transportation Improvement Program

Metro



— Planned regional off-street bike network
— completed with MTIP 2021-24 project
— Existing off-street bikeways

Transportation analysis zones
Non-EFA
EFA

Metropolitan Planning Area

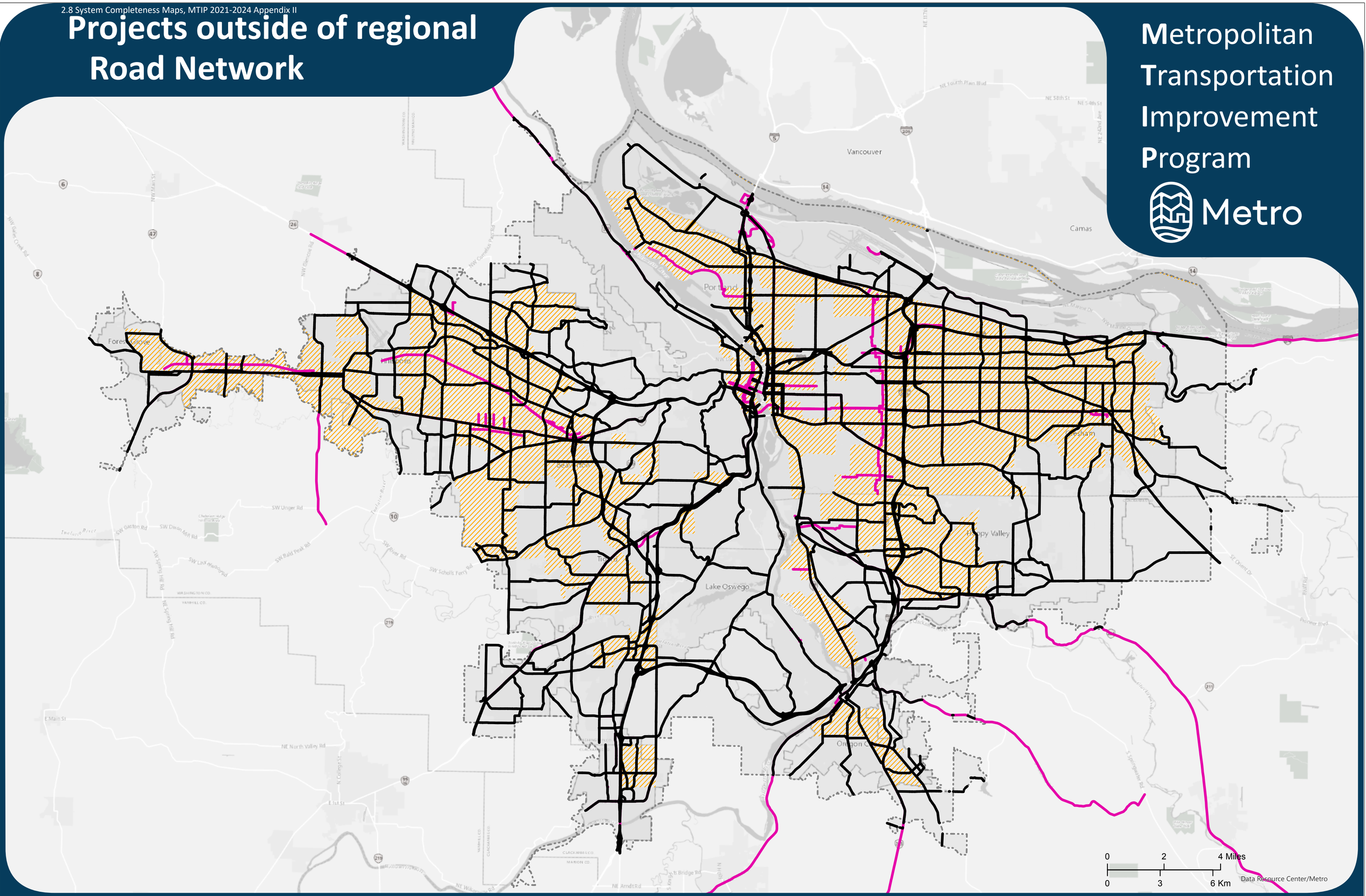
May 2020

This information is for discussion purposes and does not necessarily reflect current or future policy decisions of the Metro Council. The information is subject to change pending final modeling and analysis in 2020.

Projects outside of regional Road Network

Metropolitan Transportation Improvement Program

Metro



— Planned regional road network

— Road projects outside of network

Transportation analysis zones

Non-EFA

EFA

Metropolitan Planning Area

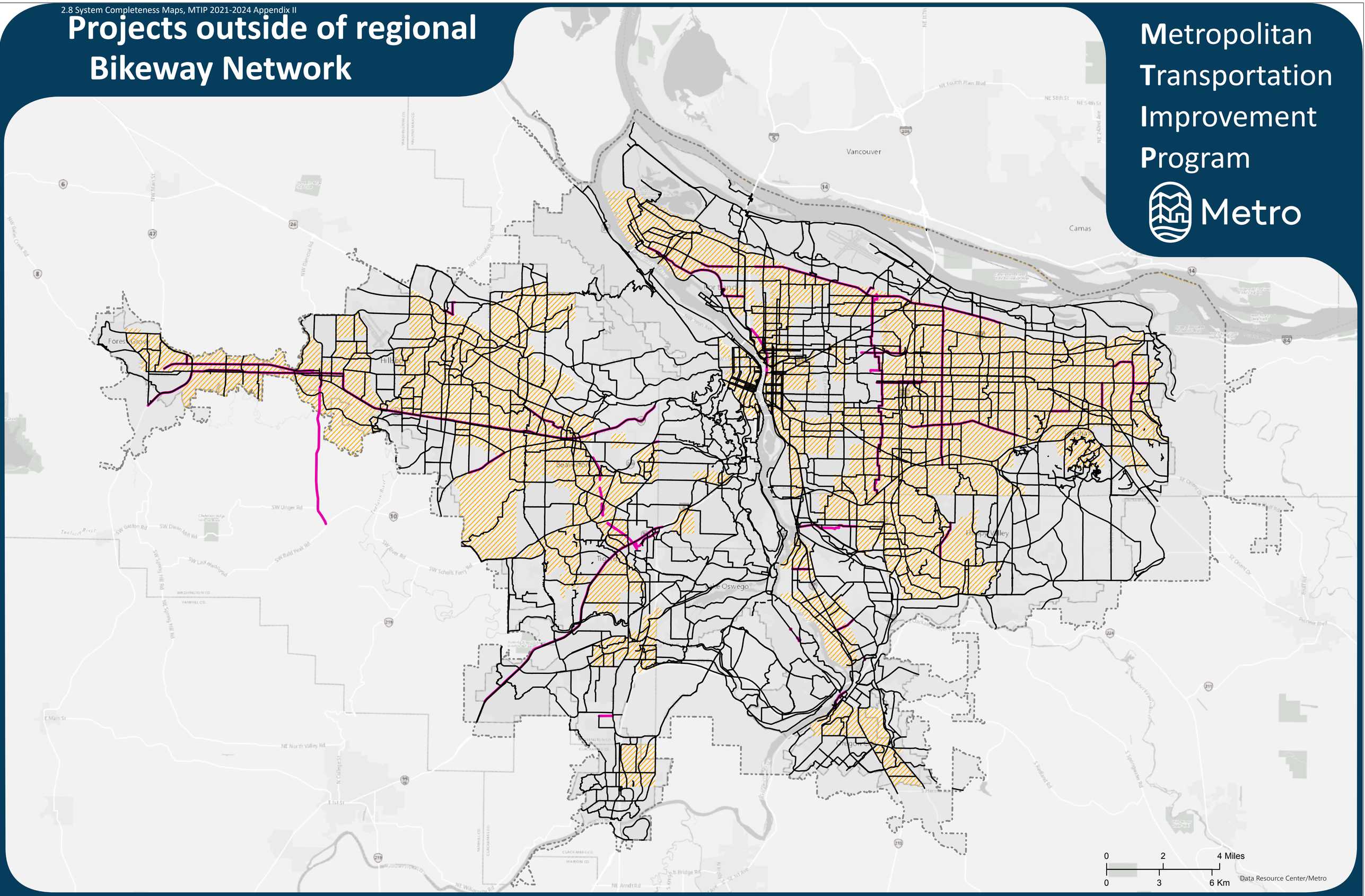
May 2020

This information is for discussion purposes and does not necessarily reflect current or future policy decisions of the Metro Council. The information is subject to change pending final modeling and analysis in 2020.

Projects outside of regional Bikeway Network

Metropolitan Transportation Improvement Program

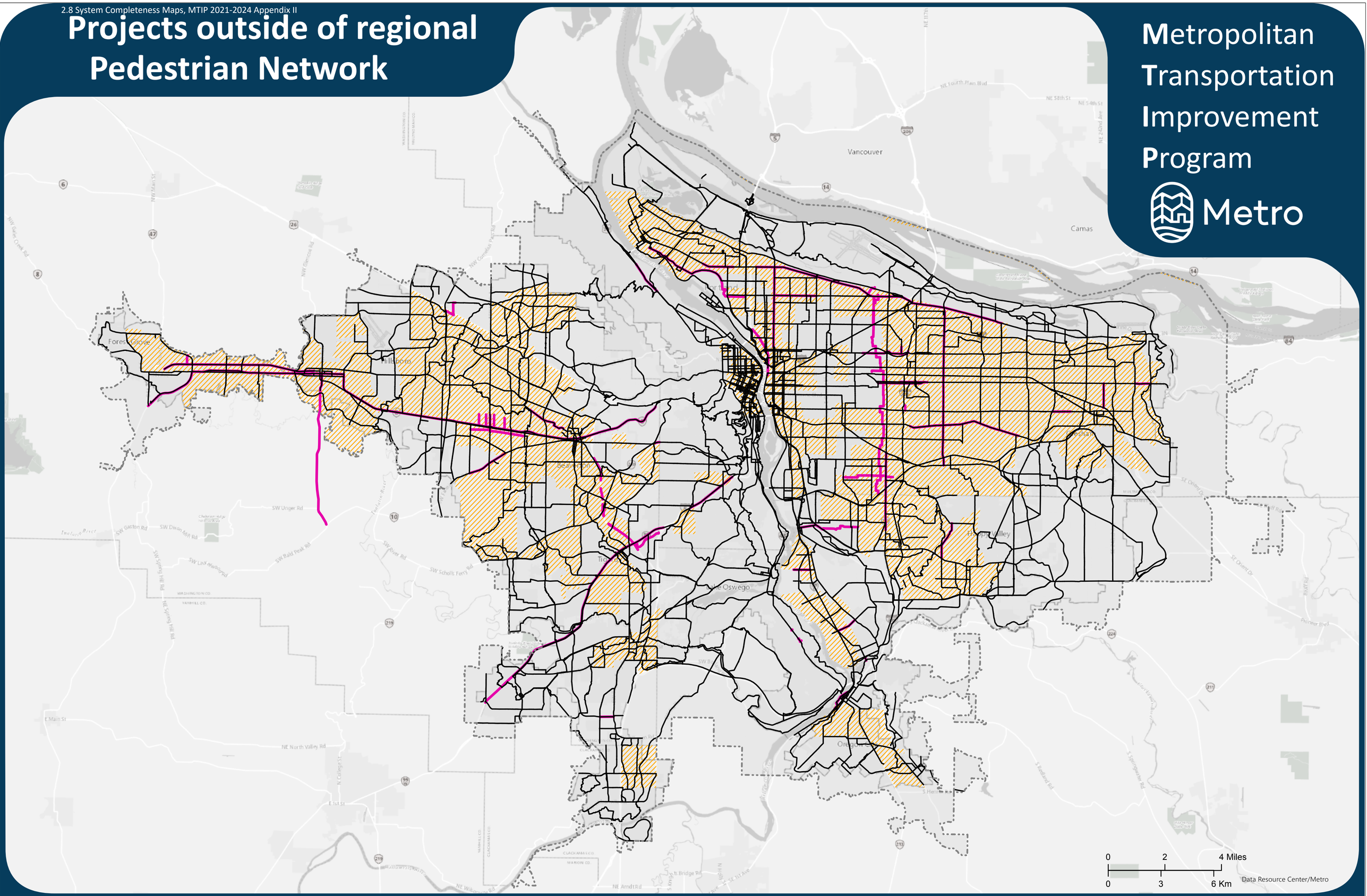
Metro



Projects outside of regional Pedestrian Network

Metropolitan Transportation Improvement Program

Metro



— Planned regional pedestrian network

— Pedestrian project outside of network

Transportation analysis zones

Non-EFA

EFA

Metropolitan Planning Area

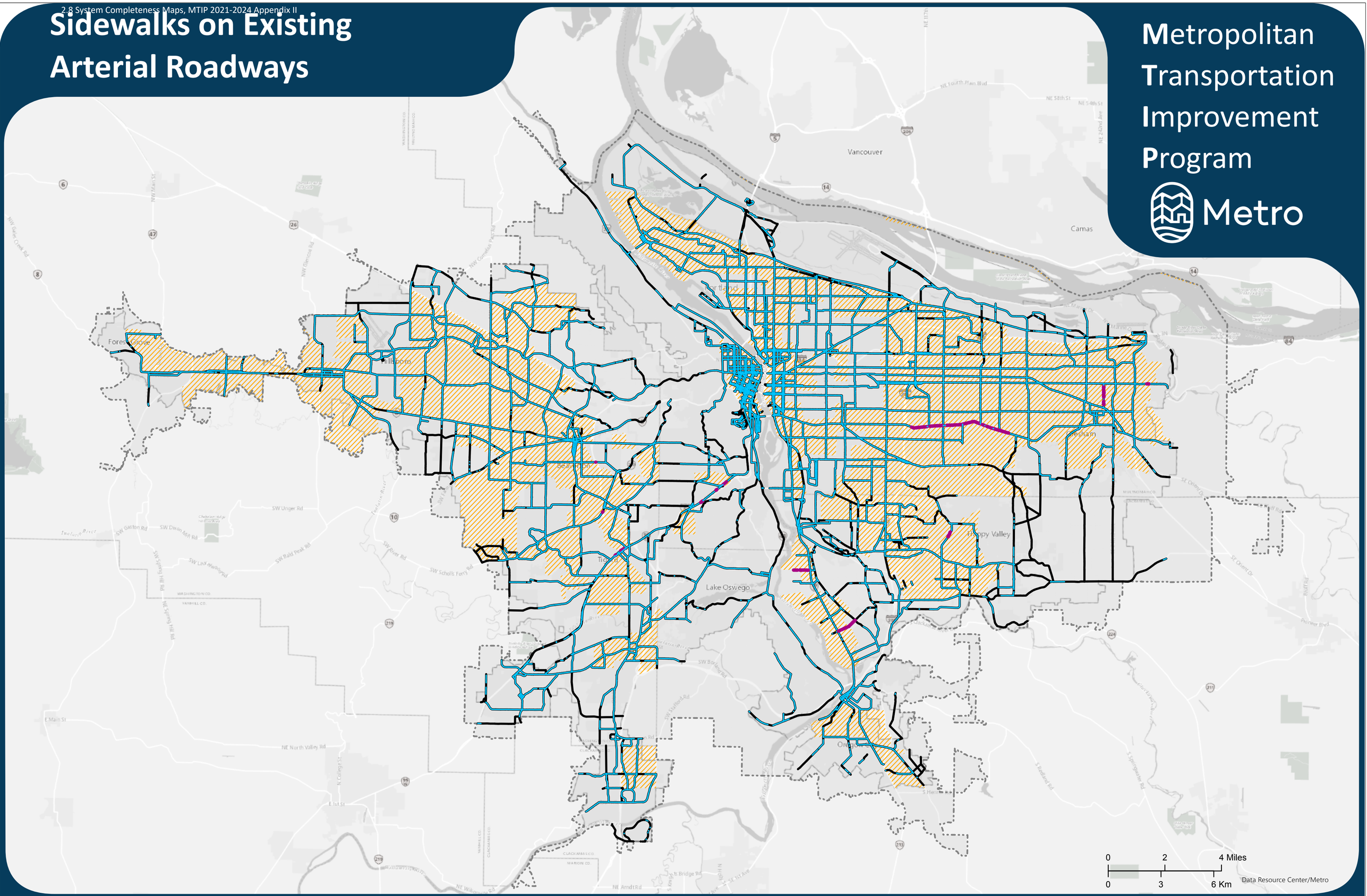
May 2020

This information is for discussion purposes and does not necessarily reflect current or future policy decisions of the Metro Council. The information is subject to change pending final modeling and analysis in 2020.

Sidewalks on Existing Arterial Roadways

Metropolitan Transportation Improvement Program

Metro



— Existing sidewalk

— completed with MTIP 2021-24 project

— Arterial road with no sidewalk

Transportation analysis zones

Non-EFA

EFA

Metropolitan Planning Area

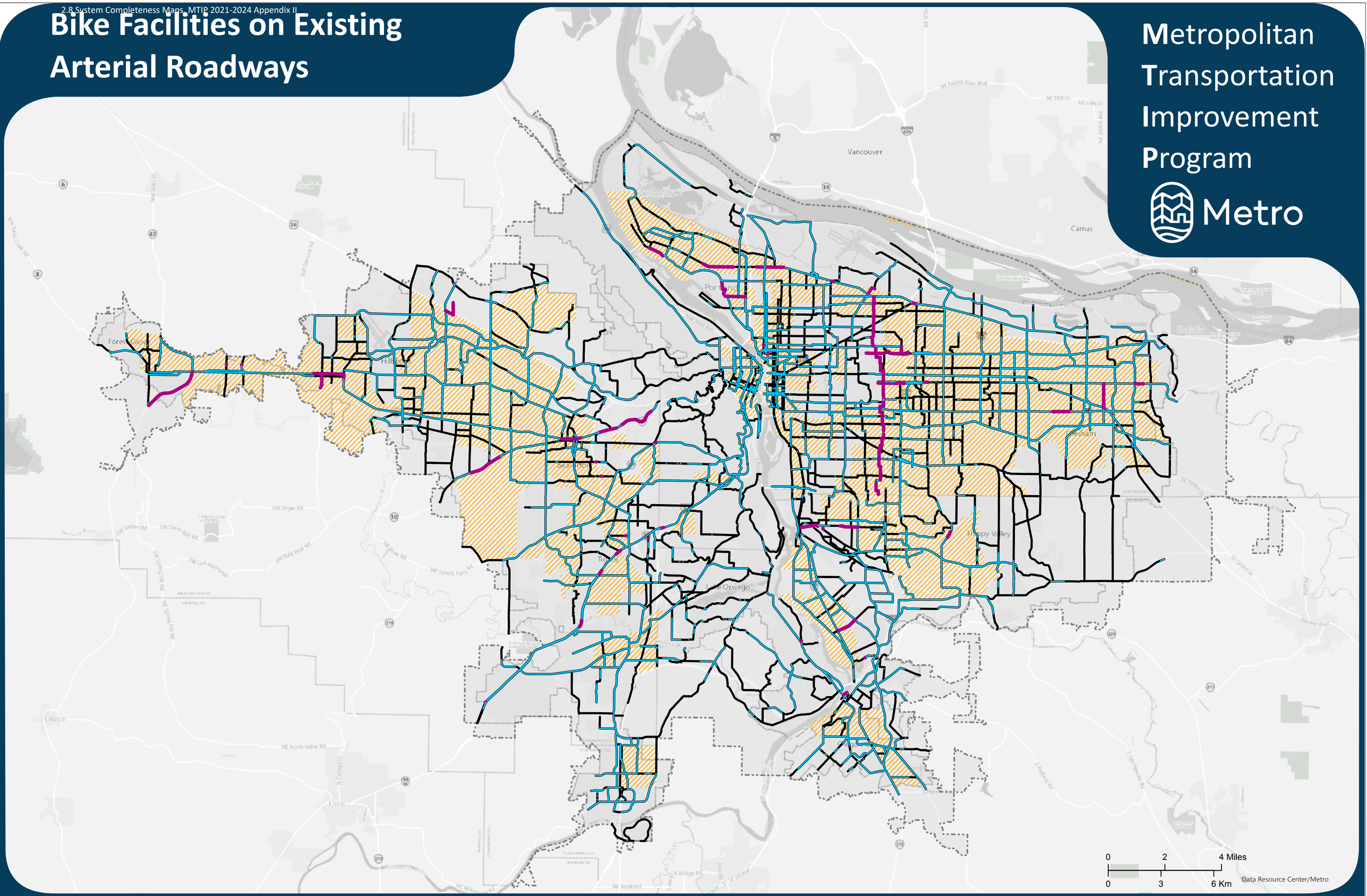
May 2020

This information is for discussion purposes and does not necessarily reflect current or future policy decisions of the Metro Council. The information is subject to change pending final modeling and analysis in 2020.

Bike Facilities on Existing Arterial Roadways

Metropolitan Transportation Improvement Program

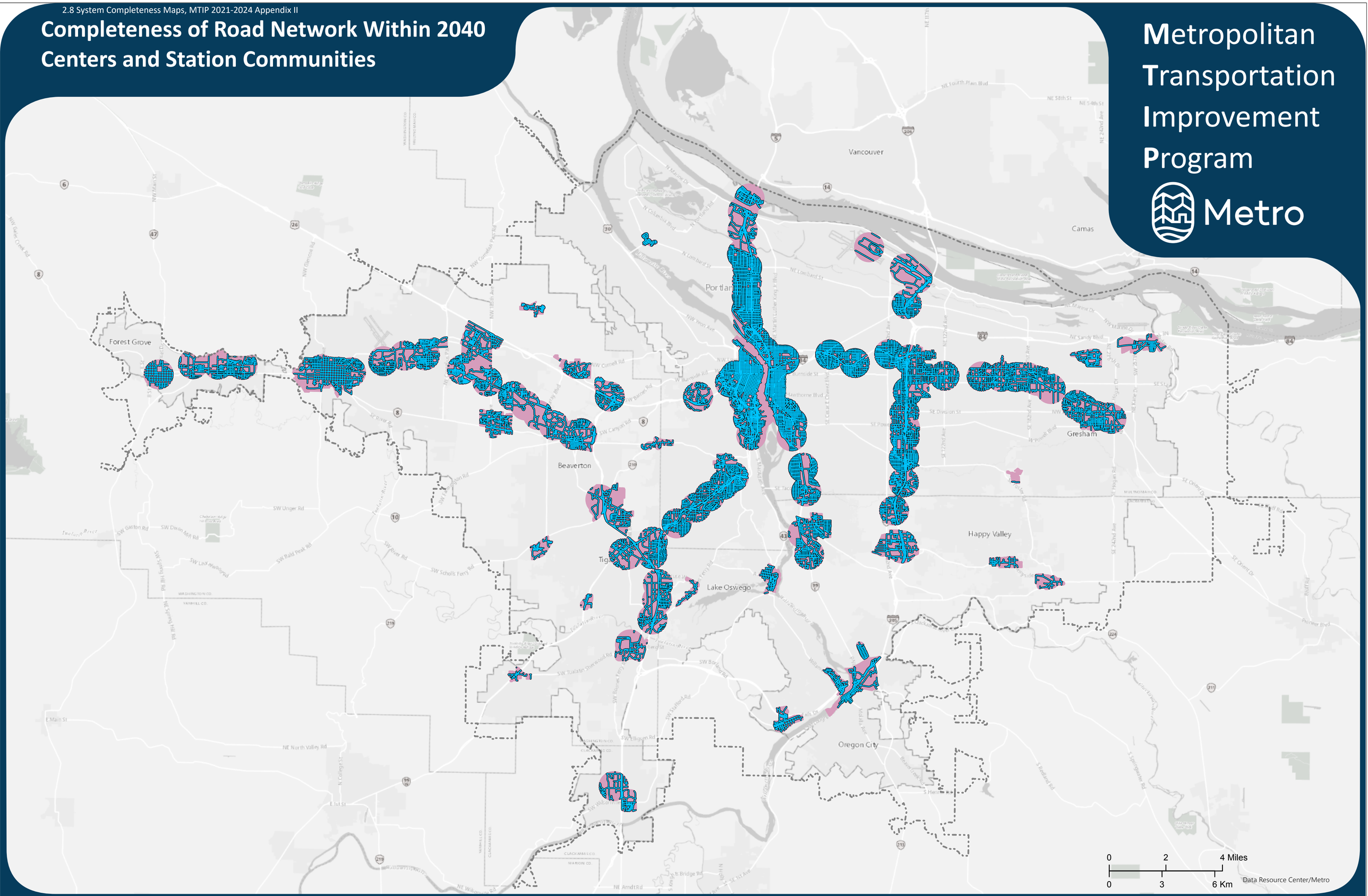
Metro


Vancouver
Camas
Portland
Gresham
Happy Valley
Lake Oswego
Tigard
Forest Grove
Hillsboro
Beaverton
NE 18th Ave
NE 117th Ave
NE Fourth Plain Blvd
NE 58th St
NE 54th St
NE 242nd Ave
NW Main St
NW Glencoe Rd
NW Cornelius Pass Rd
NW Yeon Ave
NW Burnside Rd
NW Germantown Rd
NW Skyline Blvd
NW Saltzman Rd
NW Forest Ln
NW Cornell Rd
NW Barnes Rd
NW Thompson Rd
NW Quimby St
NW Vaughn St
NW Thurman St
NW Nicolai St
NW Front Ave
NW Lovejoy St
NW Everett St
NW Couch St
NW Davis St
NW Flanders St
NW Glisan St
NW Wilson St
NW Lovejoy Ramp
NW Vista Ave
NW Upshur St
NW Johnson St
NW Kearney St
NW Raleigh St
NW Thurman St
NW Vaughn St
NW Nicolai St
NW Front Ave
NW Lovejoy St
NW Everett St
NW Couch St
NW Davis St
NW Flanders St
NW Glisan St
NW Wilson St
NW Lovejoy Ramp
NW Vista Ave
NW Upshur St
NW Johnson St
NW Kearney St
NW Raleigh St
SW Unger Rd
SW Dixon Mill Rd
SW Bald Peak Rd
SW Laidlaw Rd
SW River Rd
SW Scholls Ferry Rd
SW Gaston Rd
SW Sunset Hwy
SW Canyon Rd
SW Jefferson St
SW Madison St
SW Clay St
SW Columbia St
SW Market St
SW Mill St
SW Harrison St
SW Hall St
SW Broadway
SW Park Ave
SW 1st Ave
SW 2nd Ave
SW 3rd Ave
SW 4th Ave
SW 5th Ave
SW 6th Ave
SW 7th Ave
SW 8th Ave
SW 9th Ave
SW 10th Ave
SW 11th Ave
SW 12th Ave
SW 13th Ave
SW 14th Ave
SW 15th Ave
SW 16th Ave
SW 17th Ave
SW 18th Ave
SW 19th Ave
SW 20th Ave
SW 21st Ave
SW 22nd Ave
SW 23rd Ave
SW 24th Ave
SW 25th Ave
SW 26th Ave
SW 27th Ave
SW 28th Ave
SW 29th Ave
SW 30th Ave
SW 31st Ave
SW 32nd Ave
SW 33rd Ave
SW 34th Ave
SW 35th Ave
SW 36th Ave
SW 37th Ave
SW 38th Ave
SW 39th Ave
SW 40th Ave
SW 41st Ave
SW 42nd Ave
SW 43rd Ave
SW 44th Ave
SW 45th Ave
SW 46th Ave
SW 47th Ave
SW 48th Ave
SW 49th Ave
SW 50th Ave
SW 51st Ave
SW 52nd Ave
SW 53rd Ave
SW 54th Ave
SW 55th Ave
SW 56th Ave
SW 57th Ave
SW 58th Ave
SW 59th Ave
SW 60th Ave
SW 61st Ave
SW 62nd Ave
SW 63rd Ave
SW 64th Ave
SW 65th Ave
SW 66th Ave
SW 67th Ave
SW 68th Ave
SW 69th Ave
SW 70th Ave
SW 71st Ave
SW 72nd Ave
SW 73rd Ave
SW 74th Ave
SW 75th Ave
SW 76th Ave
SW 77th Ave
SW 78th Ave
SW 79th Ave
SW 80th Ave
SW 81st Ave
SW 82nd Ave
SW 83rd Ave
SW 84th Ave
SW 85th Ave
SW 86th Ave
SW 87th Ave
SW 88th Ave
SW 89th Ave
SW 90th Ave
SW 91st Ave
SW 92nd Ave
SW 93rd Ave
SW 94th Ave
SW 95th Ave
SW 96th Ave
SW 97th Ave
SW 98th Ave
SW 99th Ave
SW 100th Ave
SW 101st Ave
SW 102nd Ave
SW 103rd Ave
SW 104th Ave
SW 105th Ave
SW 106th Ave
SW 107th Ave
SW 108th Ave
SW 109th Ave
SW 110th Ave
SW 111th Ave
SW 112th Ave
SW 113th Ave
SW 114th Ave
SW 115th Ave
SW 116th Ave
SW 117th Ave
SW 118th Ave
SW 119th Ave
SW 120th Ave
SW 121st Ave
SW 122nd Ave
SW 123rd Ave
SW 124th Ave
SW 125th Ave
SW 126th Ave
SW 127th Ave
SW 128th Ave
SW 129th Ave
SW 130th Ave
SW 131st Ave
SW 132nd Ave
SW 133rd Ave
SW 134th Ave
SW 135th Ave
SW 136th Ave
SW 137th Ave
SW 138th Ave
SW 139th Ave
SW 140th Ave
SW 141st Ave
SW 142nd Ave
SW 143rd Ave
SW 144th Ave
SW 145th Ave
SW 146th Ave
SW 147th Ave
SW 148th Ave
SW 149th Ave
SW 150th Ave
SW 151st Ave
SW 152nd Ave
SW 153rd Ave
SW 154th Ave
SW 155th Ave
SW 156th Ave
SW 157th Ave
SW 158th Ave
SW 159th Ave
SW 160th Ave
SW 161st Ave
SW 162nd Ave
SW 163rd Ave
SW 164th Ave
SW 165th Ave
SW 166th Ave
SW 167th Ave
SW 168th Ave
SW 169th Ave
SW 170th Ave
SW 171st Ave
SW 172nd Ave
SW 173rd Ave
SW 174th Ave
SW 175th Ave
SW 176th Ave
SW 177th Ave
SW 178th Ave
SW 179th Ave
SW 180th Ave
SW 181st Ave
SW 182nd Ave
SW 183rd Ave
SW 184th Ave
SW 185th Ave
SW 186th Ave
SW 187th Ave
SW 188th Ave
SW 189th Ave
SW 190th Ave
SW 191st Ave
SW 192nd Ave
SW 193rd Ave
SW 194th Ave
SW 195th Ave
SW 196th Ave
SW 197th Ave
SW 198th Ave
SW 199th Ave
SW 200th Ave
SW 201st Ave
SW 202nd Ave
SW 203rd Ave
SW 204th Ave
SW 205th Ave
SW 206th Ave
SW 207th Ave
SW 208th Ave
SW 209th Ave
SW 210th Ave
SW 211th Ave
SW 212th Ave
SW 213th Ave
SW 214th Ave
SW 215th Ave
SW 216th Ave
SW 217th Ave
SW 218th Ave
SW 219th Ave
SW 220th Ave
SW 221st Ave
SW 222nd Ave
SW 223rd Ave
SW 224th Ave
SW 225th Ave
SW 226th Ave
SW 227th Ave
SW 228th Ave
SW 229th Ave
SW 230th Ave
SW 231st Ave
SW 232nd Ave
SW 233rd Ave
SW 234th Ave
SW 235th Ave
SW 236th Ave
SW 237th Ave
SW 238th Ave
SW 239th Ave
SW 240th Ave
SW 241st Ave
SW 242nd Ave
SW 243rd Ave
SW 244th Ave
SW 245th Ave
SW 246th Ave
SW 247th Ave
SW 248th Ave
SW 249th Ave
SW 250th Ave
SW 251st Ave
SW 252nd Ave
SW 253rd Ave
SW 254th Ave
SW 255th Ave
SW 256th Ave
SW 257th Ave
SW 258th Ave
SW 259th Ave
SW 260th Ave
SW 261st Ave
SW 262nd Ave
SW 263rd Ave
SW 264th Ave
SW 265th Ave
SW 266th Ave
SW 267th Ave
SW 268th Ave
SW 269th Ave
SW 270th Ave
SW 271st Ave
SW 272nd Ave
SW 273rd Ave
SW 274th Ave
SW 275th Ave
SW 276th Ave
SW 277th Ave
SW 278th Ave
SW 279th Ave
SW 280th Ave
SW 281st Ave
SW 282nd Ave
SW 283rd Ave
SW 284th Ave
SW 285th Ave
SW 286th Ave
SW 287th Ave
SW 288th Ave
SW 289th Ave
SW 290th Ave
SW 291st Ave
SW 292nd Ave
SW 293rd Ave
SW 294th Ave
SW 295th Ave
SW 296th Ave
SW 297th Ave
SW 298th Ave
SW 299th Ave
SW 300th Ave
SW 301st Ave
SW 302nd Ave
SW 303rd Ave
SW 304th Ave
SW 305th Ave
SW 306th Ave
SW 307th Ave
SW 308th Ave
SW 309th Ave
SW 310th Ave
SW 311th Ave
SW 312th Ave
SW 313th Ave
SW 314th Ave
SW 315th Ave
SW 316th Ave
SW 317th Ave
SW 318th Ave
SW 319th Ave
SW 320th Ave
SW 321st Ave
SW 322nd Ave
SW 323rd Ave
SW 324th Ave
SW 325th Ave
SW 326th Ave
SW 327th Ave
SW 328th Ave
SW 329th Ave
SW 330th Ave
SW 331st Ave
SW 332nd Ave
SW 333rd Ave
SW 334th Ave
SW 335th Ave
SW 336th Ave
SW 337th Ave
SW 338th Ave
SW 339th Ave
SW 340th Ave
SW 341st Ave
SW 342nd Ave
SW 343rd Ave
SW 344th Ave
SW 345th Ave
SW 346th Ave
SW 347th Ave
SW 348th Ave
SW 349th Ave
SW 350th Ave
SW 351st Ave
SW 352nd Ave
SW 353rd Ave
SW 354th Ave
SW 355th Ave
SW 356th Ave
SW 357th Ave
SW 358th Ave
SW 359th Ave
SW 360th Ave
SW 361st Ave
SW 362nd Ave
SW 363rd Ave
SW 364th Ave
SW 365th Ave
SW 366th Ave
SW 367th Ave
SW 368th Ave
SW 369th Ave
SW 370th Ave
SW 371st Ave
SW 372nd Ave
SW 373rd Ave
SW 374th Ave
SW 375th Ave
SW 376th Ave
SW 377th Ave
SW 378th Ave
SW 379th Ave
SW 380th Ave
SW 381st Ave
SW 382nd Ave
SW 383rd Ave
SW 384th Ave
SW 385th Ave
SW 386th Ave
SW 387th Ave
SW 388th Ave
SW 389th Ave
SW 390th Ave
SW 391st Ave
SW 392nd Ave
SW 393rd Ave
SW 394th Ave
SW 395th Ave
SW 396th Ave
SW 397th Ave
SW 398th Ave
SW 399th Ave
SW 400th Ave
SW 401st Ave
SW 402nd Ave
SW 403rd Ave
SW 404th Ave
SW 405th Ave
SW 406th Ave
SW 407th Ave
SW 408th Ave
SW 409th Ave
SW 410th Ave
SW 411th Ave
SW 412th Ave
SW 413th Ave
SW 414th Ave
SW 415th Ave
SW 416th Ave
SW 417th Ave
SW 418th Ave
SW 419th Ave
SW 420th Ave
SW 421st Ave
SW 422nd Ave
SW 423rd Ave
SW 424th Ave
SW 425th Ave
SW 426th Ave
SW 427th Ave
SW 428th Ave
SW 429th Ave
SW 430th Ave
SW 431st Ave
SW 432nd Ave
SW 433rd Ave
SW 434th Ave
SW 435th Ave
SW 436th Ave
SW 437th Ave
SW 438th Ave
SW 439th Ave
SW 440th Ave
SW 441st Ave
SW 442nd Ave
SW 443rd Ave
SW 444th Ave
SW 445th Ave
SW 446th Ave
SW 447th Ave
SW 448th Ave
SW 449th Ave
SW 450th Ave
SW 451st Ave
SW 452nd Ave
SW 453rd Ave
SW 454th Ave
SW 455th Ave
SW 456th Ave
SW 457th Ave
SW 458th Ave
SW 459th Ave
SW 460th Ave
SW 461st Ave
SW 462nd Ave
SW 463rd Ave
SW 464th Ave
SW 465th Ave
SW 466th Ave
SW 467th Ave
SW 468th Ave
SW 469th Ave
SW 470th Ave
SW 471st Ave
SW 472nd Ave
SW 473rd Ave
SW 474th Ave
SW 475th Ave
SW 476th Ave
SW 477th Ave
SW 478th Ave
SW 479th Ave
SW 480th Ave
SW 481st Ave
SW 482nd Ave
SW 483rd Ave
SW 484th Ave
SW 485th Ave
SW 486th Ave
SW 487th Ave
SW 488th Ave
SW 489th Ave
SW 490th Ave
SW 491st Ave
SW 492nd Ave
SW 493rd Ave
SW 494th Ave
SW 495th Ave
SW 496th Ave
SW 497th Ave
SW 498th Ave
SW 499th Ave
SW 500th Ave
SW 501st Ave
SW 502nd Ave
SW 503rd Ave
SW 504th Ave
SW 505th Ave
SW 506th Ave
SW 507th Ave
SW 508th Ave
SW 509th Ave
SW 510th Ave
SW 511th Ave
SW 512th Ave
SW 513th Ave
SW 514th Ave
SW 515th Ave
SW 516th Ave
SW 517th Ave
SW 518th Ave
SW 519th Ave
SW 520th Ave
SW 521st Ave
SW 522nd Ave
SW 523rd Ave
SW 524th Ave
SW 525th Ave
SW 526th Ave
SW 527th Ave
SW 528th Ave
SW 529th Ave
SW 530th Ave
SW 531st Ave
SW 532nd Ave
SW 533rd Ave
SW 534th Ave
SW 535th Ave
SW 536th Ave
SW 537th Ave
SW 538th Ave
SW 539th Ave
SW 540th Ave
SW 541st Ave
SW 542nd Ave
SW 543rd Ave
SW 544th Ave
SW 545th Ave
SW 546th Ave
SW 547th Ave
SW 548th Ave
SW 549th Ave
SW 550th Ave
SW 551st Ave
SW 552nd Ave
SW 553rd Ave
SW 554th Ave
SW 555th Ave
SW 556th Ave
SW 557th Ave
SW 558th Ave
SW 559th Ave
SW 560th Ave
SW 561st Ave
SW 562nd Ave
SW 563rd Ave
SW 564th Ave
SW 565th Ave
SW 566th Ave
SW 567th Ave
SW 568th Ave
SW 569th Ave
SW 570th Ave
SW 571st Ave
SW 572nd Ave
SW 573rd Ave
SW 574th Ave
SW 575th Ave
SW 576th Ave
SW 577th Ave
SW 578th Ave
SW 579th Ave
SW 580th Ave
SW 581st Ave
SW 582nd Ave
SW 583rd Ave
SW 584th Ave
SW 585th Ave
SW 586th Ave
SW 587th Ave
SW 588th Ave
SW 589th Ave
SW 590th Ave
SW 591st Ave
SW 592nd Ave
SW 593rd Ave
SW 594th Ave
SW 595th Ave
SW 596th Ave
SW 597th Ave
SW 598th Ave
SW 599th Ave
SW 600th Ave
SW 601st Ave
SW 602nd Ave
SW 603rd Ave
SW 604th Ave
SW 605th Ave
SW 606th Ave
SW 607th Ave
SW 608th Ave
SW 609th Ave
SW 610th Ave
SW 611th Ave
SW 612th Ave
SW 613th Ave
SW 614th Ave
SW 615th Ave
SW 616th Ave
SW 617th Ave
SW 618th Ave
SW 619th Ave
SW 620th Ave
SW 621st Ave
SW 622nd Ave
SW 623rd Ave
SW 624th Ave
SW 625th Ave
SW 626th Ave
SW 627th Ave
SW 628th Ave
SW 629th Ave
SW 630th Ave
SW 631st Ave
SW 632nd Ave
SW 633rd Ave
SW 634th Ave
SW 635th Ave
SW 636th Ave
SW 637th Ave
SW 638th Ave
SW 639th Ave
SW 640th Ave
SW 641st Ave
SW 642nd Ave
SW 643rd Ave
SW 644th Ave
SW 645th Ave
SW 646th Ave
SW 647th Ave
SW 648th Ave
SW 649th Ave
SW 650th Ave
SW 651st Ave
SW 652nd Ave
SW 653rd Ave
SW 654th Ave
SW 655th Ave
SW 656th Ave
SW 657th Ave
SW 658th Ave
SW 659th Ave
SW 660th Ave
SW 661st Ave
SW 662nd Ave
SW 663rd Ave
SW 664th Ave
SW 665th Ave
SW 666th Ave
SW 667th Ave
SW 668th Ave
SW 669th Ave
SW 670th Ave
SW 671st Ave
SW 672nd Ave
SW 673rd Ave
SW 674th Ave
SW 675th Ave
SW 676th Ave
SW 677th Ave
SW 678th Ave
SW 679th Ave
SW 680th Ave
SW 681st Ave
SW 682nd Ave
SW 683rd Ave
SW 684th Ave
SW 685th Ave
SW 686th Ave
SW 687th Ave
SW 688th Ave
SW 689th Ave
SW 690th Ave
SW 691st Ave
SW 692nd Ave
SW 693rd Ave
SW 694th Ave
SW 695th Ave
SW 696th Ave
SW 697th Ave
SW 698th Ave
SW 699th Ave
SW 700th Ave
SW 701st Ave
SW 702nd Ave
SW 703rd Ave
SW 704th Ave
SW 705th Ave
SW 706th Ave
SW 707th Ave
SW 708th Ave
SW 709th Ave
SW 710th Ave
SW 711th Ave
SW 712th Ave
SW 713th Ave
SW 714th Ave
SW 715th Ave
SW 716th Ave
SW 717th Ave
SW 718th Ave
SW 719th Ave
SW 720th Ave
SW 721st Ave
SW 722nd Ave
SW 723rd Ave
SW 724th Ave
SW 725th Ave
SW 726th Ave
SW 727th Ave
SW 728th Ave
SW 729th Ave
SW 730th Ave
SW 731st Ave
SW 732nd Ave
SW 733rd Ave
SW 734th Ave
SW 735th Ave
SW 736th Ave
SW 737th Ave
SW 738th Ave
SW 739th Ave
SW 740th Ave
SW 741st Ave
SW 742nd Ave
SW 743rd Ave
SW 744th Ave
SW 745th Ave
SW 746th Ave
SW 747th Ave
SW 748th Ave
SW 749th Ave
SW 750th Ave
SW 751st Ave
SW 752nd Ave
SW 753rd Ave
SW 754th Ave
SW 755th Ave
SW 756th Ave
SW 757th Ave
SW 758th Ave
SW 759th Ave
SW 760th Ave
SW 761st Ave
SW 762nd Ave
SW 763rd Ave
SW 764th Ave
SW 765th Ave
SW 766th Ave
SW 767th Ave
SW 768th Ave
SW 769th Ave
SW 770th Ave
SW 771st Ave
SW 772nd Ave
SW 773rd Ave
SW 774th Ave
SW 775th Ave
SW 776th Ave
SW 777th Ave
SW 778th Ave
SW 779th Ave
SW 780th Ave
SW 781st Ave
SW 782nd Ave
SW 783rd Ave
SW 784th Ave
SW 785th Ave
SW 786th Ave
SW 787th Ave
SW 788th Ave
SW 789th Ave
SW 790th Ave
SW 791st Ave
SW 792nd Ave
SW 793rd Ave
SW 794th Ave
SW 795th Ave
SW 796th Ave
SW 797th Ave
SW 798th Ave
SW 799th Ave
SW 800th Ave
SW 801st Ave
SW 802nd Ave
SW 803rd Ave
SW 804th Ave
SW 805th Ave
SW 806th Ave
SW 807th Ave
SW 808th Ave
SW 809th Ave
SW 810th Ave
SW 811th Ave
SW 812th Ave
SW 813th Ave
SW 814th Ave
SW 815th Ave
SW 816th Ave
SW 817th Ave
SW 818th Ave
SW 819th Ave
SW 820th Ave
SW 821st Ave
SW 822nd Ave
SW 823rd Ave
SW 824th Ave
SW 825th Ave
SW 826th Ave
SW 827th Ave
SW 828th Ave
SW 829th Ave
SW 830th Ave
SW 831st Ave
SW 832nd Ave
SW 833rd Ave
SW 834th Ave
SW 835th Ave
SW 836th Ave
SW 837th Ave
SW 838th Ave
SW 839th Ave
SW 840th Ave
SW 841st Ave
SW 842nd Ave
SW 843rd Ave
SW 844th Ave
SW 845th Ave
SW 846th Ave
SW 847th Ave
SW 848th Ave
SW 849th Ave
SW 850th Ave
SW 851st Ave
SW 852nd Ave
SW 853rd Ave
SW 854th Ave
SW 855th Ave
SW 856th Ave
SW 857th Ave
SW 858th Ave
SW 859th Ave
SW 860th Ave
SW 861st Ave
SW 862nd Ave
SW 863rd Ave
SW 864th Ave
SW 865th Ave
SW 866th Ave
SW 867th Ave
SW 868th Ave
SW 869th Ave
SW 870th Ave
SW 871st Ave
SW 872nd Ave
SW 873rd Ave
SW 874th Ave
SW 875th Ave
SW 876th Ave
SW 877th Ave
SW 878th Ave
SW 879th Ave
SW 880th Ave
SW 881st Ave
SW 882nd Ave
SW 883rd Ave
SW 884th Ave
SW 885th Ave
SW 886th Ave
SW 887th Ave
SW 888th Ave
SW 889th Ave
SW 890th Ave
SW 891st Ave
SW 892nd Ave
SW 893rd Ave
SW 894th Ave
SW 895th Ave
SW 896th Ave
SW 897th Ave
SW 898th Ave
SW 899th Ave
SW 900th Ave
SW 901st Ave
SW 902nd Ave
SW 903rd Ave
SW 904th Ave
SW 905th Ave
SW 906th Ave
SW 907th Ave
SW 908th Ave
SW 909th Ave
SW 910th Ave
SW 911th Ave
SW 912th Ave
SW 913th Ave
SW 914th Ave
SW 915th Ave
SW 916th Ave
SW 917th Ave
SW 918th Ave
SW 919th Ave
SW 920th Ave
SW 921st Ave
SW 922nd Ave
SW 923rd Ave
SW 924th Ave
SW 925th Ave
SW 926th Ave
SW 927th Ave
SW 928th Ave
SW 929th Ave
SW 930th Ave
SW 931st Ave
SW 932nd Ave
SW 933rd Ave
SW 934th Ave
SW 935th Ave
SW 936th Ave
SW 937th Ave
SW 938th Ave
SW 939th Ave
SW 940th Ave
SW 941st Ave
SW 942nd Ave
SW 943rd Ave
SW 944th Ave
SW 945th Ave
SW 946th Ave
SW 947th Ave
SW 948th Ave
SW 949th Ave
SW 950th Ave
SW 951st Ave
SW 952nd Ave
SW 953rd Ave
SW 954th Ave
SW 955th Ave
SW 956th Ave
SW 957th Ave
SW 958th Ave
SW 959th Ave
SW 960th Ave
SW 961st Ave
SW 962nd Ave
SW 963rd Ave
SW 964th Ave
SW 965th Ave
SW 966th Ave
SW 967th Ave
SW 968th Ave
SW 969th Ave
SW 970th Ave
SW 971st Ave
SW 972nd Ave
SW 973rd Ave
SW 974th Ave
SW 975th Ave
SW 976th Ave
SW 977th Ave
SW 978th Ave
SW 979th Ave
SW 980th Ave
SW 981st Ave
SW 982nd Ave
SW 983rd Ave
SW 984th Ave
SW 985th Ave
SW 986th Ave
SW 987th Ave
SW 988th Ave
SW 989th Ave
SW 990th Ave
SW 991st Ave
SW 992nd Ave
SW 993rd Ave
SW 994th Ave
SW 995th Ave
SW 996th Ave
SW 997th Ave
SW 998th Ave
SW 999th Ave
SW 1000th Ave
SW 1001st Ave
SW 1002nd Ave
SW 1003rd Ave
SW 1004th Ave
SW 1005th Ave
SW 1006th Ave
SW 1007th Ave
SW 1008th Ave
SW 1009th Ave
SW 1010th Ave
SW 1011th Ave
SW 1012th Ave
SW 1013th Ave
SW 1014th Ave
SW 1015th Ave
SW 1016th Ave
SW 1017th Ave
SW 1018th Ave
SW 1019th Ave
SW 1020th Ave
SW 1021st Ave
SW 1022nd Ave
SW 1023rd Ave
SW 1024th Ave
SW 1025th Ave
SW 1026th Ave
SW 1027th Ave
SW 1028th Ave
SW 1029th Ave
SW 1030th Ave
SW 1031st Ave
SW 1032nd Ave
SW 1033rd Ave
SW 1034th Ave
SW 1035th Ave
SW 1036th Ave
SW 1037th Ave
SW 1038th Ave
SW 1039th Ave
SW 1040th Ave
SW 1041st Ave
SW 1042nd Ave
SW 1043rd Ave
SW 1044th Ave
SW 1045th Ave
SW 1046th Ave
SW 1047th Ave
SW 1048th Ave
SW 1049th Ave
SW 1050th Ave
SW 1051st Ave
SW 1052nd Ave
SW 1053rd Ave
SW 1054th Ave
SW 1055th Ave
SW 1056th Ave
SW 1057th Ave
SW 1058th Ave
SW 1059th Ave
SW 1060th Ave
SW 1061st Ave
SW 1062nd Ave
SW 1063rd Ave
SW 1064th Ave
SW 1065th Ave
SW 1066th Ave
SW 1067th Ave
SW 1068th Ave
SW 1069th Ave
SW 1070th Ave
SW 1071st Ave
SW 1072nd Ave
SW 1073rd Ave
SW 1074th Ave
SW 1075th Ave
SW 1076th Ave
SW 1077th Ave
SW 1078th Ave
SW 1079th Ave
SW 1080th Ave
SW 1081st Ave
SW 1082nd Ave
SW 1083rd Ave
SW 1084th Ave
SW 1085th Ave
SW 1086th Ave
SW 1087th Ave
SW 1088th Ave
SW 1089th Ave
SW 1090th Ave
SW 1091st Ave
SW 1092nd Ave
SW 1093rd Ave
SW 1094th Ave
SW 1095th Ave
SW 1096th Ave
SW 1097th Ave
SW 1098th Ave
SW 1099th Ave
SW 1100th Ave
SW 1101st Ave
SW 1102nd Ave
SW 1103rd Ave
SW 1104th Ave
SW 1105th Ave
SW 1106th Ave
SW 1107th Ave
SW 1108th Ave
SW 1109th Ave
SW 1110th Ave
SW 1111th Ave
SW 1112th Ave
SW 1113th Ave
SW 1114th Ave
SW 1115th Ave
SW 1116th Ave
SW 1117th Ave
SW 1118th Ave
SW 1119th Ave
SW 1120th Ave
SW 1121st Ave
SW 1122nd Ave
SW 1123rd Ave
SW 1124th Ave
SW 1125th Ave
SW 1126th Ave
SW 1127th Ave
SW 1128th Ave
SW 1129th Ave
SW 1130th Ave
SW 1131st Ave
SW 1132nd Ave
SW 1133rd Ave
SW 1134th Ave
SW 1135th Ave
SW 1136th Ave
SW 1137th Ave
SW 1138th Ave
SW 1139th Ave
SW 1140th Ave
SW 1141st Ave
SW 1142nd Ave
SW 1143rd Ave
SW 1144th Ave
SW 1145th Ave
SW 1146th Ave
SW 1147th Ave
SW 1148th Ave
SW 1149th Ave
SW 1150th Ave
SW 1151st Ave
SW 1152nd Ave
SW 1153rd Ave
SW 1154th Ave
SW 1155th Ave
SW 1156th Ave
SW 1157th Ave
SW 1158th Ave
SW 1159th Ave
SW 1160th Ave
SW 1161st Ave
SW 1162nd Ave
SW 1163rd Ave
SW 1164th Ave
SW 1165th Ave
SW 1166th Ave
SW 1167th Ave
SW 1168th Ave
SW 1169th Ave
SW 1170th Ave
SW 1171st Ave
SW 1172nd Ave
SW 1173rd Ave
SW 1174th Ave
SW 1175th Ave
SW 1176th Ave
SW 1177th Ave
SW 1178th Ave
SW 1179th Ave
SW 1180th Ave
SW 1181st Ave
SW 1182nd Ave
SW 1183rd Ave
SW 1184th Ave
SW 1185th Ave
SW 1186th Ave
SW 1187th Ave
SW 1188th Ave
SW 1189th Ave
SW 1190th Ave
SW 1191st Ave
SW 1192nd Ave
SW 1193rd Ave
SW 1194th Ave
SW 1195th Ave
SW 1196th Ave
SW 1197th Ave
SW 1198th Ave
SW 1199th Ave
SW 1200th Ave
SW 1201st Ave
SW 1202nd Ave
SW 1203rd Ave
SW 1204th Ave
SW 1205th Ave
SW 1206th Ave
SW 1207th Ave
SW 1208th Ave
SW 1209th Ave
SW 1210th Ave
SW 1211th Ave
SW 1212th Ave
SW 1213th Ave
SW 1214th Ave
SW 1215th Ave
SW 1216th Ave
SW 1217th Ave
SW 1218th Ave
SW 1219th Ave
SW 1220th Ave
SW 1221st Ave
SW 1222nd Ave
SW 1223rd Ave
SW 1224th Ave
SW 1225th Ave
SW 1226th Ave
SW 1227th Ave
SW 1228th Ave
SW 1229th Ave
SW 1230th Ave
SW 1231st Ave
SW 1232nd Ave
SW 1233rd Ave
SW 1234th Ave
SW 1235th Ave
SW 1236th Ave
SW 1237th Ave
SW 1238th Ave
SW 1239th Ave
SW 1240th Ave
SW 1241st Ave
SW 1242nd Ave
SW 1243rd Ave
SW 1244th Ave
SW 1245th Ave
SW 1246th Ave
SW 1247th Ave
SW 1248th Ave
SW 1249th Ave
SW 1250th Ave
SW 1251st Ave
SW 1252nd Ave
SW 1253rd Ave
SW 1254th Ave
SW 1255th Ave
SW 1256th Ave
SW 1257th Ave
SW 1258th Ave
SW 1259th Ave
SW 1260th Ave
SW 1261st Ave
SW 1262nd Ave
SW 1263rd Ave
SW 1264th Ave
SW 1265th Ave
SW 1266th Ave
SW 1267th Ave
SW 1268th Ave
SW 1269th Ave
SW 1270th Ave
SW 1271st Ave
SW 1272nd Ave
SW 1273rd Ave
SW 1274th Ave
SW 1275th Ave
SW 1276th Ave
SW 1277th Ave
SW 1278th Ave
SW 1279th Ave
SW 1280th Ave
SW 1281st Ave
SW 1282nd Ave
SW 1283rd Ave
SW 1284th Ave
SW 1285th Ave
SW 1286th Ave
SW 1287th Ave
SW 1288th Ave
SW 1289th Ave
SW 1290th Ave
SW 1291st Ave
SW 1292nd Ave
SW 1293rd Ave
SW 1294th Ave
SW 1295th Ave
SW 1296th Ave
SW 1297th Ave
SW 1298th Ave
SW 1299th Ave
SW 1300th Ave
SW 1301st Ave
SW 1302nd Ave
SW 1303rd Ave
SW 1304th Ave
SW 1305th Ave
SW 1306th Ave
SW 1307th Ave
SW 1308th Ave
SW 1309th Ave
SW 1310th Ave
SW 1311th Ave
SW 1312th Ave
SW 1313th Ave
SW 1314th Ave
SW 1315th Ave
SW 1316th Ave
SW 1317th Ave
SW 1318th Ave
SW 1319th Ave
SW 1320th Ave
SW 1321st Ave
SW 1322nd Ave
SW 1323rd Ave
SW 1324th Ave
SW 1325th Ave
SW 1326th Ave
SW 1327th Ave
SW 1328th Ave
SW 1329th Ave
SW 1330th Ave
SW 1331st Ave
SW 1332nd Ave
SW 1333rd Ave
SW 1334th Ave
SW 1335th Ave
SW 1336th Ave
SW 1337th Ave
SW 1338th Ave
SW 1339th Ave
SW 1340th Ave
SW 1341st Ave
SW 1342nd Ave
SW 1343rd Ave
SW 1344th Ave
SW 1345th Ave
SW 1346th Ave
SW 1347th Ave
SW 1348th Ave
SW 1349th Ave
SW 1350th Ave
SW 1351st Ave
SW 1352nd Ave
SW 1353rd Ave
SW 1354th Ave
SW 1355th Ave
SW 1356th Ave
SW 1357th Ave
SW 1358th Ave
SW 1359th Ave
SW 1360th Ave
SW 1361st Ave
SW 1362nd Ave
SW 1363rd Ave
SW 1364th Ave
SW 1365th Ave
SW 1366th Ave
SW 1367th Ave
SW 1368th Ave
SW 1369th Ave
SW 1370th Ave
SW 1371st Ave
SW 1372nd Ave
SW 1373rd Ave
SW 1374th Ave
SW 1375th Ave
SW 1376th Ave
SW 1377th Ave
SW 1378th Ave
SW 1379th Ave
SW 1380th Ave
SW 1381st Ave
SW 1382nd Ave
SW 1383rd Ave
SW 1384th Ave
SW 1385th Ave
SW 1386th Ave
SW 1387th Ave
SW 1388th Ave
SW 1389th Ave
SW 1390th Ave
SW 1391st Ave
SW 1392nd Ave
SW 1393rd Ave
SW 1394th Ave
SW 1395th Ave
SW 1396th Ave
SW 1397th Ave
SW 1398th Ave
SW 1399th Ave
SW 1400th Ave
SW 1401st Ave
SW 1402nd Ave
SW 1403rd Ave
SW 1404th Ave
SW 1405th Ave
SW 1406th Ave
SW 1407th Ave
SW 1408th Ave
SW 1409th Ave
SW 1410th Ave
SW 1411th Ave
SW 1412th Ave
SW 1413th Ave
SW 1414th Ave
SW 1415th Ave
SW 1416th Ave
SW 1417th Ave
SW 1418th Ave
SW 1419th Ave
SW 1420th Ave
SW 1421st Ave
SW 1422nd Ave
SW 1423rd Ave
SW 1424th Ave
SW 1425th Ave
SW 1426th Ave
SW 1427th Ave
SW 1428th Ave
SW 1429th Ave
SW 1430th Ave
SW 1431st Ave
SW 1432nd Ave
SW 1433rd Ave
SW 1434th Ave
SW 1435th Ave
SW 1436th Ave
SW 1437th Ave
SW 1438th Ave
SW 1439th Ave
SW 1440th Ave
SW 1441st Ave
SW 1442nd Ave
SW 1443rd Ave
SW 1444th Ave
SW 1445th Ave
SW 1446th Ave
SW 1447th Ave
SW 1448th Ave
SW 1449th Ave
SW 1450th Ave
SW 1451st Ave
SW 1452nd Ave
SW 1453rd Ave
SW 1454th Ave
SW 1455th Ave
SW 1456th Ave
SW 1457th Ave
SW 1458th Ave
SW 1459th Ave
SW 1460th Ave
SW 1461st Ave
SW 1462nd Ave
SW 1463rd Ave
SW 1464th Ave
SW 1465th Ave
SW 1466th Ave
SW 1467th Ave
SW 1468th Ave
SW 1469th Ave
SW 1470th Ave
SW 1471st Ave
SW 1472nd Ave
SW 1473rd Ave
SW 1474th Ave
SW 1475th Ave
SW 1476th Ave
SW 1477th Ave
SW 1478th Ave
SW 1479th Ave
SW 1480th Ave
SW 1481st Ave
SW 1482nd Ave
SW 1483rd Ave
SW 1484th Ave
SW 1485th Ave
SW 1486th Ave
SW 1487th Ave
SW 1488th Ave
SW 1489th Ave
SW 1490th Ave
SW 1491st Ave
SW 1492nd Ave
SW 1493rd Ave
SW 1494th Ave
SW 1495th Ave
SW 1496th Ave
SW 1497th Ave
SW 1498th Ave
SW 1499th Ave
SW 1500th Ave
SW 1501st Ave
SW 1502nd Ave
SW 1503rd Ave
SW 1504th Ave
SW 1505th Ave
SW 1506th Ave
SW 1507th Ave
SW 1508th Ave
SW 1509th Ave
SW 1510th Ave
SW 1511th Ave
SW 1512th Ave
SW 1513th Ave
SW 1514th Ave
SW 1515th Ave
SW 1516th Ave
SW 1517th Ave
SW 1518th Ave
SW 1519th Ave
SW 1520th Ave
SW 1521st Ave
SW 1522nd Ave
SW 1523rd Ave
SW 1524th Ave
SW 1525th Ave
SW 1526th Ave
SW 1527th Ave
SW 1528th Ave
SW 1529th Ave
SW 1530th Ave
SW 1531st Ave
SW 1532nd Ave
SW 1533rd Ave
SW 1534th Ave
SW 1535th Ave
SW 1536th Ave
SW 1537th Ave
SW 1538th Ave
SW 1539th Ave
SW 1540th Ave
SW 1541st Ave
SW 1542nd Ave
SW 1543rd Ave
SW 1544th Ave
SW 1545th Ave
SW 1546th Ave
SW 1547th Ave
SW 1548th Ave
SW 1549th Ave
SW 1550th Ave
SW 1551st Ave
SW 1552nd Ave
SW 1553rd Ave
SW 1554th Ave
SW 1555th Ave
SW 1556th Ave
SW 1557th Ave
SW 1558th Ave
SW 1559th Ave
SW 1560th Ave
SW 1561st Ave
SW 1562nd Ave
SW 1563rd Ave
SW 1564th Ave
SW 1565th Ave
SW 1566th Ave
SW 1567th Ave
SW 1568th Ave
SW 1569th Ave
SW 1570th Ave
SW 1571st Ave
SW 1572nd Ave
SW 1573rd Ave
SW 1574th Ave
SW 1575th Ave
SW 1576th Ave
SW 1577th Ave
SW 1578th Ave
SW 1579th Ave
SW 1580th Ave
SW 1581st Ave
SW 1582nd Ave
SW 1583rd Ave
SW 1584th Ave
SW 1585th Ave

Completeness of Road Network Within 2040 Centers and Station Communities

Metropolitan Transportation Improvement Program

Metro



— Existing road
— completed with MTIP 2021-24 project
— Proposed street with no projected completion

Metropolitan Planning Area
2040 Centers and Station Communities

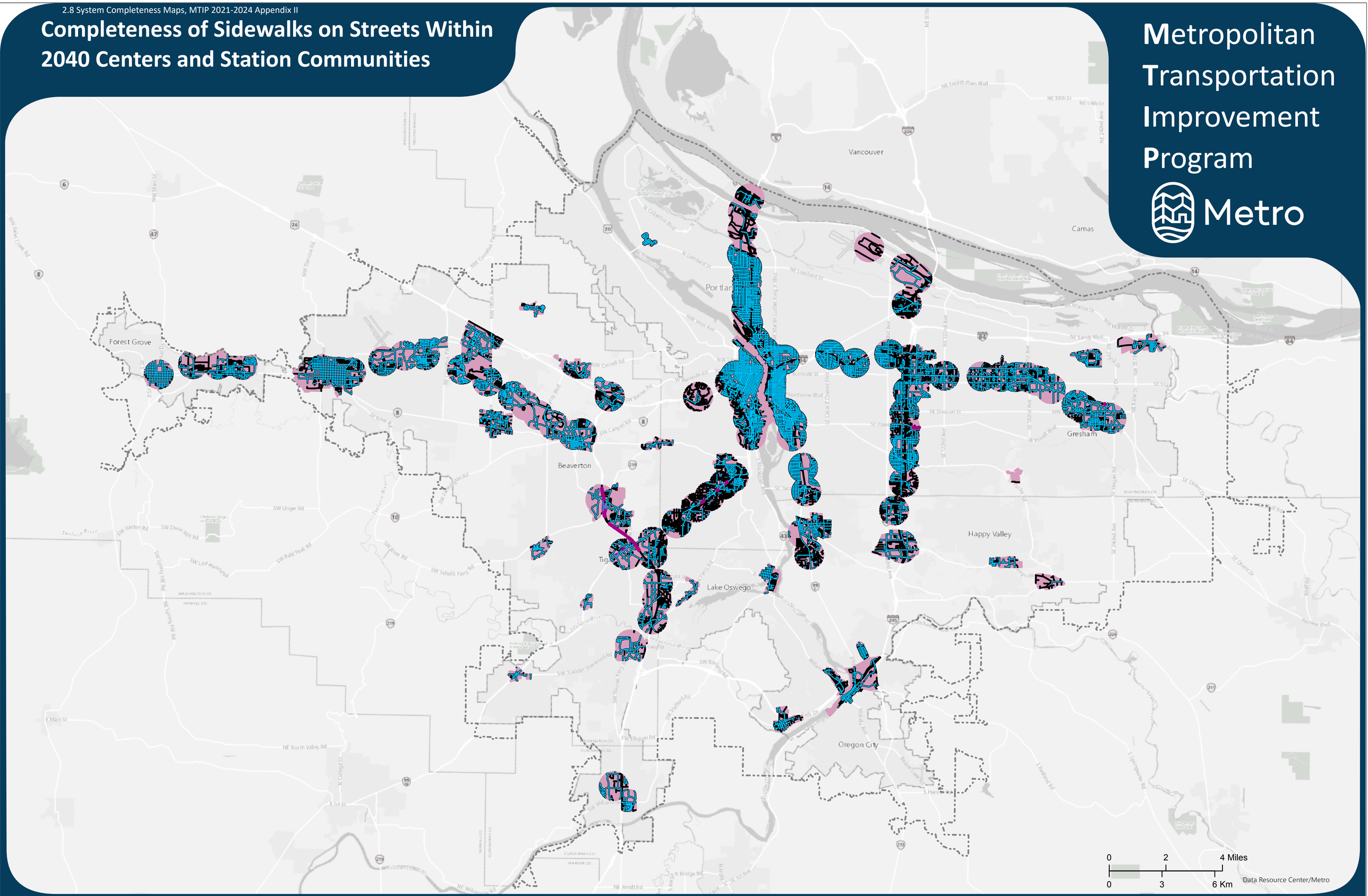
May 2020

This information is for discussion purposes and does not necessarily reflect current or future policy decisions of the Metro Council. The information is subject to change pending final modeling and analysis in 2020.

Completeness of Sidewalks on Streets Within 2040 Centers and Station Communities

Metropolitan Transportation Improvement Program

Metro



— Existing sidewalk
— completed with MTIP 2021-24 project
— Street with no projected sidewalk completion

Metropolitan Planning Area
2040 Centers and Station Communities

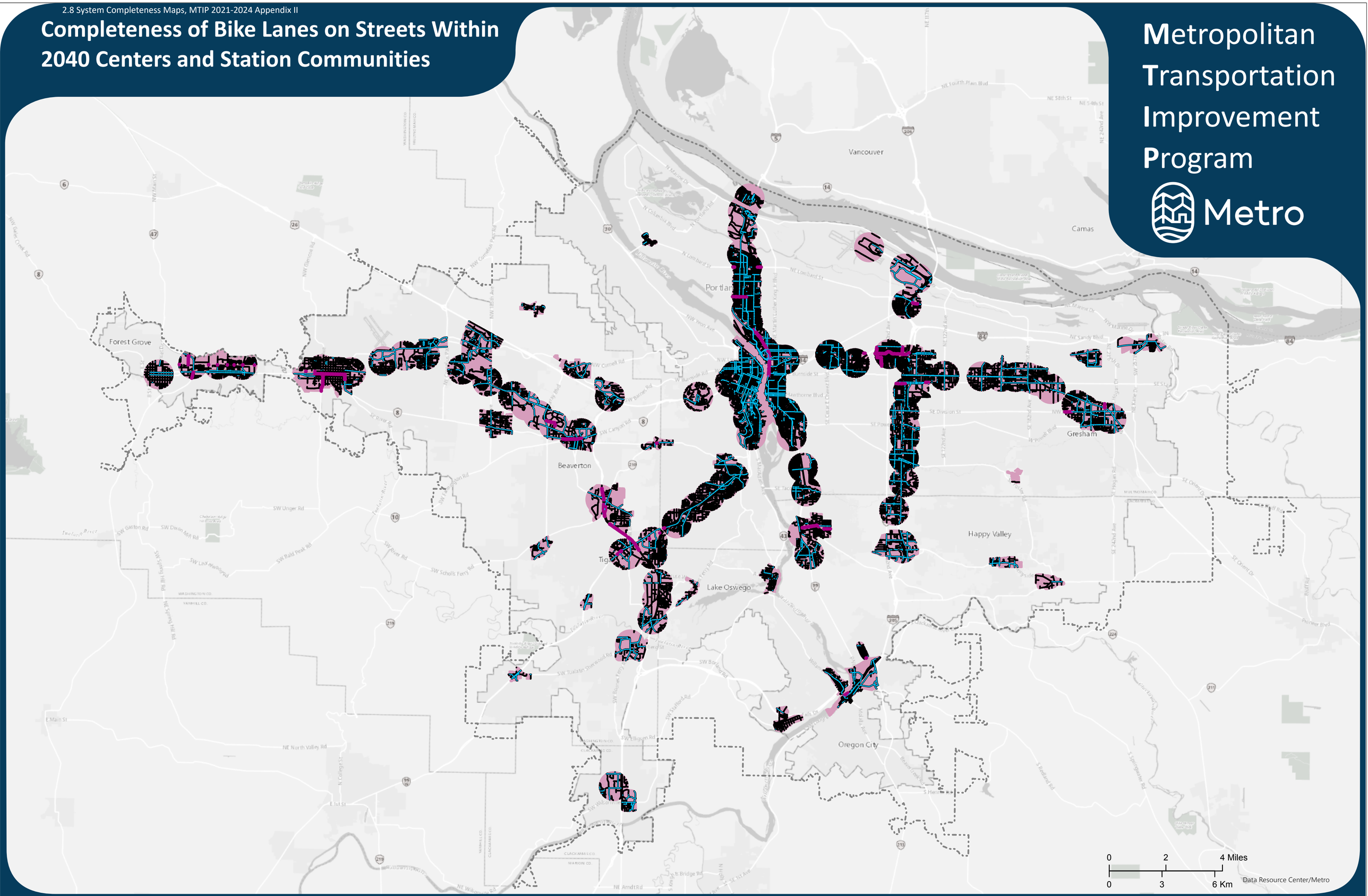
May 2020

This information is for discussion purposes and does not necessarily reflect current or future policy decisions of the Metro Council. The information is subject to change pending final modeling and analysis in 2020.

Completeness of Bike Lanes on Streets Within 2040 Centers and Station Communities

Metropolitan Transportation Improvement Program

Metro



Existing bike lanes
completed with MTIP 2021-24 project
Street with no projected bikeway completion

Metropolitan Planning Area
2040 Centers and Station Communities

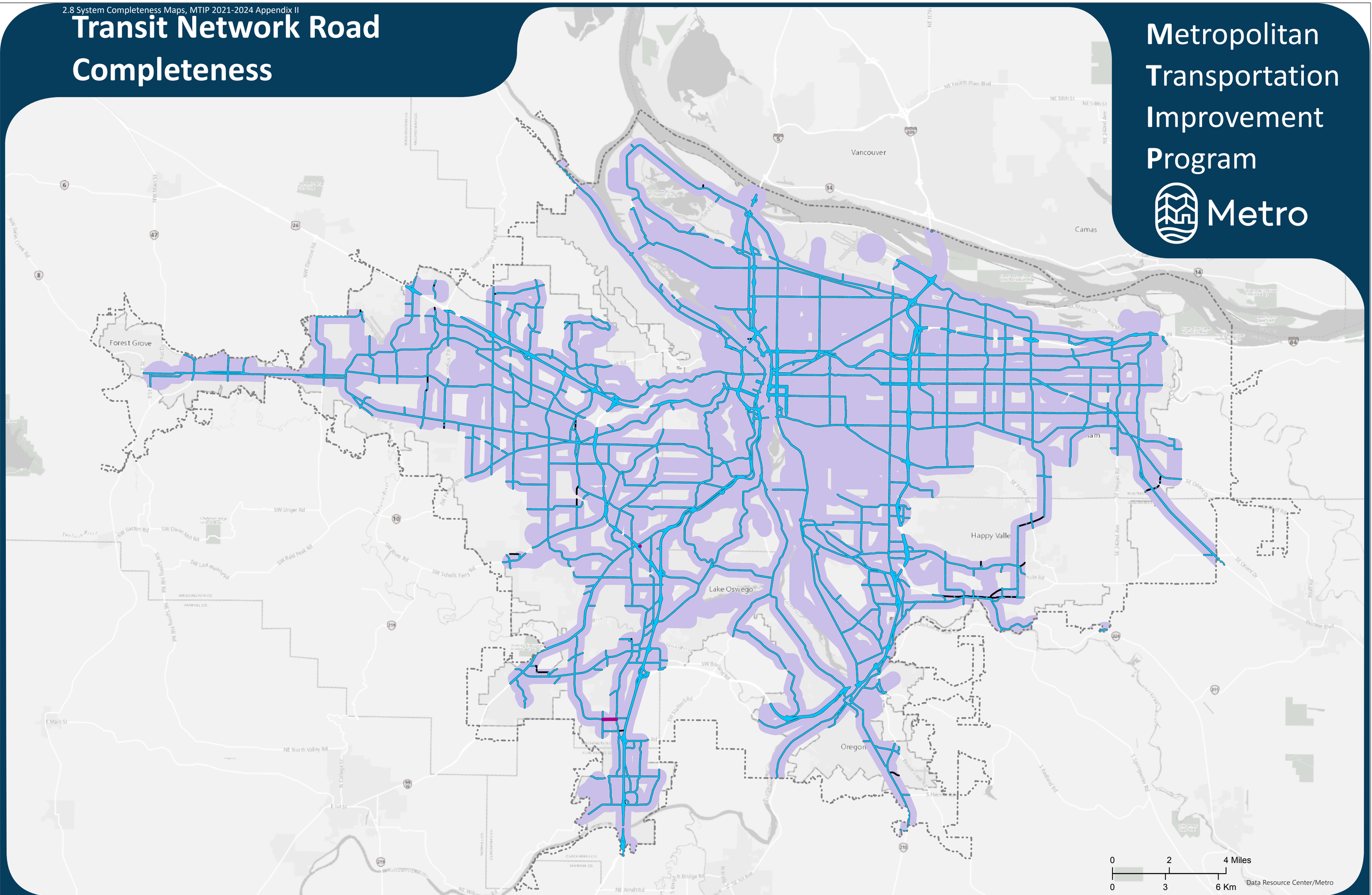
May 2020

This information is for discussion purposes and does not necessarily reflect current or future policy decisions of the Metro Council. The information is subject to change pending final modeling and analysis in 2020.

Transit Network Road Completeness

Metropolitan Transportation Improvement Program

Metro



— Existing road
— completed with MTIP 2021-24 project
— Planned regional road network

Metropolitan Planning Area
Transit Stop and Station Areas

May 2020

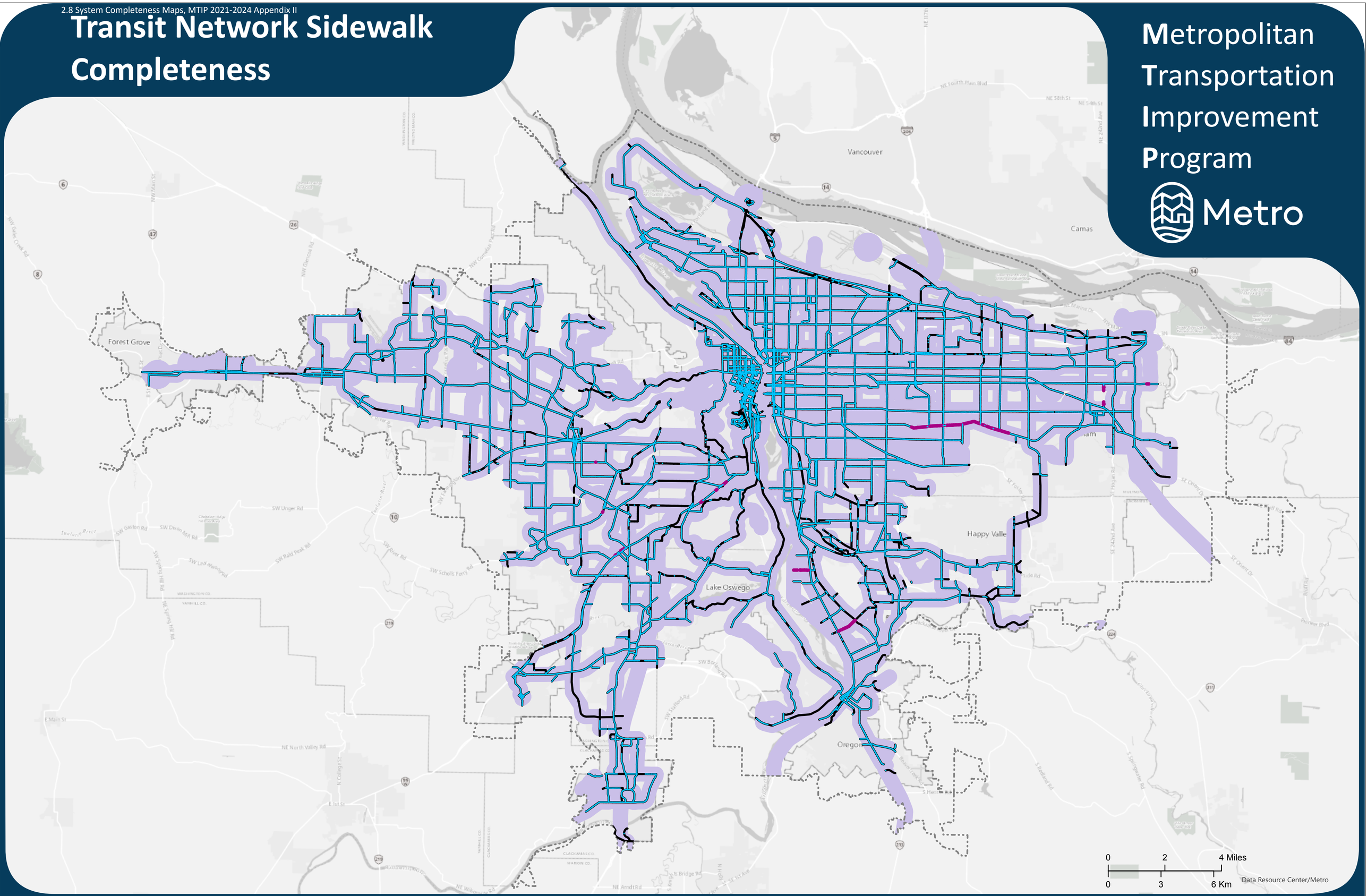
1/2 mile from light rail stop, 1/3 mile from street car line, 1/4 mile from bus line

This information is for discussion purposes and does not necessarily reflect current or future policy decisions of the Metro Council. The information is subject to change pending final modeling and analysis in 2020.

Transit Network Sidewalk Completeness

Metropolitan Transportation Improvement Program

Metro



— Existing sidewalk
— completed with MTIP 2021-24 project
— Sidewalk Network Within Transit Network

Metropolitan Planning Area
Transit Stop and Station Areas

May 2020

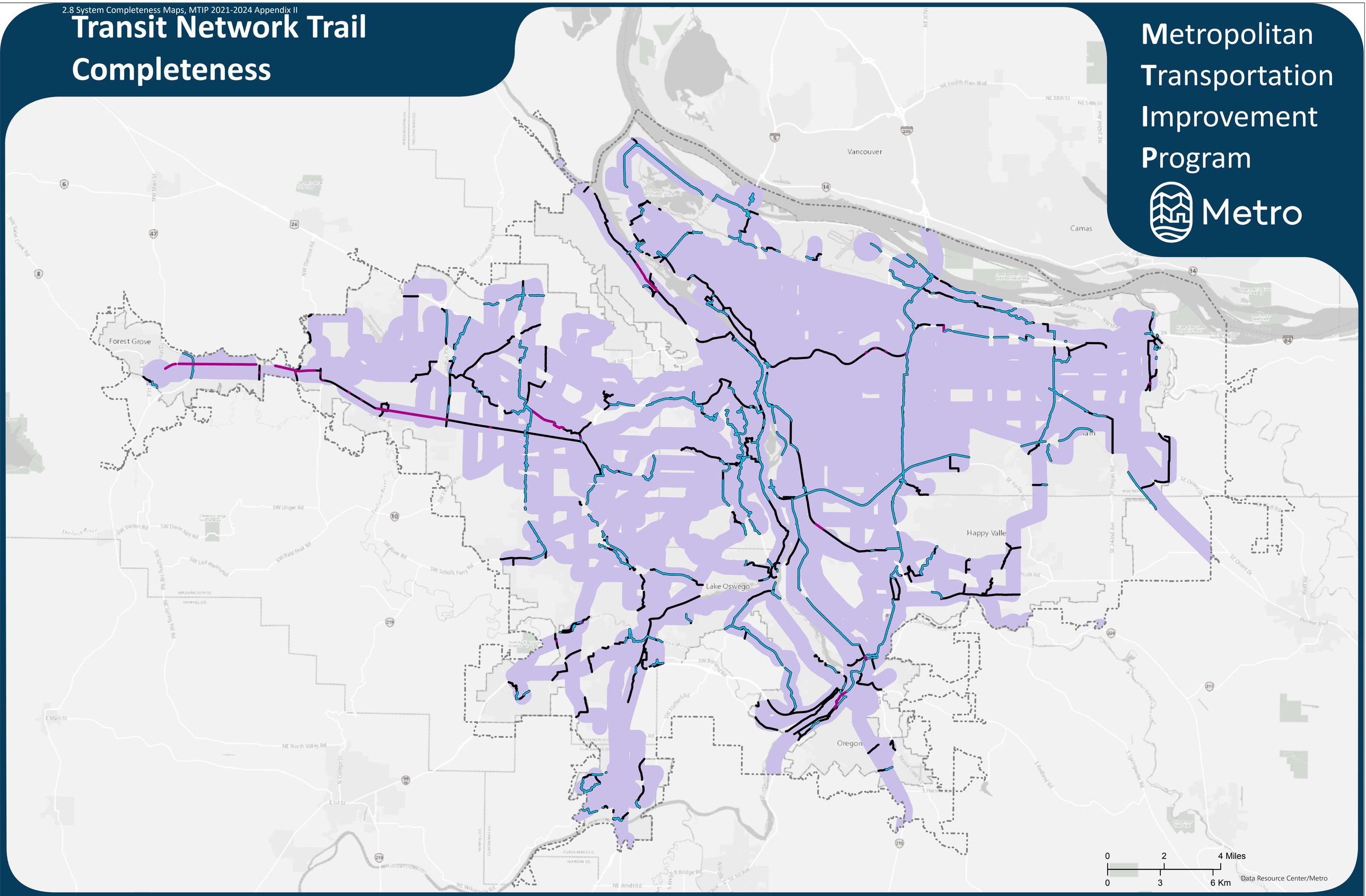
1/2 mile from light rail stop, 1/3 mile from street car line, 1/4 mile from bus line

This information is for discussion purposes and does not necessarily reflect current or future policy decisions of the Metro Council. The information is subject to change pending final modeling and analysis in 2020.

Transit Network Trail Completeness

Metropolitan Transportation Improvement Program

Metro



— Existing trails
— completed with MTIP 2021-24 project
— Regional Trail Network Within Transit Network

Metropolitan Planning Area
Transit Stop and Station Areas

May 2020

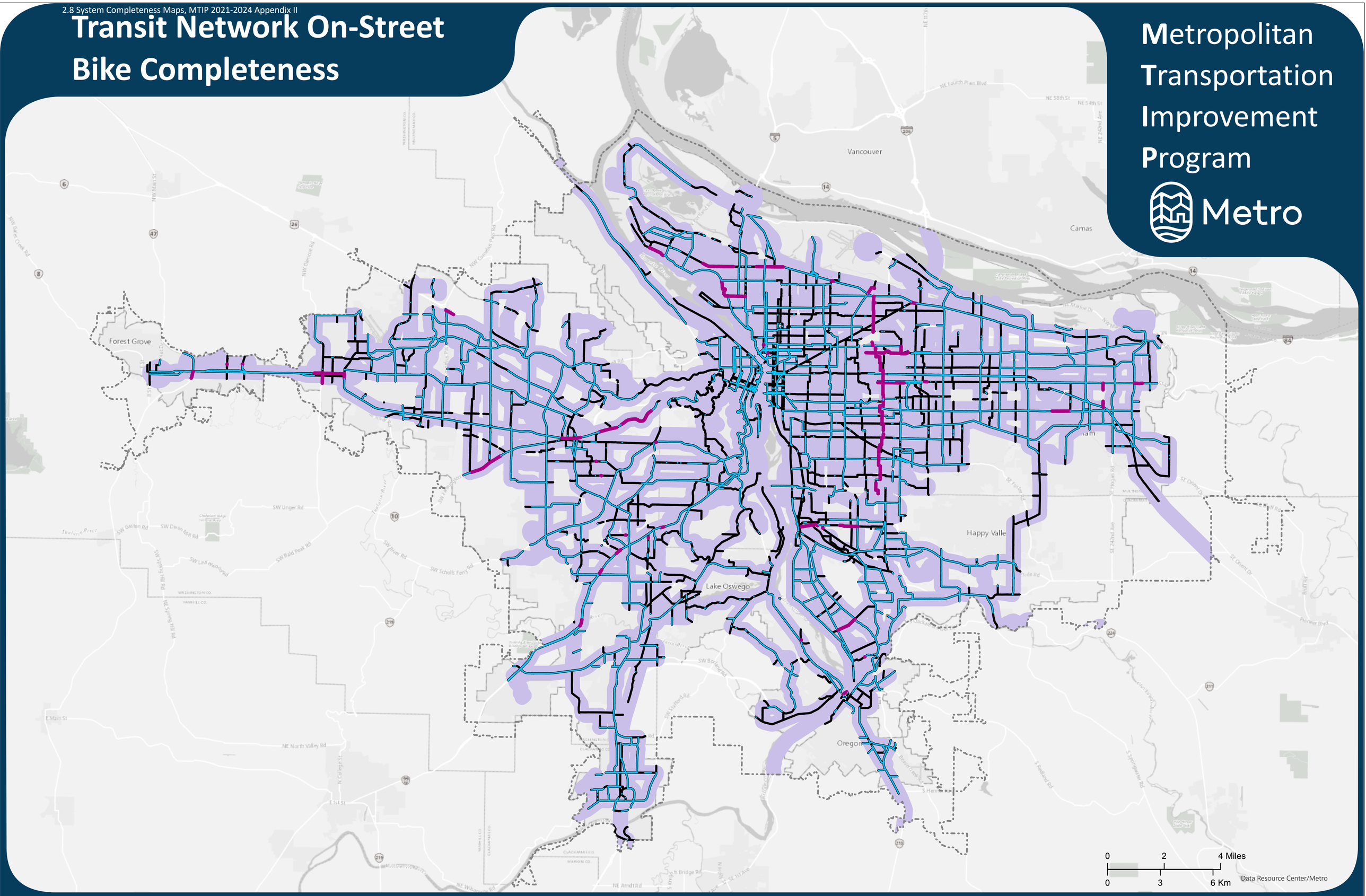
1/2 mile from light rail stop, 1/3 mile from street car line, 1/4 mile from bus line

This information is for discussion purposes and does not necessarily reflect current or future policy decisions of the Metro Council. The information is subject to change pending final modeling and analysis in 2020.

Transit Network On-Street Bike Completeness

Metropolitan Transportation Improvement Program

Metro



— Existing on-street bikeways
— completed with MTIP 2021-24 project
— On-Street Bike Network Within Transit Network

Metropolitan Planning Area
Transit Stop and Station Areas

May 2020

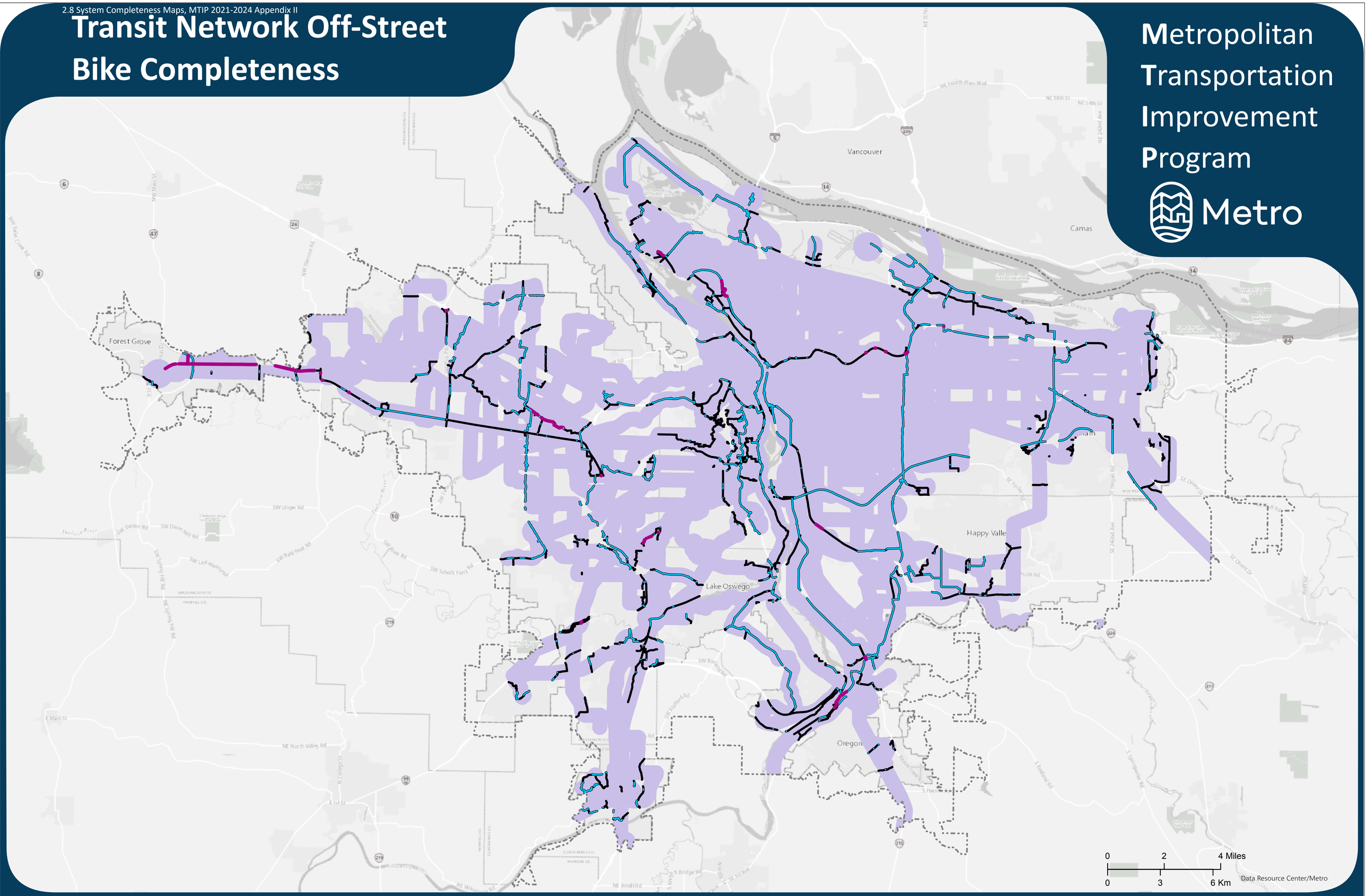
1/2 mile from light rail stop, 1/3 mile from street car line, 1/4 mile from bus line

This information is for discussion purposes and does not necessarily reflect current or future policy decisions of the Metro Council. The information is subject to change pending final modeling and analysis in 2020.

Transit Network Off-Street Bike Completeness

Metropolitan Transportation Improvement Program

Metro



— Existing off-street bikeways
— completed with MTIP 2021-24 project
— Off-Street Bike Network Within Transit Network

Metropolitan Planning Area
Transit Stop and Station Areas

May 2020

1/2 mile from light rail stop, 1/3 mile from street car line, 1/4 mile from bus line

This information is for discussion purposes and does not necessarily reflect current or future policy decisions of the Metro Council. The information is subject to change pending final modeling and analysis in 2020.

Subject: MAP-21/NPMRDS performance measures for 2017-2019 (MTIP 2020 final numbers)

Author: Joe Broach <joe.broach@oregonmetro.gov>

Date: Mar 6, 2020

To: Grace Cho

cc: Peter Bosa, Chris Johnson, Tim Collins

Summary:

- Due to late changes in data (NPMRDS v2) and guidance at the time, initial calculations made for 2017 did not fully align with current data and guidance.
- We produced updated 2017 performance metrics for each highway performance measure and also calculated 2018-2019 using current NPMRDS data and FHWA guidance to maximize comparability across years.
- For 2019, the NPMRDS changed base map providers from TomTom to HERE, and we analyzed the change in our region
    - Changes to reporting NHS links were significant (10-15% reduction in reported NHS mileage). We're working with NPMRDS technical staff to understand the discrepancy.
    - We tested sensitivity of the highway performance metrics to the network changes by applying the new (2019) base network to 2017-2018 travel time data. Results were largely stable, and we feel comparisons across networks are still meaningful.
- Revised estimates (Table 1) show improved reliability on all measures compared with the initial 2017 calculations. Reliability has also shown an improving trend over time, and continues to exceed reliability targets across all facility types and vehicle classes.
- Appendix A provides overview maps of the NPMRDS TMC network used for this reporting.
- Appendix B provides detailed comments on our updated methodology.

Table 1 Results

	2017 (RTP)[1]	2017 (New)	2018	2019	**2020 Target (RTP)[1]**
% Interstate reliable	**43%**	45.5%	46.3%	49.6%	**43%**
% non-Interstate reliable	**66%**	71.7%	73.8%	77.2%	**66%**
Truck Travel Time Reliability (TTTR) Index	**3.17**	2.93	2.88	2.82	**3.10**
Person-hours excess delay (PHED)	**22.13**	*Not calculated*	*Not calculated*	*Not calculated*	**24.34**
NHS interstate miles reporting	*Not calculated*	156.5	159.2	132.3	
NHS non-interstate miles reporting	*Not calculated*	543.7	546.0	516.1	

[1] Figures provided for RTP, using outdated methodology and data

Appendix A – NPMRDS TMC Network Maps

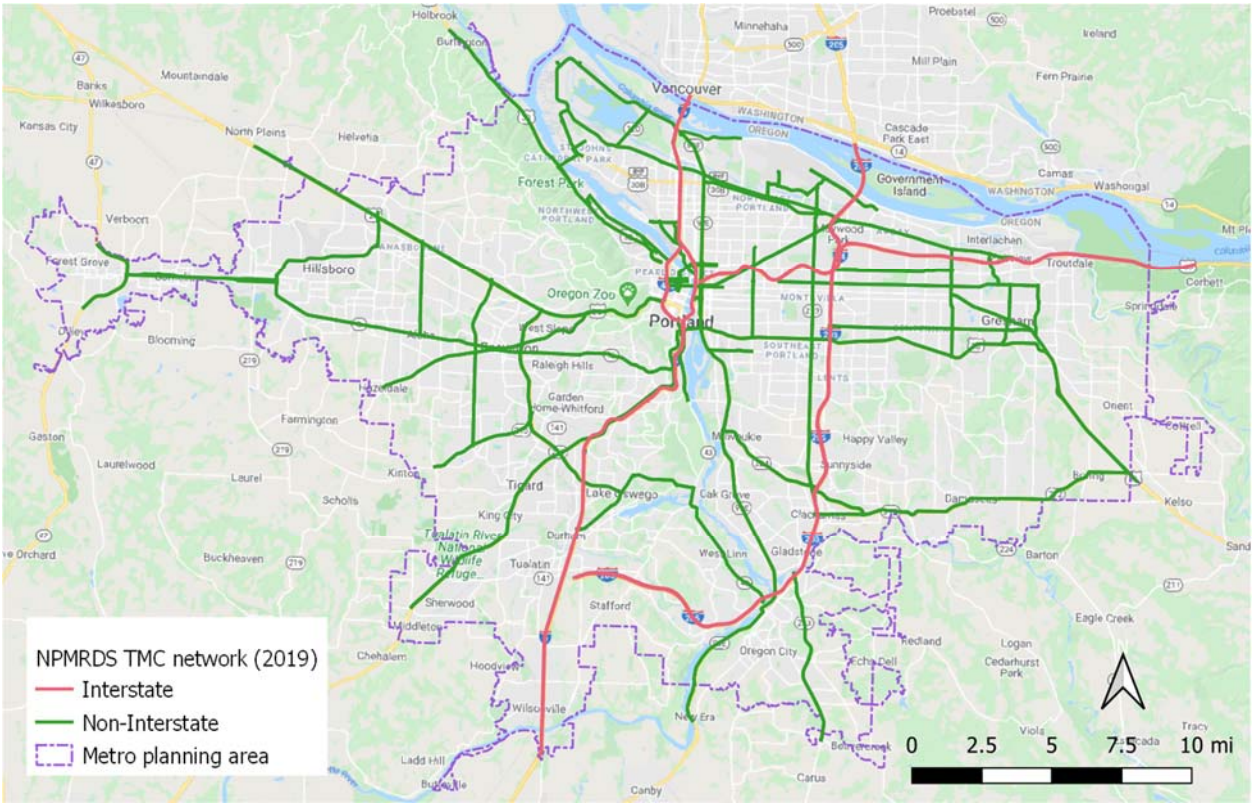


Figure A1 Overview of NPMRDS TMC analysis network for Portland region

Appendix B – Calculation Notes

Methods primarily followed the FHWA June 2018 guidance (https://www.fhwa.dot.gov/tpm/guidance/hif18040.pdf). Where guidance was unclear or specific decisions or assumptions were made, we note them here.

- Data were downloaded via the ritis.org Massive Data Download tool in Feb 2020. Shapefiles of the conflated NPMRDS networks were also downloaded from ritis.org.

For MPO reporting, only reporting segments within the MPO Planning Boundary are used in these calculations. (FHWA 2018, 2-8)

- It was unclear how to handle segments that straddled the boundary. We elected to include all available segments with majority of their length inside the boundary. This was done manually via GIS calculations for each year's network.
- Occupancy factors used were
    - Auto = 1.4
    - Bus = 12.6
    - Truck = 1.0

References

FHWA. (2018). https://www.fhwa.dot.gov/tpm/guidance/hif18040.pdf (National Performance Measures for Congestion, Reliability, and Freight, and CMAQ Traffic Congestion General Guidance and Step-by-Step Metric Calculation Procedures). June.