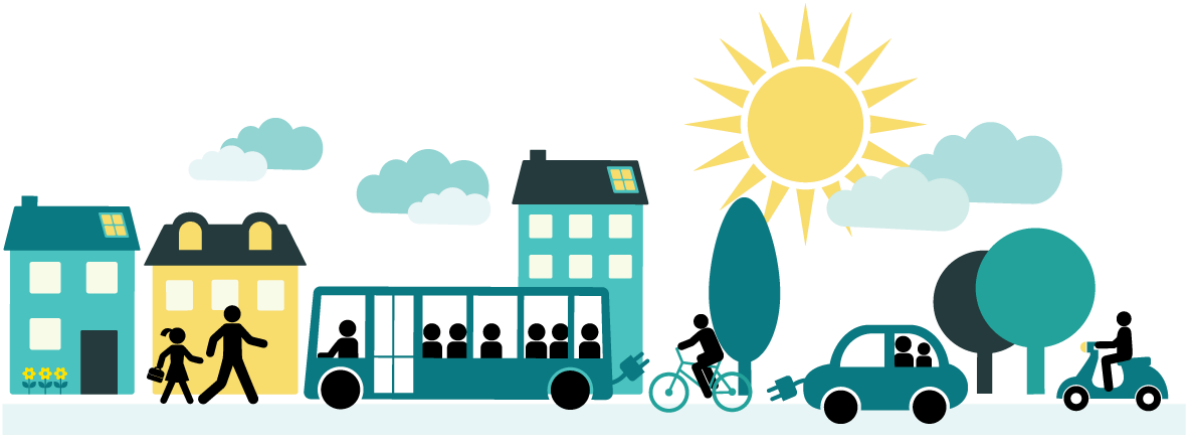
2023 Major Report on Climate-Friendly and Equitable Communities (CFEC) Implementation



Prepared by Metro on behalf of the Portland metropolitan area and submitted to the Department of Land Conservation and Development pursuant to OAR 660-012-0900

May 30, 2024

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

The Joint Policy Advisory Committee on Transportation (JPACT) is a 17-member committee that provides a forum for elected officials and representatives of agencies involved in transportation to evaluate transportation needs in the region and to make recommendations to the Metro Council. The established decision-making process assures a well-balanced regional transportation system and involves local elected officials directly in decisions that help the Metro Council develop regional transportation policies, including allocating transportation funds. JPACT serves as the MPO board for the region in a unique partnership that requires joint action with the Metro Council on all MPO decisions.

Project website: **oregonmetro.gov/rtp**

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

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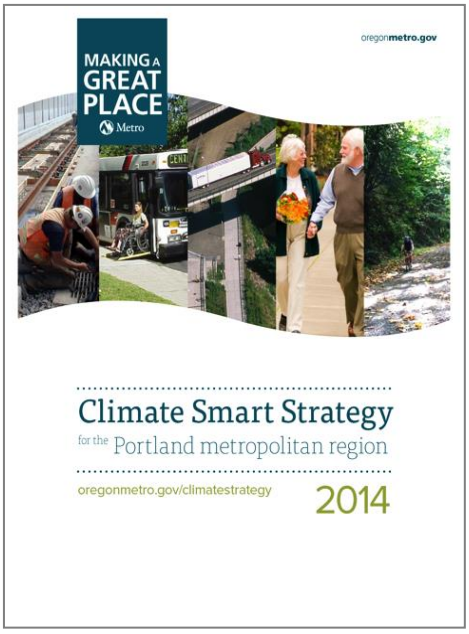
EXECUTIVE SUMMARY

The Climate Smart Strategy provides the policy foundation for meeting state-mandated greenhouse gas emissions reduction targets under [OAR 660-044-0200] for the Portland metropolitan area. Adopted in 2014 with broad support from community, business and elected leaders, the strategy is the preferred land use and transportation scenario under [OAR 660-044-0040] and fulfills a state legislative mandate requiring Metro to develop and implement a strategy to reduce per capita greenhouse gas emissions from cars and light trucks from 2005 emissions levels by at least 20% by 2035, 25% by 2040, 30% by 2045 and 35% by 2050. The Land Conservation and Development Commission acknowledged the adopted strategy in May 2015.



The 2023 Regional Transportation Plan is a key tool for the greater Portland region to implement the adopted Climate Smart Strategy.

The Climate Smart Strategy continues to be implemented through regional and local plans and policies, including:

- Metro's Regional Framework Plan
- Metro's 2040 Growth Concept
- Metro's Regional Transportation Plan (a regional transportation system plan under state law)
- Supporting modal and topical plans and strategies, including the following:
    - Regional High Capacity Transit Strategy (2023)
    - Regional Transit Oriented Development Program Strategic Plan (2023)
    - Regional Transit Strategy (2018)
    - Regional Transportation System Management and Operations Strategy (2022)
    - Regional Travel Options Strategy (2018)
    - Regional Transportation Safety Strategy (2018)
    - Regional Freight Strategy (2018)
    - Regional Active Transportation Plan (2014)

- Metro Code Chapter 3.07 (the "Urban Growth Management Functional Plan" or "UGMFP") and Chapter 3.08 (the "Regional Transportation Functional Plan" or "RTFP") provide standards, tools, and guidance for local land use plans, transportation system plans, and implementing regulations that are necessary to advance the regional vision, goals, and policies of Metro's Regional Framework Plan, the 2040 Growth Concept and the Regional Transportation Plan.

As required by OAR 660-012-0900(5), the *2023 Major Report on Climate-Friendly and Equitable Communities (CFEC) Implementation* summarizes the Portland metropolitan area's progress implementing the Climate Smart Strategy and new transportation planning rules adopted in 2022 and 2023. This is the first report prepared under the new transportation planning rules.[1]

This major report has been prepared for the calendar year 2023 and includes the following elements:

Exhibit A: Minor Report Elements summarizes the state of coordinated local and regional land use and transportation planning in the Portland metropolitan area, information about the current acknowledged RTP, anticipated near-term activities to support RTP and CFEC implementation, progress conducting equitable engagement, and the equity analyses conducted for the 2023 RTP. This exhibit addresses the reporting elements identified in OAR 660-012-0900(6).

Exhibit B: Local Transportation System Plan Status Report summarizes adoption dates and planning horizons for existing transportation system plans (TSPs) and anticipated timing for future TSP updates. The transportation planning rules do not specify a deadline for TSP updates in the Portland metropolitan area. The timing of future updates is dependent upon local resources and staff capacity as well as state support and technical assistance, which is provided through the Oregon Department of Transportation TSP Funding Program, the Oregon Transportation and Growth Management Program and other CFEC implementation technical assistance activities. This exhibit also summarizes alternate dates approved by the DLCD director for certain transportation planning rules for cities and counties in the Portland area that would result in amendments to existing TSPs. Most alternate dates were for the rules that address performance standards in OAR 660-012-0215 and parking reform in OAR 660-012-0400.

Exhibit C: Metro 2023 Compliance Report summarizes the status of compliance with the UGMFP and RTFP for each city and county in the region. As of December 31, 2023, all

[1] The first Climate Smart Strategy Implementation and Monitoring Report was prepared as part of the Regional Transportation Plan (RTP) update in 2018. The report is contained in Appendix J to the 2018 RTP.

cities and counties are in compliance with the UGMFP and RTFP, with the exception of a few jurisdictions that continue to work to satisfy UGMFP Title 11 requirements related to planning for areas previously added to the urban growth boundary (UGB).

Exhibit D: 2023 Regional Transportation Plan Appendix D: Public Engagement and Consultation Summary summarizes all engagement and consultation activities conducted in support of the 2023 RTP update. The exhibit also provides a list of all engagement reports prepared during the process. This exhibit addresses the reporting elements in OAR 660-012-0900(6), specifically OAR 660-012-0130.

Exhibit E: Major Report Describing Progress Toward Climate Performance Targets summarizes the key mitigation approaches adopted in the region's Climate Smart Strategy, implementation activities since 2014 and the most recent analysis and monitoring conducted as part of the 2023 Regional Transportation Plan update. This exhibit addresses the reporting elements in OAR 660-044-0060, OAR 660-044-0110, OAR 660-012-0900(7), OAR 660-012-0905 and OAR 660-012-0910. The findings in Exhibit E demonstrate the 2023 RTP—if fully implemented along with state-led pricing actions adopted in the Statewide Transportation Strategy and assumed in the region's targets—surpasses the state mandated household-based VMT per capita reduction targets. However, the findings also show mixed progress on implementation of several key elements of the region's adopted Climate Smart Strategy. As a result, and as required by OAR 660-012-0900(7)(D), the report identifies several future actions and recommendations that will be addressed prior to the next update to the RTP (due by November 30, 2028). These actions and recommendations are also reflected in Chapter 8 of the 2023 RTP.

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EXHIBIT A: MINOR REPORT ELEMENTS

Exhibit A: Minor Report Elements	
Applicable state rule	**Documentation**

OAR 660-012-0900(6)(a)
 	
A narrative summary of the state of coordinated land use and transportation planning in the planning area over the reporting year, including any relevant activities or projects undertaken or planned.
	Metro completed a major update to the Regional Transportation Plan in November 2023. The entirety of the 2023 RTP as adopted by the Metro Council is incorporated into this report through the hyperlinks below. The update included these relevant activities:
	
	• **Adoption of Ordinance No. 23-1496 and the following exhibits:**
	  ○ **Exhibit A: 2023 Regional Transportation Plan and Technical Appendices**
	  ○ **Exhibit B: Chapter 2 Regional Framework Plan Amendments**
	  ○ **Exhibit C (Part 1 and Part 2): Recommended Actions to Address Public Comments Received**
	  ○ **Exhibit D: Findings of Fact and Conclusions of Law**
	• **Updated the RTP climate goal, objectives, and policies to inform investment priorities.**
	• **Piloted a project-level assessment of the RTP project list with respect to RTP goal areas**—safety, climate, equity, mobility and economy—to inform investment priorities.
	• **Updated the regional mobility policy in partnership with ODOT.** The new policy replaces the "volume to capacity" vehicle throughput-focused approach to identifying transportation needs and prioritizing projects. Developed collaboratively by Metro, ODOT and regional partners, the new approach focuses on safety, mobility and access using three measures to identify needs and priorities: household-based vehicle miles traveled per capita, system completion of all modes (including TSMO and TDM) and throughway reliability. The policy addresses OAR 660-012-0160 and OAR 660-012-0215.

Exhibit A: Minor Report Elements	
Applicable state rule	**Documentation**
	• **Convened a Climate and Transportation Expert Panel with JPACT and the Metro Council** to learn about national best practices and tools for climate analysis, build a shared understanding of state requirements and set the foundation for regional collaboration to reduce climate pollution through the RTP. • **Improved climate modeling tools and methods to align with state target rule evaluation methods** (OAR 660-044) **and planning requirements** (OAR 660-012) as documented in the Climate Smart Strategy Implementation Monitoring Report (in Appendix J to the 2023 RTP). **Convened an internal Metro Climate Justice Task Force** to create a framework to envision, develop, implement and coordinate regional climate justice and resilience strategies across Metro departments. **Led an EPA Climate Pollution Reduction regional planning grant** for the Portland-Vancouver metropolitan statistical area that led to development of a Priority Climate Action Plan (completed in March 2024) and will create a Comprehensive Climate Action Plan (by July 2025) for the region. The PCAP established eligibility of Metro and agency partners for Climate Pollution Reduction implementation grants offered by EPA. The transportation element of the CCAP will advance implementation of the Climate Smart Strategy. **Conducted an expedited allocation of nearly $19 million of federal Carbon Reduction Program (CRP) funds to these Climate Smart Strategy priorities**: o Project development to advance bus rapid transit in the Tualatin Valley Highway and 82nd Avenue corridors. o Transit signal priority in the McLoughlin Boulevard corridor.

Exhibit A: Minor Report Elements	
Applicable state rule	**Documentation**
	○ Transportation system management and operations (TSMO) investments in priority TSMO corridors throughout the region. The allocation of the CRP funds was directed by policies from the RTP, Climate Smart Strategy, the Regional Transportation System Management and Operations Strategy (2022), the Oregon Carbon Reduction Strategy (2023), and federal eligibility rules. A second allocation is planned in 2025. Metro also coordinated with ODOT on development of the Oregon Carbon Reduction Strategy. **Initiated an update to the Urban Growth Report.** Metro began working with state and local partners to develop the 2024 Urban Growth Report for adoption by the Metro Council by Dec. 31, 2024. More information about this work is in the near-term regional planning activities. **Local communities and transit agencies in the Portland region have also demonstrated leadership in developing localized strategies and policies to reduce greenhouse gas emissions and mitigate the impacts of climate change in support of implementation of the Climate Smart Strategy**. • **Development and ongoing implementation of climate action plans.** At least one-third of the region's cities, counties, and transit agencies have adopted local climate action plans, including: ○ City of Milwaukie's Community Climate Action Plan ○ TriMet's Climate Action Plan and Non-Diesel Bus Plan ○ City of Portland's Climate Emergency Workplan and Pathways to Net-Zero Carbon by 2050 ○ City of Beaverton's Climate Action Plan ○ City of Lake Oswego's Sustainability and Climate Action Plan ○ Clackamas County's Climate Action Plan

Exhibit A: Minor Report Elements	
Applicable state rule	**Documentation**
	○ City of Tigard's Climate Action Report ○ Multnomah County's Climate Action Plan, 2020 Progress Report, and Climate Justice Plan ○ City of Gresham's Climate Action Strategies ○ City of Hillsboro's 2035 Community Plan (includes an extensive set of climate-related Energy and Mobility Actions) • **Updates to local parking codes.** The cities of Portland, Beaverton and Tigard repealed all parking mandates in 2023. • **Updates to transportation system plans.** The cities of King City, Tualatin, Milwaukie and Beaverton initiated updates to their TSPs in 2023 that will continue in 2024. **CFEC exemptions in the Portland area.** The director of DLCD approved exemptions from certain requirements in the Transportation Planning Rules for the cities of Durham, Johnson City, King City, Maywood Park and Rivergrove. The city of King City was issued an exemption through Dec. 16, 2024. The Durham exemption was granted through Jan. 4, 2033. The remaining exemptions expire on Jan. 10, 2033.[2] **CFEC alternate dates in the Portland area.** The transportation planning rules do not specify a deadline for TSP updates in the Portland metropolitan area. The director of DLCD approved alternate dates for certain transportation planning rules for cities in the Portland area that would result in amendments to existing TSPs. Most alternate dates were for the performance standards rules and the parking reform "Part B" rules. • Performance standards alternate dates were approved for Clackamas County (12/31/25), Washington County (6/30/27) and the cities of Cornelius (6/30/26), Fairview (6/30/27), Happy Valley (6/30/27), Oregon City

[2] The exemptions apply to rules in OAR 660-012-0100 through 660-012-0920.

Exhibit A: Minor Report Elements	
Applicable state rule	**Documentation**
	(12/31/26), Troutdale (6/30/27), West Linn (6/30/27), Wilsonville (6/30/27), and Wood Village (6/30/28). • Parking Reform Part B alternate dates were approved for Clackamas County (6/30/24), Washington County (12/31/24) and the cities of Beaverton (12/31/23), Cornelius (9/30/24), Fairview (12/31/224), Forest Grove (12/31/24), Gladstone (6/30/24), Gresham (12/31/23 and 12/31/25), Happy Valley (12/31/24), Hillsboro (6/30/24), Lake Oswego (12/31/24), Milwaukie (6/30/24), Oregon City (12/31/24), Portland (12/31/25), Sherwood (9/14/24), Tigard (12/31/23), Troutdale (6/30/25), Tualatin (7/20/24), West Linn (12/31/24), Wilsonville (6/30/25), and Wood Village (6/30/25). • **Land use (4)(e) alternate dates were approved** for Cornelius (6/30/25) and Gresham (12/31/25). • **Parking Pricing (4)(g)(A) and (4)(g)(B) alternate dates were approved** for Gresham (12/31/25 and 12/31/27, respectively).

Exhibit A: Minor Report Elements	
Applicable state rule	**Documentation**
OAR 660-012-0900(6)(b) The planning horizon date of the acknowledged transportation system plan and a summary of any amendments made to the transportation system plan over the reporting year.	**The 2018 RTP was adopted by the Metro Council on December 6, 2018 and subsequently acknowledged by DLCD under ORS 197.625(1).** The planning horizon year for the 2018 RTP is 2040. **The 2023 RTP was adopted by the Metro Council on November 30, 2023, amending the 2018 RTP to meet federal and state requirements.** The planning horizon year for the 2023 RTP is 2045. The post-acknowledgement plan amendment notice of adoption was submitted electronically to DLCD on December 19, 2023. Adoption of the 2023 RTP amended and replaced the existing 2018 RTP to reflect an updated vision and goals, an updated analysis of transportation needs and priorities, an updated transportation revenue forecast, updated investment priorities and analysis of performance, and new near-term regional planning activities to be completed in advance of the next RTP update. The 2023 RTP adoption also amended and replaced Chapter 2 of the Regional Framework Plan regarding regional transportation goals and objectives for consistency with amendments adopted to Chapter 2 of the RTP. Exhibit B summarizes adoption dates and planning horizons for existing TSPs in the Portland metropolitan area. The information was compiled by Metro staff in coordination with local governments and shows the most recent TSP adoption year, anticipated adoption of the next TSP update, and current TSP horizon year for each city and county within the Portland metropolitan area.
OAR 660-012-0900(6)(b) A forecast of planning activities over the near future that may include amendments to the transportation system plan.	**Near-term regional and local planning activities** Several regional activities are planned in the near-term that will inform the next update to the RTP (due in 2028). These activities are identified in Chapter 8 of the 2023 RTP and may involve amendments to the RTP, including: • **Develop interim TDM and TSMO system completion guidance.** Finalize interim guidance for measuring system completeness for both transportation demand management (TDM) and transportation system management and operations (TSMO) to aid cities and counties when updating

Exhibit A: Minor Report Elements	
Applicable state rule	**Documentation**
	local transportation system plans consistent with OAR 660-012-0145 and OAR 660-012-0020(f). See Chapter 8 of the 2023 RTP for more information. • **Develop a VMT evaluation approach for TSP updates.** Develop an approach for evaluating household-based VMT per capita to aid cities and counties when updating transportation system plans consistent with OAR 660-012-0160 and when making land use decisions in the Portland area consistent with OAR 660-012-0210. See Chapter 8 of the 2023 RTP for more information. • **Conduct a study on connecting the first and last mile: Accessing mobility through transit.** This study will identify local service and coordination gaps and potential solutions specific to the Portland area, especially for urban and suburban areas of the region, particularly areas more recently brought into the UGB and regional parks that currently have little to no transit service. The study will also explore innovative ways to improve transit access and convenience for users (e.g. microtransit), particularly for the first and last mile. See Chapter 8 of the 2023 RTP for more information. • **Update the Regional Transportation Functional Plan.** Metro will begin an update to the RTFP in 2024, as described in Chapter 8 of the 2023 RTP. Key outcomes for the update include: o Ensure the functional plan language and provisions are consistent with and adequately reflect new and updated goals, objectives and policies adopted in the RTP. o Align the functional plan language and requirements with recent statewide rulemaking and policy development to implement the Climate-Friendly and Equitable Communities Program. o Define how the updated mobility policy will be implemented in local TSPs and local comprehensive plan amendments in coordination with local governments and

Exhibit A: Minor Report Elements	
Applicable state rule	**Documentation**
	the statewide CFEC implementation program and Oregon Highway Plan update. ○ Update the timeline for local TSPs updates in collaboration with cities, counties and in coordination with DLCD and the ODOT. • **Review RTP project list development process, metrics and analysis.** Metro will work with cities, counties, community-based organizations and transportation agencies to improve the process of developing and evaluating the project list in advance of the next RTP update. This work will support Metro implementation of OAR 660-012-0155. See Chapter 8 of the 2023 RTP for more information. • **Transportation electrification coordination.** Metro will work with regional partners to identify actions to advance transportation electrification in the greater Portland region that complement existing federal and state policies and programs. See Chapter 8 of the 2023 RTP for more information. • **Update the Urban Growth Report.** Metro is working with state and local partners to develop the 2024 Urban Growth Report for adoption by Dec. 31, 2024. The Metro Council, with a recommendation from the Metro Policy Advisory Committee (MPAC), must adopt an Urban Growth Report and review the growth boundary for expansion at least every six years. The last process was completed in 2018 and the next decision must occur by the end of 2024. This work started in 2023 and will be the basis for the population and employment forecast for the 7-county metropolitan statistical area (MSA) that will be used for the 2028 RTP update. • **Amend the Urban Growth Management Functional Plan.** Metro is working with state and local partners to prepare amendments to Title 6 of the Urban Growth Management Functional Plan (UGMFP) by Dec. 31, 2024 to require that by Dec. 31, 2025 cities and counties adopt boundaries for

Exhibit A: Minor Report Elements	
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	existing 2040 regional centers and town centers identified on the 2040 Growth Concept map**.** Adoption of the amendments will address OAR 660-012-0012(4)(d). • **2040 Growth Concept Update.** The timeline and desired outcomes for this work are pending Metro Council direction. • **Climate Smart Strategy Update.** Metro will work with state and local partners to conduct a comprehensive review and update to the Climate Smart Strategy to inform the next RTP update. See Appendix J of the 2023 RTP for more information. **Several local planning activities** are anticipated in the near-term that will likely include amendments to local transportation system plans in the region. The transportation planning rules do not specify a deadline for TSP updates in the Portland metropolitan area. The director of DLCD approved alternate deadlines to implement certain transportation planning rules for cities and counties in the Portland area that will result in amendments to existing TSPs. Most alternate dates were for updates to performance standards and parking codes. • **Updates to local parking codes.** Clackamas and Washington counties and several cities anticipate adopting state-required parking reforms in 2024, including Cornelius, Fairview, Forest Grove, Gladstone, Gresham, Happy Valley, Hillsboro, Lake Oswego, Milwaukie, Oregon City, Sherwood, Tualatin and West Linn. The cities of Gresham, Portland, Troutdale, Wilsonville and Wood Village anticipate adopting state-required parking reforms in 2025. • **Updates to transportation performance standards.** Clackamas and Washington counties and several cities anticipate adopting state-required parking reforms in the near-term, including Clackamas County in 2025, Cornelius and Oregon City in 2026, Fairview, Happy Valley, Troutdale, West Linn, and Wilsonville in 2027, and Wood Village in 2028. • **Updates to transportation system plans.** Clackamas County and the cities of Gresham, Lake Oswego, Oregon City,

Exhibit A: Minor Report Elements	
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	Portland and Sherwood anticipated initiating updates to their TSPs in 2024 prior to changes to the ODOT TSP Funding Program. The program is now prioritizing funding to local governments outside of the Portland metropolitan area, and will likely fund fewer, more targeted TSP updates within the region in the near-term. Exhibit B summarizes anticipated timing for future TSP updates, pending the availability of local resources and staff capacity and state financial support and technical assistance. It is likely that many jurisdictions may choose to postpone this work without state funding. Exhibit B also summarizes the alternate dates approved by the DLCD director for updates to parking codes and transportation performance standards that will result in amendments to existing TSPs. Other near-term planning activities that will inform the next update to the RTP are described in Chapter 8 of the 2023 RTP.[3]
OAR 660-012-0900(6)(c) Copies of reports made in the reporting year for progress towards centering the voices of underserved populations in processes at all levels of decision-making as	The 2023 RTP process put into action Metro's *Strategic Plan to Advance Racial Equity, Diversity and Inclusion*[4] by engaging thousands of community members across the region, particularly people of color and other marginalized people. The engagement elevated the transportation needs and investment priorities of marginalized people. The public engagement plan adopted for the 2023 RTP update[5, 6] also advanced Metro's approach for consulting and engaging with tribes on regional transportation processes and built a foundation for future collaboration and partnership.[7] This resulted in some of

[3] The 2023 Regional Transportation Plan is available here: oregonmetro.gov/rtp
[4] Metro's Strategy for Advancing Racial Equity, Diversity and Inclusion (2016). This strategy provides a strategic approach to incorporating equity into policy, decision-making and programs across Metro's different lines of business with a focus and emphasis on deliberately tackling inequities based on race and ethnicity.
[5] The Public Engagement Plan adopted for the 2023 RTP update is available here: https://www.oregonmetro.gov/sites/default/files/2022/06/23/2023-RTP-public-engagement-plan-20220505.pdf
[6] A factsheet summarizing engagement and consultation activities for the 2023 RTP update is available here: https://www.oregonmetro.gov/sites/default/files/2023/10/30/2023-RTP-engagement-overview.pdf
[7] Last updated in 2022, the formal consultation process used for the RTP is available here:

Exhibit A: Minor Report Elements	
Applicable state rule	**Documentation**
provided in OAR 660-012-0130.	the most extensive and creative public engagement of any prior update, with an increased focus on people of color and other marginalized people, as well as ongoing consultation with area tribes. Notably, engagement strategies included partnering with the Community Engagement Liaisons (CELs) Program to provide four language-specific in-person project forums, which included community members from Russian, Vietnamese, Chinese, and Spanish-speaking communities and providing direct compensation to seven community-based organizations (CBOs) to conduct culturally-specific community engagement across the region with detailed reporting of feedback from marginalized community members by CBOs. In addition, the consultation process used during 2023 RTP update resulted in a new project nominated by a tribe and tribal transportation revenues being included in the plan. Chapter 8 of the 2023 RTP also identifies future work with Metro's Tribal Affairs Program and tribes to identify consultation and engagement process changes for MPO work. Provided in Exhibit D, Appendix D to the 2023 RTP summarizes all engagement conducted for the RTP update and provides a reference list of all engagement reports prepared and considered during the update. The Metro Council also adopted an update to Metro's *Public Engagement Guide* that establish consistent procedures to guide future engagement and consultation activities. The final guide was published in April 2024. Supplemental appendices are in development and expected to be completed by December 2024.
OAR 660-012-0900(6)(c) A summary of any equity analyses conducted as provided in OAR 660-012-0135.	Metro completed several equity analyses in support of the 2023 RTP update. The analyses used the qualitative and quantitative methods developed during development of the 2018 RTP. Data included lived experience and feedback received through public engagement and consultation activities and publicly-available data published by the U.S. Census and other sources.

https://www.oregonmetro.gov/sites/default/files/2023/07/11/Metro-MPO-formal-consultation-process-06132022.pdf

Exhibit A: Minor Report Elements	
Applicable state rule	**Documentation**
	Metro used 2020 Census and 2016-2020 American Community Survey (ACS) data to identify updated equity focus areas (EFAs) in the region. Shown in Chapter 3 of the 2023 RTP, EFAs are census tracts with double the regional average density for the following marginalized populations: people of color, people with low incomes and people who do not speak English or who speak limited English. These three groups, as identified in Census data, are the emphasis and focus for the RTP equity analyses, but RTP policies also call on transportation agencies to consider and meet the needs of other marginalized people, including young people, older adults and people living with disabilities. The RTP establishes EFAs as priority areas for certain investments that marginalized populations identified as priorities during engagement. Transportation-related disparities and barriers identified by marginalized communities as priorities for the RTP to address include safety, access to destinations, transportation and housing affordability and community health. EFAs are used to report on the state of transportation equity in the region and how the RTP improves outcomes for marginalized people in the region. Chapter 4 of the 2023 RTP describes the state of transportation equity in the region. The analysis in Chapter 4 finds that transit offers much more limited access to destinations than driving, which disproportionately affects low-income travelers; that EFAs experience significantly more fatal and serious injury crashes than other areas of the region, and that people of color generally own homes at lower rates than White people. Chapter 7 of the 2023 RTP includes the equity analyses conducted for the projects and programs adopted in the RTP. The analysis in Chapter 7 reports on how the RTP projects and programs improve equitable outcomes in the region by comparing investment levels and outcomes in equity focus areas relative to areas outside of equity focus areas.
OAR 660-012-0900(6)(d)	No enhanced review of transportation projects in local transportation system plans, as provided in OAR 660-012-0830, was underway or completed in 2023.

Exhibit A: Minor Report Elements	
Applicable state rule	**Documentation**
Any alternatives reviews undertaken as provided in OAR 660-012-0830, including those underway or completed.	

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EXHIBIT B: LOCAL TRANSPORTATION SYSTEM PLAN STATUS REPORT

Jurisdiction	**Adoption year of last Transportation System Plan (TSP) update or amendment**	**Anticipated adoption year of next TSP update**	**Current TSP Horizon Year**	**Population** (PSU estimate, as of 7/1/23)
Beaverton	2010	2026	2035	101,165
Clackamas County	2022 (amendment)[a]	2026	2033	424,043
Cornelius	2020 (amendment)[b]	2028	2040	14,387
Durham	*Proposed exemption until 2033*		*n/a*	*1,938*
Fairview	2022 (amendment)[c]	2031	2035	10,671
Forest Grove	2014	2027	2035	27,551
Gladstone	2017	2027	2040	12,140
Gresham	2013	2026	2035	117,107
Happy Valley	2023 (amendment)	2024	2040	26,799
Hillsboro	2022	2029	2040	110,874
Johnson City	*Proposed exemption until 2033*		*n/a*	*510*
King City	2024	2035	2040	5,177
Lake Oswego	2017 (amendment)[d]	2026	2035	41,396
Maywood Park	*Proposed exemption until 2033*		*n/a*	*793*
Milwaukie	2018 (amendment)[e]	2025	2035	21,341
Multnomah County	2016	not known	2040	801,306
Oregon City	2022 (amendment)[f]	2027	2035	38,049
Portland	2018	2027	2035	648,097
Rivergrove	*Proposed exemption until 2033*		*n/a*	*559*
Sherwood	2014	2026	2035	20,868
Tigard	2022	2027	2040	55,868
Troutdale	2022 (amendment)[g]	2029	2035	17,005
Tualatin	2014	2024	2035	27,910
Washington County	2024 (amendment)[h]	2028	2040	610,245
West Linn	2016	2029	2040	27,360
Wilsonville	2016 (amendment)[i]	2028	2035	27,634
Wood Village	2017	2027	2035	5,038

Table Notes

a. Last full TSP update adopted in 2013.
b. Last full TSP update adopted in 2018.
c. Last full TSP update adopted in 2017
d. Last full TSP update adopted in 2014.
e. Last full TSP update adopted in 2007; minor update in 2013.
f. Last full TSP update adopted in 2013.
g. Last full TSP update adopted in 2014.
h. Last full TSP update adopted in 2019.
i. Last full TSP update adopted in 2013.

The transportation planning rules do not specify a deadline for TSP updates in the Portland metropolitan area. The table above was compiled by Metro staff in coordination with local governments to show the most recent TSP adoption year, anticipated adoption

of the next TSP update, and current TSP horizon year for each city and county within the Portland area. The anticipated TSP adoption dates represent the best available estimate from local partners and are not necessarily committed and funded activities. The timing of future updates is dependent upon local resources and staff capacity as well as state support and technical assistance, which is provided through the Oregon Department of Transportation TSP Funding Program, the Oregon Transportation and Growth Management Program and other CFEC implementation technical assistance activities.

The director of DLCD approved alternate deadlines for implementation of certain transportation planning rules for cities in the Portland area that would result in amendments to existing TSPs. Most alternate dates were for these rules: Performance standards (4)(b) and Parking Reform Part B (4)(f).

- **Performance standards (4)(b) alternate dates were approved** for Clackamas County (12/31/25), Washington County (6/30/27) and the cities of Cornelius (6/30/26), Fairview (6/30/27), Happy Valley (6/30/27), Oregon City (12/31/26), Troutdale (6/30/27), West Linn (6/30/27), Wilsonville (6/30/27), and Wood Village (6/30/28).

- **Parking Reform Part B (4)(f) alternate dates were approved** for Clackamas County (6/30/24), Washington County (12/31/24) and the cities of Beaverton (12/31/23), Cornelius (9/30/24)[8], Fairview (12/31/24)[9], Forest Grove (12/31/24)[10], Gladstone (6/30/24)[11], Gresham (12/31/23 and 12/31/25)[12], Happy Valley (12/31/24), Hillsboro (6/30/24), Lake Oswego (12/31/24), Milwaukie (6/30/24), Oregon City (12/31/24), Portland (12/31/25)[13], Sherwood (9/14/24), Tigard (12/31/23), Troutdale (6/30/25), Tualatin (7/20/24), West Linn (12/31/24), Wilsonville (6/30/25), and Wood Village (6/30/25).
- **Land use (4)(e) alternate dates were approved** for Cornelius (6/30/25) and Gresham (12/31/25).
- **Parking Pricing (4)(g)(A) and (4)(g)(B) alternate dates were approved** for Gresham (12/31/25 and 12/31/27, respectively).

[8] Applies to OAR 660-012-0400, OAR 660-012-0405, OAR 660-012-0415, OAR 660-012-0420, OAR 660-012-0425, OAR 660-012-0435, OAR 660-012-0445, and OAR 660-012-0450.
[9] Applies to OAR 660-012-0405(1), (2), (3), and (5); OAR 660-012-0425; and OAR 660-012-0445.
[10] Applies to OAR 660-012-0400, OAR 660-012-0405, OAR 660-012-0415, OAR 660-012-0420, OAR 660-012-0425, OAR 660-012-0435, OAR 660-012-0445, and OAR 660-012-0450.
[11] Applies to OAR 660-012-0400, OAR 660-012-0405, OAR 660-012-0420, OAR 660-012-0425, OAR 660-012-0435, and OAR 660-012-0445.
[12] Applies to OAR 660-012-0400, OAR 660-012-0405, OAR 660-012-0420, OAR 660-012-0425, OAR 660-012-0435, OAR 660-012-0445, and OAR 660-012-0450.
[13] Applies to OAR 660-012-0415(2).

EXHIBIT C: METRO 2023 COMPLIANCE REPORT

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2023 Compliance Report

January 10, 2024

If you picnic at Blue Lake or take your kids to the Oregon Zoo, enjoy symphonies at the Schnitz or auto shows at the convention center, put out your trash or drive your car – we've already crossed paths.

So, hello. We're Metro – nice to meet you.

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Executive Summary

Metro Code Chapter 3.07 (the "Urban Growth Management Functional Plan" or "UGMFP") and Chapter 3.08 (the "Regional Transportation Functional Plan" or "RTFP") provide standards, tools, and guidance for local land use plans, transportation system plans, and implementing regulations that are necessary to advance the regional vision, goals, and policies of Metro's Regional Framework Plan and the 2040 Growth Concept.

As required annually by Metro Code Subsection 3.07.870(a), the 2023 Compliance Report summarizes the status of compliance with the UGMFP for each city and county in the region.[1] To better connect land use planning with transportation planning, this report also includes information on local government compliance with the RTFP.

All jurisdictions are in compliance with the UGMFP, with the exception of a few jurisdictions that continue to work to satisfy UGMFP Title 11 requirements related to planning for areas previously added to the urban growth boundary (UGB). All jurisdictions are in compliance with their respective RTFP requirements.

Per the Metro Code and if requested, the Chief Operating Officer (COO) may grant formal extensions to deadlines for meeting UGMFP requirements if a local government meets one of two criteria: the city or county is making progress towards compliance; or there is good cause for failure to meet the deadline for compliance. In 2023, there were no requests for extensions of compliance dates for the UGMFP. Nonetheless, this report notes that progress is being made by cities and counties to address deficiencies.

Appendix A summarizes the compliance status for all local governments with the requirements of the UGMFP, as of December 31, 2023.

Appendix B shows the status of UGMFP Title 11 new urban area planning for areas added to the UGB since 1998, as of December 31, 2023.

Appendix C summarizes local jurisdictions' compliance with the RTFP, as of December 31, 2023.

Appendix D is the report required by Metro Code Subsection 3.07.450(k) on amendments made in 2023 to the UGMFP Title 4 Employment and Industrial Areas Map (also known as the "Industrial and Other Employment Areas Map" and the "Title 4 Map").[2]

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[1] Metro Code Subsection 3.07.870(a) requires Metro's COO to submit the report to the Metro Council by March 1 and to send a copy of the report to MPAC, JPACT, PERC, and each city and county within Metro.

[2] Subsection 3.07.450(k) requires the COO to submit a written report to the Metro Council and MPAC by January 31 of each year on the cumulative effects on employment land in the region of the amendments made to the Title 4 Map the preceding year. The report must include any recommendations the COO deems appropriate on measures the Council might take to address the effects.

APPENDIX A

Summary of Urban Growth Management Function Plan (UGMFP)
Compliance Status as of December 31, 2023

City/ County	Title 1 *Housing Capacity*	Title 3 *Water Quality and Flood Management*	Title 4 *Industrial and other Employment Land*	Title 6[1] *Centers, Corridors, Station Communities and Main Streets*	Title 7 *Housing Choice*	Title 11 *Planning for New Urban Areas* (See Appendix B for detailed information)	Title 13 *Nature in Neighborhoods*
Beaverton	In compliance	In compliance	In compliance	See footnote	In compliance	Not in compliance	In compliance
Cornelius	In compliance	In compliance	In compliance	See footnote	In compliance	In compliance	In compliance
Durham	In compliance	In compliance	In compliance	See footnote	In compliance	Not applicable	In compliance
Fairview	In compliance	In compliance	In compliance	See footnote	In compliance	Not applicable	In compliance
Forest Grove	In compliance	In compliance	In compliance	See footnote	In compliance	In compliance	In compliance
Gladstone	In compliance	In compliance	In compliance	See footnote	In compliance	Not applicable	In compliance
Gresham	In compliance	In compliance	In compliance	See footnote	In compliance	In compliance	In compliance
Happy Valley	In compliance	In compliance	In compliance	See footnote	In compliance	In compliance	In compliance
Hillsboro	In compliance	In compliance	In compliance	See footnote	In compliance	In compliance	In compliance
Johnson City	In compliance	In compliance	In compliance	See footnote	In compliance	Not applicable	In compliance
King City	In compliance	In compliance	In compliance	See footnote	In compliance	In compliance	In compliance
Lake Oswego	In compliance	In compliance	In compliance	See footnote	In compliance	Not applicable	In compliance
Maywood Park	In compliance	In compliance	In compliance	See footnote	In compliance	Not applicable	In compliance
Milwaukie	In compliance	In compliance	In compliance	See footnote	In compliance	Not applicable	In compliance
Oregon City	In compliance	In compliance	In compliance	See footnote	In compliance	In compliance	In compliance

[1] Title 6 takes an incentive approach and only those local governments seeking a "regional investment" (defined as a new high-capacity transit line) need to comply with its provisions. No cities or counties are currently seeking a regional investment requiring Title 6 compliance.

APPENDIX A (continued)

Summary of Urban Growth Management Function Plan (UGMFP)

Compliance Status as of December 31, 2023

City/ County	Title 1 *Housing Capacity*	Title 3 *Water Quality and Flood Management*	Title 4 *Industrial and other Employment Land*	Title 6[1] *Centers, Corridors, Station Communities and Main Streets*	Title 7 *Housing Choice*	Title 11 *Planning for New Urban Areas* (see Appendix B for detailed information)	Title 13 *Nature in Neighborhoods*
Portland	In compliance	In compliance	In compliance	See footnote	In compliance	In compliance	In compliance
Rivergrove	In compliance	In compliance	In compliance	See footnote	In compliance	Not applicable	In compliance
Sherwood	In compliance	In compliance	In compliance	See footnote	In compliance	Not in compliance	In compliance
Tigard	In compliance	In compliance	In compliance	See footnote	In compliance	Not in compliance	In compliance
Troutdale	In compliance	In compliance	In compliance	See footnote	In compliance	Not applicable	In compliance
Tualatin	In compliance	In compliance	In compliance	See footnote	In compliance	In compliance	In compliance
West Linn	In compliance	In compliance	In compliance	See footnote	In compliance	Not applicable	In compliance
Wilsonville	In compliance	In compliance	In compliance	See footnote	In compliance	In compliance	In compliance
Wood Village	In compliance	In compliance	In compliance	See footnote	In compliance	Not applicable	In compliance
Clackamas County	In compliance	In compliance	In compliance	See footnote	In compliance	Not in compliance	In compliance
Multnomah County	In compliance	In compliance	In compliance	See footnote	In compliance	Not applicable	In compliance
Washington County	In compliance	In compliance	In compliance	See footnote	In compliance	Not in compliance	In compliance

[1] Title 6 takes an incentive approach and only those local governments seeking a "regional investment" (defined as a new high-capacity transit line) need to comply with its provisions. No cities or counties are currently seeking a regional investment requiring Title 6 compliance.

APPENDIX B
Status of Compliance with UGMFP TITLE 11, *Planning for New Urban Areas*, as of December 31, 2023

Project	Lead Government(s)	Compliance	Status
1998 UGB Expansion			
Rock Creek	Happy Valley	Yes	Planning completed; mostly annexed and developed
Pleasant Valley	Gresham, Happy Valley, Portland	Yes	Planning completed; a portion annexed by each city, with limited development occurring
1999 UGB Expansion			
Witch Hazel	Hillsboro	Yes	Planning completed; majority annexed and developed
2000 UGB Expansion			
Villebois Village	Wilsonville	Yes	Planning and annexation completed; development almost complete
2002 UGB Expansion			
Springwater	Gresham	Yes	Planning completed; some limited annexations and development
Damascus/Boring	Happy Valley	Yes	Happy Valley portion: Planning completed; development ongoing
	Clackamas County, Happy Valley	No	Former City of Damascus land area: Happy Valley adopted a Title 11 compliant comprehensive plan (Pleasant Valley / North Carver Comprehensive Plan) for approximately 2,700 acres of the area, and the County and the City have an Urban Growth Management Agreement for the City to do comprehensive planning for additional portions of the area
	Gresham	Yes	Gresham portion: Kelley Creek Headwaters Plan completed; some limited annexations and development
Park Place	Oregon City	Yes	Planning completed; portion annexed and waiting development
Beavercreek Rd	Oregon City	Yes	Planning completed; portion annexed and waiting development
South End Rd	Oregon City	Yes	Planning completed; waiting annexation and development
East Wilsonville (Frog Pond West)	Wilsonville	Yes	Planning completed; mostly annexed, with development ongoing
NW Tualatin (Cipole Rd and 99W)	Tualatin	Yes	Planning completed; waiting annexation and development
SW Tualatin	Tualatin	Yes	Planning completed; waiting annexation and development
Brookman Rd	Sherwood	Yes	Refinement plan completed; annexation and development ongoing
West Bull Mountain (River Terrace 1.0)	Tigard	Yes	*See Roy Rogers West (River Terrace 1.0) with 2011 expansion*
Study Area 59	Sherwood	Yes	Planning and annexation completed; development almost complete
Study Area 61 (Cipole Rd)	Sherwood	No	Extension to 12/31/2021 expired; City staff working to complete project
99W Area (near Tualatin-Sherwood Rd)	Sherwood	Yes	Planning completed; partially annexed and developed

APPENDIX B (continued)
Status of Compliance with UGMFP TITLE 11, *Planning for New Urban Areas*, as of December 31, 2023

Project	Lead Government(s)	Compliance	Status
North Cooper Mountain	Washington County	No	Preliminary planning completed by City of Beaverton in conjunction with Washington County; Future discussions of comprehensive and urban services planning will be informed by Beaverton's Cooper Mountain Community plan and its related Cooper Mountain Utility Plan
Study Area 64 (14 acres north of Scholls Ferry Rd)	Beaverton	Yes	Planned, annexed, and developed
Study Areas 69 and 71	Hillsboro	Yes	Planning completed as part of South Hillsboro; portion annexed and developed
Study Area 77	Cornelius	Yes	Planning and annexation completed; small portion developed
Forest Grove Swap	Forest Grove	Yes	Planned, annexed, and developed
Shute Road	Hillsboro	Yes	Planning and annexation completed; majority developed
North Bethany	Washington County	Yes	Planning completed; majority developed
Bonny Slope West (Area 93)	Washington County	Yes	Planning completed; development ongoing
2004/2005 UGB Expansion			
Damascus area	Clackamas County	See 2002 above	*See Damascus/Boring 2002 expansion above*
Tonquin	Sherwood	Yes	Planning completed; portion annexed, with development ongoing
Basalt Creek / West RR Area	Tualatin, Wilsonville	Yes	Planning completed; some limited annexation; waiting further annexations and development
North Holladay	Cornelius	Yes	Planning completed; waiting annexation and development
Evergreen	Hillsboro	Yes	Planning completed; majority annexed, with development ongoing
Helvetia	Hillsboro	Yes	Planning completed; majority annexed, with development ongoing
2011 UGB Expansion			
North Hillsboro	Hillsboro	Yes	Planning completed; annexation and development ongoing
South Hillsboro	Hillsboro	Yes	Planning completed; annexation and development ongoing
South Cooper Mountain	Beaverton	Yes	Planning and annexation completed; development ongoing
Roy Rogers West (River Terrace 1.0)	Tigard	Yes	Planning completed; annexation and development ongoing

APPENDIX B (continued)
Status of Compliance with UGMFP TITLE 11, *Planning for New Urban Areas*, as of December 31, 2023

Project	Lead Government(s)	Compliance	Status
2014 UGB Expansion (HB 4078)			
Cornelius North	Cornelius	Yes	Planning completed; small portion annexed and developed
Cornelius South	Cornelius	Yes	Planning completed; mostly annexed, with development ongoing
Forest Grove (Purdin Rd)	Forest Grove	Yes	Planning completed; about half annexed and small portion developed
Forest Grove (Elm St)	Forest Grove	Yes	Planning and annexation completed; waiting development
Hillsboro (Jackson East)	Hillsboro	Yes	Planning and some annexations completed; waiting further annexations and development
2018 UGB Expansion			
Cooper Mountain	Beaverton	No	Comprehensive planning expected to be completed in 2024
Witch Hazel Village South	Hillsboro	Yes	Planning completed; waiting annexation and development
Beef Bend South (Kingston Terrace)	King City	Yes	Planning completed; waiting annexation and development
Advance Road (Frog Pond East and South)	Wilsonville	Yes	Planning completed; waiting annexation and development
2023 UGB Amendment			
River Terrace 2.0	Tigard	No	Area only recently added to UGB; planning expected to be completed in 2026

APPENDIX C

Summary of Regional Transportation Functional Plan (RTFP)
Compliance Status as of December 31, 2023

Jurisdiction	Title 1 *Transportation System Design*	Title 2 *Development and Update of Transportation System Plans*	Title 3 *Transportation Project Development*	Title 4 *Regional Parking Management*	Title 5 *Amendment of Comprehensive Plans*
Beaverton	In compliance	In compliance	In compliance	In compliance	In compliance
Cornelius	In compliance	In compliance	In compliance	In compliance	In compliance
Durham	Exempt	Exempt	Exempt	Exempt	Exempt
Fairview	In compliance	In compliance	In compliance	In compliance	In compliance
Forest Grove	In compliance	In compliance	In compliance	In compliance	In compliance
Gladstone	In compliance	In compliance	In compliance	In compliance	In compliance
Gresham	In compliance	In compliance	In compliance	In compliance	In compliance
Happy Valley	In compliance	In compliance	In compliance	In compliance	In compliance
Hillsboro	In compliance	In compliance	In compliance	In compliance	In compliance
Johnson City	Exempt	Exempt	Exempt	Exempt	Exempt
King City	In compliance	In compliance	In compliance	In compliance	In compliance
Lake Oswego	In compliance	In compliance	In compliance	In compliance	In compliance
Maywood Park	Exempt	Exempt	Exempt	Exempt	Exempt
Milwaukie	In compliance	In compliance	In compliance	In compliance	In compliance
Oregon City	In compliance	In compliance	In compliance	In compliance	In compliance
Portland	In compliance	In compliance	In compliance	In compliance	In compliance
Rivergrove	Exempt	Exempt	Exempt	Exempt	Exempt
Sherwood	In compliance	In compliance	In compliance	In compliance	In compliance
Tigard	In compliance	In compliance	In compliance	In compliance	In compliance
Troutdale	In compliance	In compliance	In compliance	Exception	In compliance
Tualatin	In compliance	In compliance	In compliance	In compliance	In compliance
West Linn	In compliance	In compliance	In compliance	In compliance	In compliance
Wilsonville	In compliance	In compliance	In compliance	In compliance	In compliance
Wood Village	In compliance	In compliance	In compliance	In compliance	In compliance
Clackamas County	In compliance	In compliance	In compliance	In compliance	In compliance
Multnomah County	In compliance	In compliance	In compliance	In compliance	In compliance
Washington County	In compliance	In compliance	In compliance	In compliance	In compliance

APPENDIX D

Memo

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

Date: January 10, 2024
To: Metro Council and the Metro Policy Advisory Committee
From: Marissa Madrigal, Chief Operating Officer
Subject: Annual report on amendments to UGMFP Title 4 Map

Background
Title 4, *Industrial and Other Employment Areas*, of the Urban Growth Management Functional Plan (UGMFP) seeks to improve the region's economy by protecting a supply of sites for employment with requirements for local jurisdictions to limit the types and scale of certain non-industrial uses in designated Regionally Significant Industrial Areas, Industrial Areas, and Employment Areas. Those areas are officially depicted on the UGMFP's "*Title 4 Industrial and Other Employment Areas Map*" (i.e., the "Title 4 Map"). The Title 4 Map was first adopted in 1996 and has been amended several times. However, amendments have been infrequent in recent years. Between 2014 and 2022, only one amendment, affecting 20 acres, was made to the map.

Title 4 requires that Metro's Chief Operating Officer (COO) submit a written report to the Council and MPAC by January 31 of each year on the cumulative effects on employment land in the region of amendments to the Title 4 Map during the preceding calendar year. This memo constitutes the report on map amendments made in 2023.

Title 4 Map amendments in 2023
Title 4 sets forth several avenues for amending the map, either through a Metro Council ordinance or through an order of the COO, depending on the circumstances. There were no amendments made to the Title 4 Map by the Metro Council in 2023, but COO Order No. 23-001, signed in September of 2023, amended the map at the request of the City of Happy Valley pursuant to UGMFP Subsection 3.07.450(b).

Subsection 3.07.450(b) provides that, when the Metro Council adds territory to the UGB and designates all or part of the territory as Regionally Significant Industrial Area, Industrial Area, or Employment Area, the COO shall issue an order to conform the Title 4 Map to the land use designations subsequently established by the city or county responsible for comprehensive planning. In the case of COO Order No. 23-001, the map amendment occurred a number of years after the UGB expansion, for the following reasons.

Ordinance No. 02-969B adopted by the Metro Council in December 2002, and Ordinance No. 04-1040B adopted by the Metro Council in June 2004, added territory in Clackamas County to the UGB, including approximately 2,700 acres generally located in the Pleasant Valley / North Carver area[1] of the former City of Damascus. These ordinances also preliminarily designated some sections of the added territory as Regionally Significant Industrial Area, Industrial Area, and Employment Area on the Title 4 Map, with the understanding that the Title 4 Map could be amended after the area was planned for urban uses by the responsible local jurisdiction. With the incorporation and disincorporation of the City of Damascus, the subsequent agreement between the City of Happy Valley and Clackamas County for the area to be planned by the City of Happy Valley, and the general complexities of developing the area, urban planning of the Pleasant Valley / North Carver area wasn't completed by the City of Happy Valley until March of 2023.

[1] The Pleasant Valley / North Carver area is generally located east of SE 152nd Ave, west of SE Anderson Rd, and north of the Clackamas River.

The City of Happy Valley's comprehensive land use plan for the Pleasant Valley / North Carver area was informed by a December 2018 buildable lands inventory, a January 2020 housing needs analysis, and a January 2020 economic opportunity analysis, as well as traffic and utility studies, analyses of topography and habitat areas, broad public outreach, and input from numerous stakeholders. The City's plan identifies that certain portions of the 2,700-acre plan area are less suitable for industrial development than they are for other types of employment uses (e.g., commercial uses) and residential uses, but retains protections of 14.5 acres of Title 4 designated Industrial land in the plan area. COO Order No. 23-001 therefore amended the Title 4 Map to conform with the determinations made by the City in its local plan.

COO Order No. 23-001 also updated the Title 4 Map to reflect a UGB amendment adopted by the Metro Council in February 2023 in Ordinance No. 23-1488.

Councilors may be aware of some other city or county zone changes from industrial to other uses that occurred during 2023. None of those zone changes were found to be in conflict with Title 4, so amendments to the Title 4 Map were not necessary or requested by cities or counties.

Cumulative effects on employment land in the region

COO Order No. 23-001 removed Title 4 Map designations for approximately 800 acres of the roughly 2,700-acre Pleasant Valley / North Carver comprehensive plan area, while retaining 14.5 acres of the plan area's Industrial designations along Hwy 212. The undesignated acres were: already developed with other (e.g., institutional, commercial, or residential) uses; not zoned to allow for industrial uses; and/or were determined by the City of Happy Valley to be less suitable for industrial development than other uses due to factors such as topography, environmental features, parcel size, road and utility service access, and nearby land uses. The City's adopted land use plan for the area and its implementing regulations nonetheless allow for other employment-supporting uses in some affected areas, such as tourism-oriented commercial uses, medical offices, and financial institutions.

As noted above, COO Order No. 23-001 also updated the Title 4 Map to reflect Ordinance No. 23-1488, which added land to the UGB adjacent to the City of Tigard in exchange for removing a substantially equivalent amount of land in Clackamas County. The areas removed from the UGB by the ordinance were *not* planned or zoned for industrial uses and were determined to be less ready to accommodate urban development than the areas the ordinance added to the UGB.

Therefore, the Order's removal of Title 4 Map designations in Pleasant Valley / North Carver area, which had been applied nearly 20 years ago and prior to any comprehensive planning of the affected territory, and the updates to reflect Ordinance No. 23-1488 did not reduce the supply of land that would reasonably be expected to develop with employment land uses.

Future UGMFP and Title 4 Map updates

Staff anticipates that the number of requests for Title 4 Map amendments may increase in the next few years as local plans and regional economic needs continue to change. A refresh of the 2040 Growth Concept would offer an opportunity for Metro Council consideration of industrial land policy and regulatory updates including an update of the Title 4 Map.

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EXHIBIT D: 2023 REGIONAL TRANSPORTATION PLAN APPENDIX D: PUBLIC ENGAGEMENT AND CONSULTATION SUMMARY

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APPENDIX D

2023 Regional Transportation Plan

Engagement and consultation summary

November 30, 2023

oregonmetro.gov/rtp

Metro respects civil rights

Metro fully complies with Title VI of the Civil Rights Act of 1964 that requires that no person be excluded from the participation in, be denied the benefits of, or be otherwise subjected to discrimination on the basis of race, color or national origin under any program or activity for which Metro receives federal financial assistance.

Metro fully complies with Title II of the Americans with Disabilities Act and Section 504 of the Rehabilitation Act that requires that no otherwise qualified individual with a disability be excluded from the participation in, be denied the benefits of, or be subjected to discrimination solely by reason of their disability under any program or activity for which Metro receives federal financial assistance.

If any person believes they have been discriminated against regarding the receipt of benefits or services because of race, color, national origin, sex, age or disability, they have the right to file a complaint with Metro. For information on Metro's civil rights program, or to obtain a discrimination complaint form, visit www.oregonmetro.gov/civilrights or call 503-797-1536.

Metro provides services or accommodations upon request to persons with disabilities and people who need an interpreter at public meetings. If you need a sign language interpreter, communication aid or language assistance, call 503-797-1700 or TDD/TTY 503-797-1804 (8 a.m. to 5 p.m. weekdays) 5 business days before the meeting. All Metro meetings are wheelchair accessible. For up-to-date public transportation information, visit TriMet's website at www.trimet.org.

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

The Joint Policy Advisory Committee on Transportation (JPACT) is a 17-member committee that provides a forum for elected officials and representatives of agencies involved in transportation to evaluate transportation needs in the region and to make recommendations to the Metro Council. The established decision-making process assures a well-balanced regional transportation system and involves local elected officials directly in decisions that help the Metro Council develop regional transportation policies, including allocating transportation funds.

Regional Transportation Plan website: **oregonmetro.gov/rtp**

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

TABLE OF CONTENTS

FIGURES

INTRODUCTION

Public engagement and consultation for the 2023 Regional Transportation Plan (RTP) provided opportunities for people across the greater Portland region to learn about how regional transportation decisions are made and how to have an impact on those decisions. This RTP update included an update to the region's High Capacity Transit (HCT) Strategy. The engagement for the 2023 RTP and the HCT Strategy were closely coordinated.

Two significant research and policy projects launched in advance of the RTP update to help the plan. These projects included the Regional Mobility Policy update and the Regional Freight Delay and Commodities Movement Study. These projects were technical processes that support the advancement of the RTP goals. Each of these processes included extensive engagement with Metro's jurisdictional partners, practitioners and other interested persons and organizations. This engagement is summarized in the final section of this appendix.

Throughout development of the 2023 RTP and HCT Strategy, community members and representatives from community organizations, businesses and transportation agencies shared their values, needs and priorities for transportation in greater Portland. In addition to the engagement, Metro also consulted with local, regional, state and federal governments and Tribes. The information gathered from engagement activities and consultation informed Metro staff's work and was shared with transportation agency staff and decision-makers throughout the process to inform 2023 RTP policy and investment decisions.

The engagement for the 2023 RTP update launched in the first year of the COVID-19 pandemic. Engagement approaches remained flexible and adaptable to changing public health guidelines and quickly evolving ways of working and communicating. The engagement team was responsive to community feedback regarding people's capacity to engage in the RTP in the face of urgent health and economic crises and community preferences regarding in-person and virtual engagement.

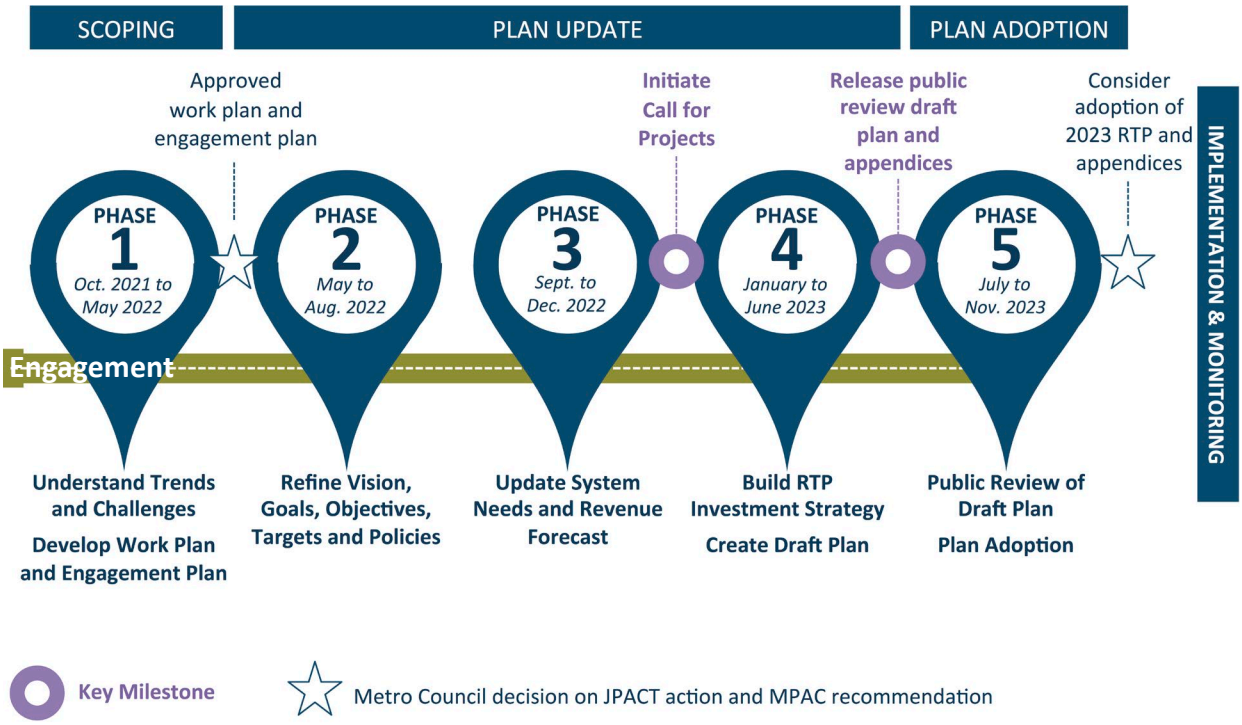
Community engagement and consultation activities were guided by the 2023 RTP update public engagement plan[i], adopted by the Joint Policy Advisory Committee on Transportation (JPACT) and the Metro Council in May 2022. The work plan and public engagement plan for the 2023 RTP was developed with input from Metro Council, JPACT, Metro's Committee on Racial Equity (CORE), regional advisory committees, county-level coordinating committees, community-based organizations and interviews of public officials and business and community leaders. The engagement was aligned with Metro's adopted Public Engagement Guide (2013), Metro's agency-wide Strategic Plan to Advance Racial Equity, Diversity and Inclusion (2016), the Planning, Development, and Research

Department Strategy for Achieving Racial Equity (2019), Metro's public participation in transportation planning guide (2019), and federal and state requirements and expectations for effective public engagement.

The engagement and consultation were guided by the following goals:

- Learn about the transportation needs and priorities of communities across greater Portland.
- Reflect the priorities identified through community engagement in the elements of the 2023 RTP that guide investment decisions and prioritize the input provided by communities of color, community members with disabilities and communities with limited English proficiency.
- Build support for and momentum to achieve community-driven objectives and build public trust in Metro's transportation planning process.
- Strengthen existing and build new partnerships with local, regional, state and federal governments, Tribes, business and community leaders, academic institutions and historically underrepresented communities—including Black, Indigenous and people of color, people with disabilities, people with low incomes and people with limited English proficiency, as well as youth and older adults— for sustained involvement in decision-making.

Figure D-1: 2023 Regional Transportation Plan timeline

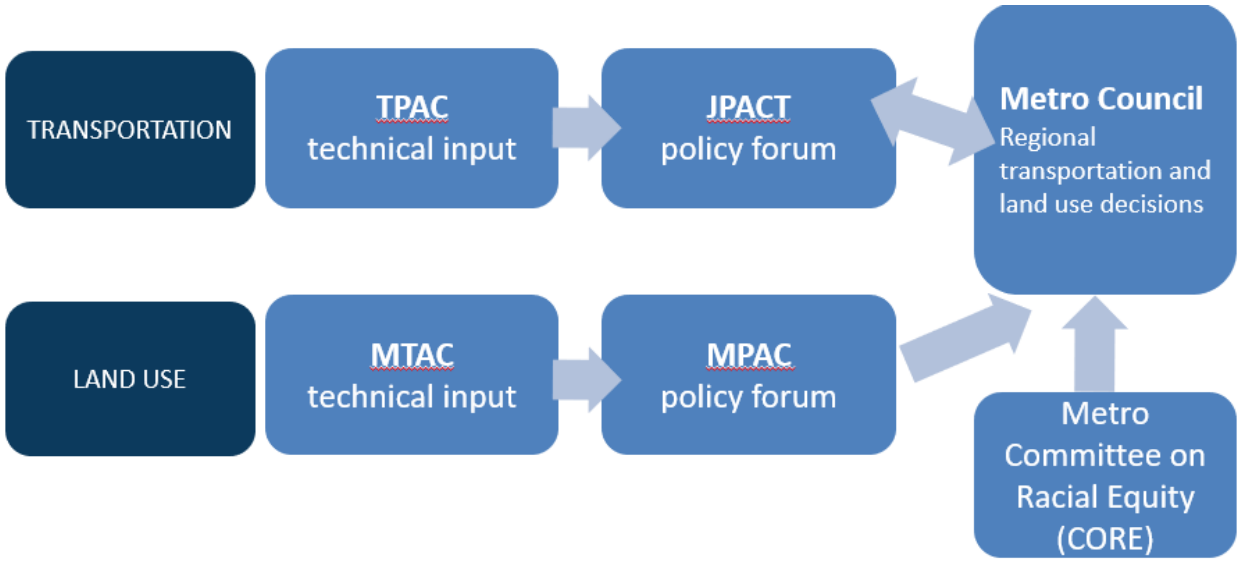


2023 REGIONAL TRANSPORTATION PLAN DECISION MAKING PROCESS

Metro's transportation planning activities are guided by a federally mandated decision-making framework known as the metropolitan transportation planning process.

Shown in Figure D-2, Metro facilitates on-going consultation and coordination through five Metro advisory committees – the Transportation Policy Alternatives Committee (TPAC), the Joint Policy Advisory Committee on Transportation (JPACT), the Metro Policy Advisory Committee (MPAC) and the Metro Technical Advisory Committee (MTAC) and the Metro Committee on Racial Equity (CORE). These committees were forums for discussion, coordination, consultation and decision-making by elected officials and their staff, representing cities and counties across the region, public agencies and transportation providers, including the Oregon Department of Transportation (ODOT), Oregon Department of Environmental Quality (DEQ), Oregon Department of Land Conservation and Development (DLCD), the Port of Portland, the Port of Vancouver, TriMet and South Metro Regional Transit (SMART). Three of those committees – TPAC, MPAC and MTAC – include community representatives that bring their expertise and perspective to the discussions and decisions.

Figure D-2: Regional decision-making framework



Engagement overview

The 2023 RTP update public engagement plan[ii] adopted by JPACT and the Metro Council guided the strategic direction, approach and desired outcomes for sharing information and engaging with people, community-based organizations (CBO), businesses, transportation agencies, regional decision-makers and other interested parties throughout the two-year RTP update process.

Engagement activities included:

- 4 online surveys with a total of 4,110 participants
- 3 public hearings
- 4 in-language focus groups in Spanish, Chinese, Vietnamese and Russian
- 3 Community Leaders' Forums
- 7 community based organizations engaged 380+ people
- 1 High Capacity Transit Strategy online open house and survey with 350+ respondents
- 10 HCT public tabling events with TriMet's Forward Together Plan
- 1 Climate expert panel
- 1 Modeling 101 panel
- 2 business forums
- 2 discussions about HCT with local chambers of commerce
- 3 business focus groups, including 1 focused on HCT
- 6 joint JPACT and Metro Council workshops
- 22 Metro Council meetings
- 32 JPACT and MPAC meetings
- 3 Metro Committee on Racial Equity (CORE) meetings
- 47 TPAC and MTAC workshops and meetings
- 8 High capacity transit strategy working group meetings
- Periodic County Coordinating Committee briefings
- 41 interviews with elected officials and staff of local jurisdictions, state agencies, and community and business organizations from across the region
- 6 consultation meetings with Tribes

- 6 consultation meetings with federal, state and regional agencies

Agency and jurisdictional outreach and coordination

Metro staff collaborated and coordinated with cities, counties and other transportation agencies during the 2023 RTP update. Throughout the process, Metro staff presented to Metro regional advisory committees and county-level coordinating committees (as well as their technical advisory committees). Cross-agency project management teams were convened for the High Capacity Transit Strategy, the Regional Mobility Policy update and the Regional Freight Delay and Commodities Movement Study.

Metro's jurisdictional boundary encompasses the urban portions of Multnomah, Washington and Clackamas counties. As previously noted, Metro's planning partners included the 24 cities, three counties and affected special districts of the region, ODOT, DEQ, DLCD, the Port of Portland, South Metro Area Regional Transit (SMART), TriMet and other interested community, business and advocacy groups as well as state and federal regulatory agencies such as the U.S. Environmental Protection Agency (EPA), Federal Highway Administration (FHWA) and Federal Transit Administration (FTA). Metro also coordinated with the City of Vancouver, Clark County Washington, the Port of Vancouver, the Southwest Washington Regional Transportation Council (RTC), C-Tran, the Washington Department of Transportation, the Southwest Washington Air Pollution Control Authority and other Clark County governments on bi-state issues. The Southwest Washington Regional Transportation Council is the federally designated MPO for the Clark County portion of the Portland- Vancouver metropolitan region.

In addition, the project lists included in the 2023 RTP are priority projects from local, regional or state planning efforts that included opportunities for public input. Clackamas, Multnomah and Washington counties and cities within each county recommended priority projects for their jurisdictions at county coordinating committees. ODOT, the Port of Portland, TriMet, SMART and other agencies worked with county coordinating committees and the City of Portland to recommend priority projects. The City of Portland recommended projects after reviewing priorities with its community advisory committees.

Joint JPACT and Metro Council Workshops

A series of six workshops brought regional decision-makers together to discuss major policy topics in the 2023 RTP. Community representatives provided opening remarks at three of the workshops, sharing lived experiences and community perspective on transportation needs and priorities.

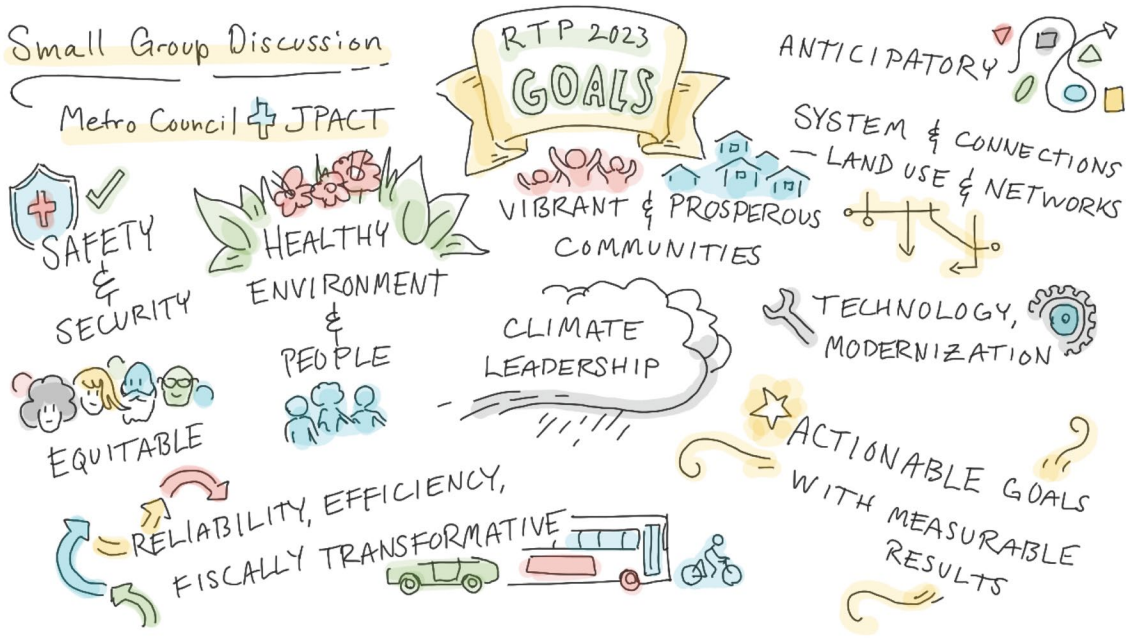
The workshops included:

1. Updating our vision and goals for the future of transportation (June 30, 2022)
2. Developing regional congestion pricing policy (July 28, 2022)
3. Creating safe and healthy arterials (Sept 29, 2023)
4. Strengthening the backbone of regional transit (Oct. 27, 2023)
5. Working together to tackle climate change (Nov. 10, 2022)
6. Connecting our priorities to our vision and goals for the future of transportation (May 11, 2023)

1. Updating Our Vision and Goals for the Future of Transportation (June 30, 2022)

Regional decision-makers discussed the region's vision and goals for the future of transportation. They provided feedback on updating the vision and goals for the transportation system serving greater Portland. A detailed overview of the discussion is available in the meeting summary.[iii] Key discussion themes included:

- Incorporate safety and security as the main priorities.
- Need to redefine the term used to describe the geographical area so that it resonates with the people it serves.
- Consider how the state can become a global leader in transportation.
- Improve the climate action plan and incorporate it more thoroughly into the goals.
- Strive to create complete communities.
- Reduce the number of goals to approximately five, proactive goals.



2. Developing regional congestion pricing policy (July 28, 2022)

Regional decision-makers discussed proposed regional congestion pricing policies that build on findings and recommendations from Metro's Regional Congestion Pricing Study. They provided feedback on draft policies for congestion pricing in the region.

Community members who shared their experiences and feedback with JPACT and Metro Councilors during the workshop were:

Esme Miller, Assistant Director of Research and Assessment at Lewis and Clark College and member of the City of Portland's Pricing Options for Equitable Mobility (POEM) Task Force, shared POEM's priorities, and considerations. They were enthusiastic about road usage charges if it's administered for equity and climate goals, rather than simply to expand the highway system. POEM was excited about variable pricing because it promotes behavior change. She also urged the group to consider equity goals over revenue when considering

Photo of Metro Councilor Craddick addressing participants at the joint JPACT and Metro Council workshop focused on the regional congestion pricing policy.

a pricing structure. POEM also suggested providing income-based exemptions and using existing means testing systems for a more streamlined approach.

Dr. Phillip Wu, a representative for ODOT's Equity and Mobility Advisory Committee (EMAC) member, shared EMAC's priorities and considerations. There is a need to acknowledge that previous policy decisions have harmed marginalized communities, and we've seen symptoms of community harm and trauma. EMAC recommends a trauma-informed perspective that results in community empowerment, shared trust, community healing, and growth. EMAC's recommendations to the Oregon Transportation Commission included actions related to congestion management, revenue generation strategies that prioritize low-income programs, business investments and accountability. A detailed overview of the discussion is available in the meeting summary.[iv]

Key discussion themes included:

- The policies and strategies developed around congestion pricing should focus on equity and climate resiliency as primary objectives.
- The committee should acknowledge the history of marginalizing communities and craft policies that benefit these communities.
- A low-income tolling program is necessary for building an equitable, sustainable system.
- Several members requested opportunities for more in-depth conversations.

3. Creating safe and healthy arterials (Sept 29, 2023)

Regional decision-makers explored regional challenges and opportunities for making the major streets greater Portland safe and healthy for everyone. They provided feedback on addressing the challenges of these streets in the RTP update.

Community members who shared their experiences and feedback with JPACT and Metro Councilors during the workshop were:

Beatrice Githinji is a member of the Tualatin Valley Highway Leadership Cohort and resident of Beaverton. She uses Tualatin Valley Highway every day for family and social time, work, doctor's visits, and shopping. She shared that people in her community feel fearful of crashes and their safety. Her hope is that trips along this road would take less time and become safer for her community. She called for reliable, efficient, and affordable public transit to accommodate how people get around the city, especially in cases where people do not own a car.

Maria Dolores Torres is a Tualatin Valley Highway Equity Coalition member, steering committee member at Adelante Mujeres and 30-year resident of Beaverton. She shared that there is always traffic, regardless of whether you are in a bus or car. Her community

is forced to run across the dangerous, crowded highway to make their buses. She implored the city and partner agencies to fix intersections without traffic lights and provide more frequent bus stops, roof protection at stops and more pedestrian crossings. A detailed overview of the discussion is available in the meeting summary[v].

Key discussion themes included:

Photo of Washington County Commissioner Nafisa Fai speaking at the joint JPACT and Metro Council workshop focused on safe and healthy urban arterials.

- General agreement that urban arterial corridors are very important and there is a need to improve safety, equity and improve transit along them.
- Listening to community members is important, especially those that live and work along the corridors.
- Funding investments in these corridors is a priority, and more funding is needed.
- A few participants mentioned that the network on the map is a good starting point, (RTP major arterials) but there are other streets that that have a similar traffic burden, safety and equity issues that could also be considered.
- Most agreed that land use plans and visions should guide transportation decisions on these corridors.
- Several participants wanted to see more flexibility and resources built in for smaller, local jurisdictions to implement large or complex solutions.
- A few participants added that it is important to be open to innovation and new ideas that can help accelerate progress and be cost-effective.
- Most agreed that corridors serve multiple different needs and functions. There is a need to balance these needs and functions in a way that meets safety and equity outcomes for the people living and working along them.
- General agreement that there is a strong foundation of working together. Continue to coordinate local, regional and state plans and priorities.

4. Strengthening the backbone of regional transit (Oct. 27, 2023)

Regional decision-makers explored options for advancing greater Portland's high capacity (fast, reliable) transit vision. They provided feedback on corridors to be considered for high capacity transit investment. A detailed overview of the discussion is available in the meeting summary[vi].

Key discussion themes included:

- Building on implementing adopted land use plans and increased transit service (including high capacity transit) consistently identified as top priorities followed by completing bicycle and pedestrian connections and investing in system management and operations.

Photo of policy makers viewing and discussing maps at the joint JPACT and Metro Council workshop focused on transit.

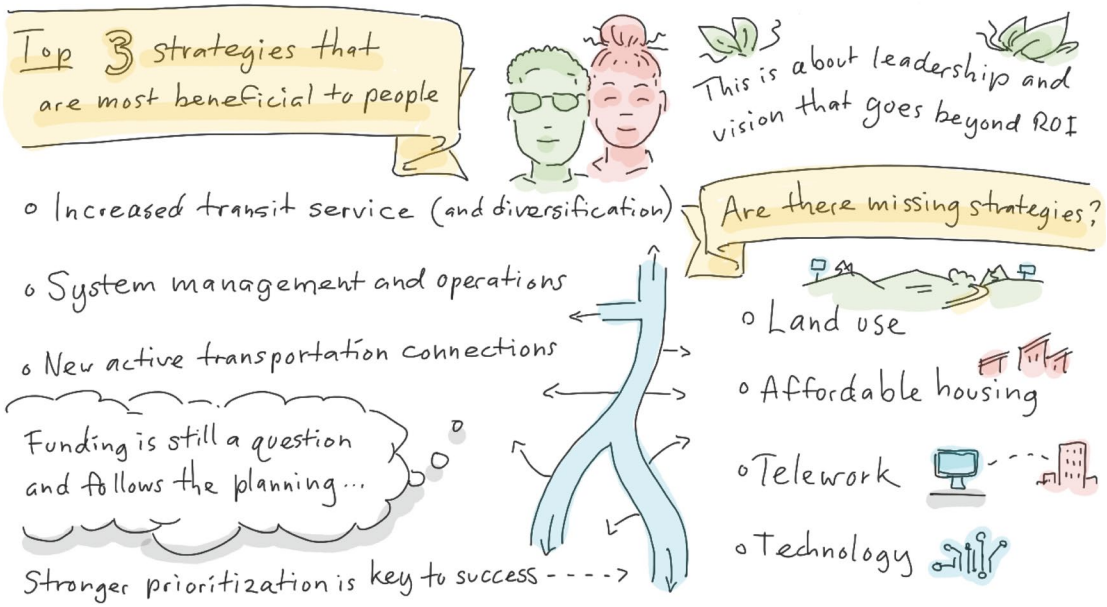
- Use an equity lens to determine a combination of strategies that work together to achieve Climate Smart Strategy and state mandated carbon reduction goals.
- Have deeper conversations on how these strategies will work together in practice, recognizing it will look different in each community.
- Look at California and other leaders in climate action for research, best practices, and strategies.
- Advocate for legislature support and alignment on investment priorities to support funding goals that lead to the successful implementation of the RTP.

5. Working together to tackle climate change (Nov. 10, 2022)

Regional decision-makers discussed progress implementing the region's adopted Climate Smart Strategy. They provided feedback on policies and investments needed to significantly reduce carbon emissions from our transportation system. A detailed overview of the discussion is available in the meeting summary[vii]. Key discussion themes included:

- Building on implementing adopted land use plans and increased transit service (including high capacity transit) consistently identified as top priorities followed by completing bicycle and pedestrian connections and investing in system management and operations.
- Use an equity lens to determine a combination of strategies that work together to achieve Climate Smart Strategy and state mandated carbon reduction goals.
- Have deeper conversations on how these strategies will work together in practice, recognizing it will look different in each community.

- Look at California and other leaders in climate action for research, best practices, and strategies.
- Advocate for legislature support and alignment on investment priorities to support funding goals that lead to the successful implementation of the Regional Transportation Plan (RTP).



6. Connecting our priorities to our vision and goals for the future of transportation (May 11, 2023)

Regional decision-makers discussed the RTP system analysis, needs assessment and draft project list. They provided input on how the draft project list could best align with regional goals and community priorities on equity, safety, and climate, particularly in the near-term.

Bill Beamer, community representative on TPAC, spoke to JPACT and Metro Councilors about seizing opportunities to evolve the planning process to meet climate and equity goals. He urged regional leaders to involve community members in the decision-making process and make room for new perspectives, resources, and talents to help generate ideas and strategies. He emphasized that that gaps of inequity will get larger if we don't change how we plan. A detailed overview of the discussion is available in the meeting summary[viii].

Key discussion themes included:

- The region is at a pivotal point, facing multiple crises related to safety, climate, and affordability.

- There is a concern that the region will not meet its climate targets without adjustments to the 2023 RTP to address this concern.
- Engaging new voices, using different approaches, and re-framing problems will make the RTP more meaningful and impactful, creating more opportunities for empowering marginalized community members.
- Moving long-term projects that address equity and safety on high injury corridors and in equity focus areas to the near-term project list will help address safety concerns early and help save lives.
- The RTP can identify state transportation policy and funding changes that give the region more resources, tools and authority to meet our goals.
- Future work is needed to address housing and transportation affordability and displacement of existing residents and businesses in an integrated manner around high capacity transit investments.
- Regional data is necessary but limited. It would be useful to collect more local data and update limited data sets.

PUBLIC INFORMATION

Information about the 2023 Regional Transportation Plan update and opportunities to engage in the plan was communicated to the public throughout the planning process through a variety of platforms. During key comment opportunities, notices with requests to share were sent to neighborhood associations, citizen participation organizations and community planning organizations. Because of the number of neighborhood associations and Community Planning Organizations (CPOs) in the region, Metro employed a "phone tree" technique, sending the notice to city and county contacts and asking them to distribute to the individual associations and organizations in their jurisdictions. Metro posted notices on social media and Metro News and sent notices to:

- Metro's transportation interested parties email list (2,772 people)
- Metro Councilor's constituent communications
- TPAC, MTAC, MPAC and JPACT and interested parties list
- Community based organizations:
  - 1,000 Friends of Oregon
  - AARP
  - Asian Pacific American Network of Oregon
  - Audubon
  - Beyond Black
  - Bike Loud
  - Centro Cultural
  - Go Lloyd (TMA)
  - Hacienda Community Development Corporation
  - Intertwine Alliance
  - Join PDX
  - League of Women Voters
  - Momentum Alliance
  - Metropolitan Alliance for Workforce Equity
  - Climate Solutions
  - Coalition of Communities of Color
  - Community Cycling Center
  - Disabilities Rights Oregon
  - Division Midway Alliance
  - East Portland Action Plan
  - Forward Together Action
  - Getting There Together
  - Immigrant & Refugee Community Organization
  - Imagine Black
  - Native American Youth and Family Center
  - Next Up
  - OPAL
  - Oregon Futures Lab
  - Oregon Environmental Council

- Oregon Just Transition
- Oregon League of Conservation Voters
- Oregon Walks
- Ride Connection
- Street Roots
- Street Smart
- Sunrise Movement PDX
- The Street Trust
- Urban Greenspace Institute
- Urban League of Portland
- Verde
- Washington County Ignite
- Westside Transportation Alliance
- Youth Collective - The Center

- Local jurisdiction CPO and neighborhood involvement offices list
  - City of Beaverton
  - City of Forest Grove
  - City of Gresham
  - City of Happy Valley
  - City of Hillsboro
  - City of Lake Oswego
  - City of Milwaukie
  - City of Oregon City
  - City of Portland
  - City of Tigard
  - City of Tualatin
  - City of West Linn
  - City of Wilsonville
  - Clackamas County
  - Washington County
  - Multnomah County

- Newspapers
  - The Asian Reporter
  - Beaverton Valley Times
  - Clackamas Review
  - El Latino de Hoy
  - Forest Grove News Times
  - Hillsboro News Times
  - Portland Tribune
  - Valley Times News

The RTP project website, available in English and Spanish, posted information about new updates in the process, with a timeline indicating key decision points and public engagement and comment opportunities.

Summary of public engagement activities for the 2023 regional transportation plan and the high capacity transit strategy

While regional advisory committees served as the primary engagement mechanisms for collaboration and consensus building during the 2023 RTP update, Metro also engaged with other interested individuals, communities and organizations across greater Portland. Over the course of the 2023 RTP update and HCT Strategy Update, Metro hosted a variety of events and platforms to engage community members and organizations on their transportation needs and priorities. Engagement included surveys that reached thousands of people across the region, community leaders' forums, business forums, tabling at community events in Clackamas, Multnomah and Washington Counties and in-language focus groups, among other activities.

As described in the 2023 RTP public engagement plan, Metro staff were intentional in developing and creating engagement strategies and tactics to reach and elevate the voices of communities that have been excluded and marginalized from transportation decisions and who have been disproportionately impacted and burdened by those decisions. In addition to engaging with local agency and jurisdictional partners, community partnerships were also built and nourished, aiming to strengthen public trust and be more inclusive of underrepresented communities, including communities of color, youth, older adults, people with disabilities, people with low incomes and people with limited English proficiency. Metro partnered with seven community organizations, including:

- Centro Cultural
- Community Cycling Center
- OPAL
- Next Up
- Street Trust
- Unite Oregon
- Verde

Metro worked closely with organizations to engage community members and businesses in across the region. In addition to the community engagement partners, a sampling of organizations that participated in the 2023 RTP include:

- 1,000 Friends of Oregon
- AARP
- Asian Pacific American Network of Oregon (APANO)
- Climate Solutions
- Getting There Together
- Imagine Black

- Intertwine Alliance
- Momentum Alliance
- Oregon Environmental Council
- Oregon Walks
- Portland Business Alliance
- SE Uplift
- TriMet Committee on Accessible Transportation
- Wash Co. Rising
- Washington County Chamber of Commerce
- Westside Economic Alliance
- Westside Transportation Alliance

Metro also engaged small transit providers, TriMet's Committee on Accessible Transportation (CAT) and TriMet's Transit Equity Advisory Committee (TEAC) to shape development of the HCT Strategy at key milestones. TEAC members included Africa House, APANO, Asian Family Center, Immigrant & Refugee Community Organization (IRCO), Bus Riders Unite!, Central City Concern, Centro Cultural, Clackamas Community College, Clackamas Workforce Partnership, Join PDX, Latino Network, Milwaukie High School, Mt. Hood Community College, Multnomah County Youth Commission, Oregon Food Ban, Portland Community College, Portland State University, and The Street Trust.

The following summarizes engagement activities that convened primarily members of the public and community and business representatives.

Phase 1: Scoping—Understand trends and challenges and develop work plan and engagement plan (Oct. 2021 to May 2022)

Focus groups conducted in Mandarin, Russian, Spanish, and Vietnamese (Dec. 2021): Four focus groups and follow up surveys engaged participants in questions about their individual and community's transportation needs and priorities. These engagements also asked for input on language interpretation and translation needs and priorities to inform Metro's Limited English Proficiency (LEP) Plan update. Road maintenance, traffic and public transit were the top transportation concerns. The focus groups' input on transportation is summarized in the report.[ix]

Scoping interviews (Dec. 2021 to Feb. 2023): Interviews with decision-makers, agency staff and organizational staff helped scope key concerns to be addressed in the 2023 RTP

update, key trends and choices facing the region, how the region should work together to address them and desired process outcomes. Participants also provided input on the RTP vision and goals. A complete summary of the interviews is available in the report.[x] Interview themes included:

- Interviewees emphasized the uncertainties resulting from the pandemic, concerns related to traffic deaths and public safety, the need for new funding mechanisms and for investments in transit.
- There was general agreement that the 2018 RTP vision pointed the region in the right direction, although some people thought it was too all-encompassing.
- Interviewees most consistently commented that safety and equity should be priority focus areas for the 2023 RTP.

Community Leaders' Forum #1 (Nov. 17, 2021): A virtual forum included Metro Councilor Craddick, Metro staff and participants from community based organizations and advocacy groups. Participants emphasized urgent community transportation needs including safety and accessibility, transit and displacement concerns. The community leaders also provided input on engaging community in the RTP. The an overview of the discussion and feedback is available in the forum report[xi].

Black, Indigenous, and People of Color small business listening session (August 2022): Seventeen participants included BIPOC small business owners from across the region, representing many types of businesses. Discussions focused on transportation challenges and strategies including:

- Co-designing and centering the experiences of overburdened communities that have been harmed by past investments and decisions, prioritizing safety, especially for more vulnerable residents.
- Participants recommended that agency staff have cultural awareness training and that engagement occur in spaces that address harm and establish accountability.
- Transit and parking are key for people accessing businesses.
- Service businesses need to travel throughout the region and want alternative routes to traveling through town centers and congested areas to reach customers.

Online survey #1 (Feb. 14 to April 4, 2022): There were 1,372 survey participants. An overview of the results is available in the survey summary.[xii] Key themes included:

- The RTP vision continues to be aligned with most participants' vision for the future of transportation in the greater Portland region. Critiques included the need to elevate climate change and the vision being too broad.

- Most respondents indicated that the region was not making good progress on achieving the 2018 RTP goals. Safety and security were the top concern.
- Survey respondents provided input on how transportation in the region could be more equitable. Response themes included: Affordable transit, increase transit accessibility, increase transportation choices, involve communities experiencing inequities in decision-making and equitable funding sources for transportation.

Phase 2: Refine vision, goals, objectives, targets and policies (May to Aug. 2022)

Input, feedback and ideas collected in Phase 1 was foundational for Phase 2, as the RTP team started to refine the vision, goals and objectives for the 2023 RTP.

Climate expert panel (June 22, 2022): National experts shared best practices and tools for assessing and monitoring climate impacts of transportation. This event convened agency and community partners to set the foundation for a collaborative regional approach to reducing transportation's impact on climate. The event also fostered a shared understanding of the region's climate modeling tools and the tools being used nationally to inform VMT and GHG reduction strategies and monitor progress toward adopted VMT and GHG reduction targets. To see the presentations and a detailed summary of the discussion in available in the panel summary report.[xiii]

Phase 3: Update system needs and revenue forecast (Sept. to Dec. 2022)

Online survey #2 (Sept. 7 to Oct. 17, 2022): The online survey was available in English, Spanish, Vietnamese, Simplified Chinese and Russian. There were 1,191 survey participants. A summary of the results is available in the survey report.[xiv] Key themes included:

- Travel choices: Most respondents use cars and public transit as their main modes of transportation.
- Investment priorities: Most respondents indicated they wanted the region to invest in existing transit services, pedestrian and bike infrastructure and managing existing roadways.
- Priority transit improvements: Respondents indicated that more frequent transit and improved bike and pedestrian infrastructure would most improve their experience traveling in the greater Portland area. Respondents emphasized transit coming more often, being faster, and on-time as ways that would improve their transit experience, as well as improved sidewalks, better lighting near transit, and better maintained buses, trains, and transit stations.

Community Leaders' Forum #2 (Oct. 13, 2022): A virtual forum included Metro staff and participants from community based organizations and advocacy groups. The forum focused on raising awareness about how the draft RTP project list is developed and the opportunities for input during the process. Participant input emphasized the need to focus on outcomes and the impact of investments on people's lives. This feedback, among other input, helped to spur the outcomes-based high level assessment that the Metro staff conducted on the draft project list in the spring of 2023. A complete summary of the forum is available in the report.[xv]

TriMet's Equity Advisory Committee (Nov. 8, 2022) and Committee on Accessible Transportation (Nov. 16, 2022 and Dec. 8, 2022): The project team shared the draft vision for the HCT Strategy Update and welcomed feedback on the vision and factors that make a corridor ready for high capacity investment. Feedback was used to inform the initial HCT corridor tiering, which were later shared in Phase 4.

Westside Multimodal Improvement Study Business Roundtable (Nov. 16, 2022): At this roundtable about the Westside Multimodal Improvement Study, businesses shared their transportation concerns and needs for the future. RTP team staff shared an update on the 2023 RTP and heard transportation concerns from business.

Phase 4: Build RTP investment strategy and create draft plan (Jan. to June. 2023)

A Metro News story, "**The fight for my generation: Meet four youth working for climate justice**," elevated youth voices in Clackamas, Multnomah and Washington Counties working on climate action in their communities. Read the story[xvi].

High Capacity Transit engagement was conducted at TriMet's Forward Together Plan public tabling events: The HCT Strategy team engaged community members at 10 events from Sept. 2022 through Feb. 2023 in public libraries, community colleges and other community gathering places in Clackamas, Multnomah and Washington Counties. A complete summary of feedback is available in the HCT engagement summary.[xvii] Common themes included:

- A desire to expand the transit service area, with a particular focus on more connections in Washington and Clackamas counties.
- Connect HCT investments to better serve equity populations and target employment hubs.

TriMet's Equity Advisory Committee (Jan. 10, 2023) and Washington County Chamber of Commerce Transportation Task Force (Jan. 30, 2023): The HCT Strategy project team shared the draft concept for the four tiers and the initial prioritization of corridors for high capacity transit investment. Feedback helped to refine corridor priorities and finalize the tiers and tiering.

High capacity transit strategy online open house and survey (Jan. 17 to March 15, 2023): The online open house was viewed more than 800 times and there were 350+ respondents. The interactive online platform shared the draft HCT vision and asked for feedback on priority HCT corridors. A complete summary of feedback is available in the HCT engagement summary.[xviii]

High Capacity Transit business focus group (Feb. 2, 2023): Representatives from Gresham, Washington County and Tigard (e.g., Gresham Chamber of Commerce, Tigard Chamber of Commerce, and the Westside Economic Alliance) discussed priorities for HCT and local concerns related to high capacity transit and public safety in their communities. A complete summary of feedback is available in the HCT engagement summary.[xix]

Online survey #3 (April 5 to May 1, 2023): The online survey included an interactive map and invited feedback on the draft 2023 RTP goals, priority investment categories and project feedback. There were 884 survey participants. A summary of the results is available in the survey report.[xx] Key themes included:

- Survey participants indicated a safe system was the most important draft goal.
- The top three investment categories prioritized by survey participants were maintenance, transit capital and walking and biking.

Community based organization engagement (Jan. to Sept. 2023): Metro contracted with seven community-based organizations to engage underrepresented and marginalized community members in the 2023 RTP and build ongoing community capacity to engage in transportation planning processes. Most organizations focused their community engagement on Phase 4 of the RTP and on identifying high capacity transit priorities. Organizations shared the mix of investments in the draft RTP project list and asked community members to consider their transportation needs and investment priorities and provide feedback. Each organization's engagement activities and community feedback collected by the organizations is summarized in report reports.[xxi]

Some of the key themes from the community based organization included:

- Personal safety and traffic safety is a top concern and priority for investment. Many people expressed concern about not feeling safe in public spaces, including sidewalks and on transit.
- People expressed the need for community members of all ages and abilities to have safe, affordable and reliable ways to get around, no matter where they live.
- Many community members want transit options that meet their needs, get them where they need to go, safely, efficiently, affordably and reliably.

- Maintaining the transportation system is the most important near term investment. In particular, maintaining transit vehicles and stations and repairing potholes in roadways were themes.
- Investments in lighting throughout the transportation system and public restrooms at transit stations, were themes.
- Investments in roads and bridges, biking and walking and transit are also important.

The community based organization engagement activities included:

- Centro Cultural: two focus groups with 40 participants[xxii]
- Community Cycling Center: two focus groups and bike rides with 43 participants. Verde supported community groups in submitting comment letters during the public comment period.[xxiii, xxiv, xxv]
- Next Up: two listening sessions with 39 participants[xxvi]
- OPAL: two online surveys and listening sessions with 141 participants[xxvii]
- The Street Trust: five listening sessions with 75 participants[xxviii] and five recorded community stories.[xxix, xxx, xxxi xxxii, xxxiii]
- Unite Oregon: interviews with 21 participants.[xxxiv] Unite Oregon supported the TV Highway Equity Coalition and the Southwest Corridor Equity Coalition in submitting public comment letters during the public comment period. [xxxv, xxxvi]
- Verde focus groups (2): 29 participants.[xxxvii, xxxviii, xxxix]

Community Leaders' Forum #3 (April 13, 2023): A virtual forum included Metro Councilor Hwang, Metro staff and participants from community based organizations and advocacy groups. During the forum, Metro staff provided an overview of the draft project list, the high level assessment of the list and the upcoming opportunities for community input. Participants discussed community investment priorities and provided input. An overview of the discussion and feedback is available in the summary.[xl] Key topics included:

- All people across the region to access affordable transportation.
- More investment in transit is needed.
- There is a need to better capture the impact of proposed projects on climate.

Language-specific community forums (April 15, 2023): Metro partnered with the Community Engagement Liaisons (CELs) Program to provide four language-specific in-

Photo of participants at an in-language RTP forum focused on priority transportation investments.

person project forums, which included community members from Russian, Vietnamese, Chinese, and Spanish-speaking communities. Participants were asked to consider the long-term future of greater Portland, and to provide feedback on priorities the region should focus on in the near term (next five to 10 years). A complete summary of the input provided during each focus group, is included in the summary reports.[xli] Top themes included:

- Concerns for personal safety while walking and using public transportation.
- The need for maintenance on roadways, sidewalks and transit.
- Prioritizing investments in roads and bridges and in walking and biking.

Washington County Chamber of Commerce Transportation Task Force (April 24, 2023) and TriMet's Equity Advisory Committee (May 13, 2023): The HCT Strategy project team shared the draft report and recommended actions. Feedback helped to refine the strategy and associated actions and report.

Regional transportation business forum (May 25, 2023): Metro worked with the Portland Business Alliance (PBA) to co-host an in-person forum. The forum participants represented a range of businesses from across the greater Portland area, including Clark County, PBA staff and leadership, Metro staff and leadership, including Metro Council President Lynn Peterson and Councilor Juan Carlos González. A complete overview of the forum, is available in the meeting summary.[xlii] Key topics included:

- Participants asked questions about the RTP process and specific issues, including tolling, transit ridership and investments that will support electric vehicles and freight.
- Participants commented on the importance of Portland area freight routes to the statewide economy and the need to focus on small transportation investments that will have immediate benefits to developing communities on the edge of the region.

The following businesses and organizations participated in the transportation business forum:

- 1,000 Friends of Oregon
- A Sight for Sport Eyes

- City of West Linn
- Clackamas County
- Eagles Routes LLC
- EFI Recycling, Inc.
- FedEx Express
- Home Builders Association
- Identity Clark County
- Nike Inc.
- ODOT
- Oregon Trucking Association
- Oregon's My. Hood Territory
- Fry Land Use Planning
- Metro
- Portland Community College
- Sorin Garber & Associates
- Summit Strategies
- The Street Trust
- TriMet
- Westside Transportation Alliance
- Willamette Technical Fabricators
- WSP

Phase 5: Public review of draft 2023 RTP and Plan adoption (July to Dec. 2023)

Public comment period activities are summarized in the following section. In addition to the public hearing held during the public comment period, Metro Council held two more public hearings. Members of the public, organizations and agencies also submitted comment letters and emails between the end of the public comment period and the adoption of the RTP.

- **Public hearing (Sept. 28, 2023):** A public hearing was held in person and online at the Metro Council's first reading of the ordinances to adopt the amended 2023 RTP and HCT Strategy. Seven people testified through oral testimony. A common theme across several testimonials was support for the policies in the 2023 RTP and concern that the project list does not align with the RTP goals and policies. There was a strong emphasis on safety and climate and prioritizing investments that will advance those goals. A couple of people expressed explicit opposition to investments in highways and freeways.
- **Public hearing (Nov. 30, 2023):** A public hearing was held in person and online at Metro Council's adoption of the 2023 RTP and HCT Strategy. Eighteen people testified through oral testimony. The impact of transportation on climate change was a the most prominent theme in the testimony. Traffic safety and concerns about the high rates of pedestrian deaths was also a theme. People who testified also voiced concern about traffic safety and about the amount of funds going toward about the impacts of congestion and questioned investments in new transit.

- **Comment letters (Aug 25 to Nov. 30:** There were eight comment letters submitted from individuals or representatives of organizations, not including public agencies. The comments in letter submitted spanned criticism of tolling as well as critique about specific approaches to tolling , support for the balance of projects in the RTP, critique of the RTP's climate analysis and concerns about safety and personal safety.

FINAL PUBLIC COMMENT PERIOD, HEARINGS AND NOTIFICATIONS

A final 45-day public comment period was held from July 10 to Aug. 25, 2023. 6. A summary of engagement activities follows. A final public comment report and appendices to the public comment report documenting all comments received was provided to the Metro Council and regional advisory committees to inform their final deliberations.

Notifications and notices: Public notices of the comment period were provided to local neighborhood involvement and community outreach offices at jurisdictions across the region. Notices were published in newspapers across the region and on the Metro website. Metro also posted to social media throughout the public comment period. Notifications were sent to the RTP interested persons list (2,772 people) in addition to Metro's four regional advisory committees and their respective interested parties. Partner agencies and organizations that participated throughout the RTP update process also posted the public comment opportunity.

Public review draft materials: The public review drafts of the 2023 RTP and High Capacity Transit Strategy and their appendices were posted on the 2023 RTP webpage at oregonmetro.gov/rtp. Supplemental materials were also posted to the webpage to provide interactive and accessible versions of these documents. Those materials included executive summaries of the 2023 RTP and High Capacity Transit Strategy and an interactive map and list of the RTP investment priorities.

Online survey #4 (July 10 to August 25th, 2023): During the public comment period, an online survey provided brief overviews of key elements of the 2023 RTP, including the project list, new and updated policies and High Capacity Transit Strategy priorities. The survey invited feedback on whether the key elements of the plan will move the greater Portland's transportation system in the right direction. The survey also provided opportunities for open-ended feedback. There were 663 survey participants. Top themes included:

- The mix of investments in the public review draft of the 2023 RTP did not match survey participants priorities. There were relatively higher levels of support among Washington County and Clackamas County participants, although still not a strong level of support for the mix of investments.
- Most survey participants felt the priority high capacity transit investments would improve travel throughout the region.
- Most survey respondents indicated that the new and updated polices in the RTP—the mobility and pricing policies—will guide the region's transportation system in the right direction.

- Survey respondents were asked to share one big idea for improving the greater Portland region's transportation system. Transit service and active transportation were most frequently mentioned.
- Survey respondents were asked to share the one thing they would most like decision-makers in greater Portland to know. Transit and traffic safety were most frequently mentioned.

Comment platforms: There were several ways for people to provide specific comments and suggested changes to the plan, including an online comment form, email, letter and voicemail. More than 50 emails and 20 letters were received and are included in the Final Public Comment Report.

Online comment form (July 10 to August 25, 2023): Members of the public, public agencies and organizations used an online comment form to provide comments, specific changes and edits to the public review draft 2023 RTP and HCT Strategy. Key themes among comments from members of the public (not agency staff) included:

- Support for transit investments
- Support for walking/biking investments
- Opposition to freeway projects and added road capacity.

Public hearing (July 27, 2023): A public hearing on the public review draft 2023 Regional Transportation Plan and High Capacity Transit Strategy was held at a Metro Council meeting at the Metro Regional Center and online. Twenty people testified through oral or written testimony on topics ranging from traffic safety and climate to parking and feedback on RTP Chapter 8.

Community based organizations continued to engage their community members in identifying transportation investment priorities and, in some cases, organizations shared community input through comments made during the formal public comment. Community input was also shared with Metro through reports, stories and video. Organizations engaged more than 380 community members in the 2023 RTP and, in many cases, developed community interest and capacity to engage in future local and regional transportation planning.

Consultation meetings: Metro staff invited federal, state and local resource, land management and regulatory agencies to consult on the public review draft 2023 RTP and High Capacity Transit Strategy in accordance with 23 CFR 450.316. Metro convened two separate consultation meetings on Aug. 17 (resource agencies) and Aug. 22 (federal and state agencies). These consultation activities built on consultations with agencies earlier in the 2023 RTP process. Summaries of consultation meetings held during public

comment are included in public comment report appendices. Throughout the 2023 RTP update, Metro invited consultation with the seven Tribes to inform Metro's 2023 update to the Regional Transportation Plan. Staff and representatives from multiple Tribes engaged formally and informally. No formal consultation meetings were held with Tribes during the public comment period. Metro's Tribal Liaison engaged with Tribes informally during this time.

CONSULTATION ACTIVITIES

In addition to on-going consultation that occurred with public officials and jurisdictional partners through Metro's regional advisory committees, in accordance with 23 CFR 450.316 Metro invited more than 30 federal, state, and local historic and natural resource, wildlife, Port and land management agencies to consult on the 2023 RTP during two key milestones—the scoping phase (phase 1) and public comment period (phase 4). Metro provided an update email for consulting agencies that requested it during the needs assessment and revenue forecast phase (phase 3). Agencies invited to consultations included:

Resource agencies

- Clackamas County Water Environment Services
- Clean Water Services
- Metro Parks and Nature
- National Marine Fisheries Service (NOAA)
- National Park Service (Pacific West Region)
- Oregon Department of Agriculture
- Oregon Water Resources Department
- Oregon Watershed Enhancement Board
- Oregon Department of State Lands
- Oregon Department of Fish and Wildlife
- Oregon Department of Forestry
- Portland Bureau of Environmental Services
- United States Environmental Protection Agency
- United States Fish and Wildlife Service
- United States Forest Service
- United States Bureau of Land Management

Federal, state and local transportation agencies

- Bonneville Power Administration
- Federal Aviation Administration
- Federal Highway Administration
- Federal Railroad Administration
- Federal Transit Administration
- Federal Transit Administration
- United States Army Corps of Engineers
- United States Department of Labor
- United States Department of Veterans Affairs
- United States Coast Guard
- Oregon Bureau of Labor and Industries

- Oregon Department of Energy
- Oregon Department of Environmental Quality
- Oregon Department of Land Conservation and Development
- Oregon Department of Transportation
- Oregon Department of Veterans Affairs
- Oregon Parks and Recreation Department
- Oregon State Historic Preservation Office
- Portland of Portland
- Port of Vancouver
- TriMet
- South Metro Area Regional Transit (SMART)
- C-TRAN
- Southwest Washington Regional Transportation Council (RTC)

For a description of the feedback and discussions during agency consultations read the summaries:

- Phase 1 consultation summary
- Phase 4 consultation summary

Metro invited consultation with the seven Tribes, in accordance with 23 CFR 450.316 and in support of partnership and relationship development between Metro and interested Tribal Governments in recognition of tribal sovereignty and in service of the greater public and environment. Throughout the 2023 RTP process, Tribes engaged formally and informally, as Metro's Tribal Liaison invited continuous conversation about the RTP and transportation issues.

In alphabetical order, these Tribes included: Confederated Tribes and Bands of the Yakama Nation, Confederated Tribes of Grand Ronde, Confederated Tribes of Siletz Indians, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs Reservation of Oregon, Cowlitz Indian Tribe, and the Nez Perce Tribe. Metro's Tribal Liaison submitted a letter during the public comment period that highlights concerns and input from the Tribes. Metro staff will continue to work to address the input from Tribes in advance of the next RTP update.

Consultation activities included:

- 6 consultation meetings with meetings with federal, state and regional agencies
- 6 consultation meetings with Tribes

SUMMARY OF AGENCY AND JURISDICTIONAL OUTREACH AND COORDINATION FOR THE REGIONAL MOBILITY POLICY UPDATE AND THE REGIONAL FREIGHT DELAY AND COMMODITIES MOVEMENT STUDY

Regional mobility policy update

The mobility policy is the region's primary way of measuring how well the transportation system meets the needs of people, goods and services and for evaluating the potential impacts of local land use decisions on the transportation system. For decades the mobility policy has been centered on a vehicle-based threshold referred to as the volume-to-capacity ratio or v/c ratio, which solely focused on vehicle congestion on roads and at intersections. The 2018 Regional Transportation Plan (RTP) failed to meet the v/c targets, signaling the need to update the regional mobility policy. The 2018 RTP highlighted the need for the policy to better align with the comprehensive set of shared values, goals and desired outcomes identified in the RTP, the 2040 Growth Concept, as well as with local and state goals. The update of this policy, and its forthcoming implementation, is an important step toward realizing the region's goals and desired outcomes related to equitable transportation, climate action and resilience, safety, a thriving economy and mobility options.

In 2019, Metro and Oregon Department of Transportation (ODOT) began the update to the regional mobility policy. ODOT and Metro worked with a consultant and engaged jurisdictional, business, freight and community representatives across the region over a three-year process. The engagement with state agencies and jurisdictions will continue as the policy is refined and incorporated into the updated Regional Transportation Functional Plan and the Oregon Highway Plan in 2024-25.

Community input received from tens of thousands of people across the region during the 2018 RTP update and subsequent engagement for the transportation funding measure in 2020 was examined by the project team and was foundational to the update of the regional mobility policy. An overview of the process used to identify the mobility policy elements and develop the draft policy, proposed performance measures and draft implementation action plan follows.

Step 1: Project scoping and current measures and tools research (April 2019 to June 2020)

In 2019, the project team sought input through a variety of engagement activities to inform the work plan and engagement plan for the Regional mobility policy update, seeking feedback on the project objectives and proposed approach. JPACT and the Metro

Council approved the work plan and engagement plan in November and December 2019, respectively. Engagement activities included:

- Transportation Policy Alternatives Committee (TPAC)/Metro Technical Advisory Committee (MTAC) workshops
- Community leaders' forum
- Project scoping questionnaire
- Interviews: A total of 64 people were interviewed about how they define mobility, as well as to their desired outcomes for the mobility policy update. Interviewees included policy makers, business and community representatives, and transportation and land use practitioners (consultants and city/county/ regional/state/federal staff). For a detailed summary of the interviews, read the report.
- A Scoping Report was prepared that described the scoping process and key themes that shaped development of the project work plan and engagement plan.

Step 2: Policy analysis and current approaches and best practices research (2020)

From Fall 2019 to June 2020, the Transportation Research and Education Center (TREC)/Portland State University documented current mobility-related performance measures and methods being used in the Portland region, statewide and nationally. The Regional Mobility Policy Background Report Policy Analysis and Best Practices reviews the existing mobility policy and summarizes current practices in measuring multimodal mobility. In early 2020, the project team identified six key transportation outcomes based on the input provided during the scoping phase and the following engagement activities.

- The project team reviewed community input from the regional mobility pricing scoping and the 2018 Regional Transportation Plan update and development of the 2020 transportation funding measure.
- TPAC/MTAC workshops (two) focused on providing input on outcomes and narrowing the list of mobility measures.

Step 3: Identify mobility policy elements and test potential measures using case studies (Spring 2021)

The project team engaged policymakers, practitioners, community leaders and other interested parties to help shape the proposed elements and measures to include in the updated policy. The draft policy elements and measures that were shared for feedback were informed by input from recent transportation planning efforts and the Regional mobility policy update scoping processes as well as feedback from two workshops with the TPAC and MTAC in 2020.

- Online facilitated practitioner forums (four forums, totaling about 130 participants)
    - Forums for planning and engineering practitioners (two)
    - Forum for goods and freight professionals (one)
    - Forum for community leaders (one)
- Presentations and discussions at:
    - County Coordinating Committees (staff and policy)
    - MTAC
    - TPAC
    - MPAC
    - JPACT and the Metro Council

For a detailed summary of engagement in Spring 2021, read the engagement report and appendices.

Step 4: Develop draft Mobility Policy, measures and implementation action plan to test and refine (Feb. to May 2022)

From February to May 2022, the project team engaged TPAC, MTAC and other practitioners through three workshops, an online questionnaire, briefings to staff-level county coordinating committees and a third practitioners forum. The project team reported the case study findings and preliminary mobility policy recommendations from the research. Engagement activities included:

- TPAC/MTAC workshops (three workshops)
- Online facilitated practitioners' forum
- Online questionnaire

Step 5: Accept Draft Mobility Policy, Measures and Implementation Action Plan to Further Test and Refine in 2023 RTP Update (June to December 2022)

From May to August 2022, the project team used the previous input received to further develop the draft regional mobility policy and proposed performance measures. In Late August and throughout September 2022, the project team continued to refine the draft performance measures and implementation action plan to address feedback received. Engagement activities included:

- TPAC/MTAC workshops (two workshops)

- Coordination meetings with ODOT technical services staff from Salem and Region 1 (two meetings)
- Presentations and discussions at:
    - County Coordinating Committees (staff and policy)
    - MTAC
    - TPAC
    - MPAC
    - JPACT
    - Metro Council

In November 2022, JPACT and the Metro Council accepted the draft mobility policy statements and supported further development of the draft performance measures and targets to understand the implications of the current and proposed measures and related policy language and implementation plan by testing and refining during 2023 RTP system analysis. With this action, the mobility policy update was integrated in the 2023 RTP update. More information about the process and technical work can be found in Appendix E to the 2023 RTP. Recommendations for future work to support implementation of the policy and measures is described in Chapter 8 of the RTP.

Regional freight delay and commodities movement study

During the development of the 2023 RTP, Metro worked with a consultant to develop The Regional Freight Delay and Commodities Movement Study (the Commodities Movement Study). The Commodities Movement Study examined the effects of the global COVID pandemic on the growth in e-commerce and delivery, among other trends, and on the movement of vital commodities, the supply chain and retail shopping. Findings were integrated into the 2023 RTP process and will continue to guide regional policy that addresses freight movement into the next RTP update. The project team engaged business, freight and community representatives across the region over a two-year process.

The study was guided primarily by the project management team, the project's Stakeholder Advisory Committee (SAC) and the Portland Freight Committee (PFC). The interagency project management team included the City of Portland, Metro, Oregon Department of Transportation, Port of Portland, Port of Vancouver, Southwest Washington Regional Transportation Council, Washington State Department of Transportation, and Clackamas, Multnomah and Washington Counties. The project team shared project updates and received feedback from the following committees:

- Portland Freight Committee (4 meetings)
- Commodities Movement Study SAC (7 meetings)
- Clackamas County Coordinating Committee and Technical Advisory Committee
- East Multnomah County Transportation Committee (EMCTC) Technical Advisory Committee
- Multnomah County Coordinating Committee
- Washington County Coordinating Committee and Technical Advisory Committee
- TPAC-MPAC Workshops (6 meetings)
- JPACT (3 meetings)

The following organizations were represented on the Commodities Movement Study SAC:

- B-Line
- Burgel Rail Group
- Central Eastside Industrial Council
- Clackamas County Business Alliance
- Columbia Corridor Association
- Columbia Distributing
- FedEx
- Greater Portland Inc.
- Highway Specialized Transport
- Identity Clark County
- Intel
- Oregon Environmental Council
- Oregon Department of Environmental Quality
- Oregon Trucking Association
- Port of Portland
- Portland State University and the Transportation Research and Education Center
- Prosper Portland
- Republic Services
- The Street Trust
- TriMet
- Westside Economic Alliance

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EXHIBIT E: MAJOR REPORT DESCRIBING PROGRESS TOWARD CLIMATE PERFORMANCE TARGETS

Exhibit E

Major Report Describing Progress Toward Climate Performance Targets

Prepared by Metro on behalf of the Portland metropolitan area and submitted to the Department of Land Conservation and Development pursuant to OAR 660-012-0900

May 30, 2024

Metro respects civil rights

Metro fully complies with Title VI of the Civil Rights Act of 1964 that requires that no person be excluded from the participation in, be denied the benefits of, or be otherwise subjected to discrimination on the basis of race, color or national origin under any program or activity for which Metro receives federal financial assistance.

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

The Joint Policy Advisory Committee on Transportation (JPACT) is a 17-member committee that provides a forum for elected officials and representatives of agencies involved in transportation to evaluate transportation needs in the region and to make recommendations to the Metro Council. The established decision-making process assures a well-balanced regional transportation system and involves local elected officials directly in decisions that help the Metro Council develop regional transportation policies, including allocating transportation funds. JPACT serves as the MPO board for the region in a unique partnership that requires joint action with the Metro Council on all MPO decisions.

Project website: **oregonmetro.gov/rtp**

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

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PURPOSE

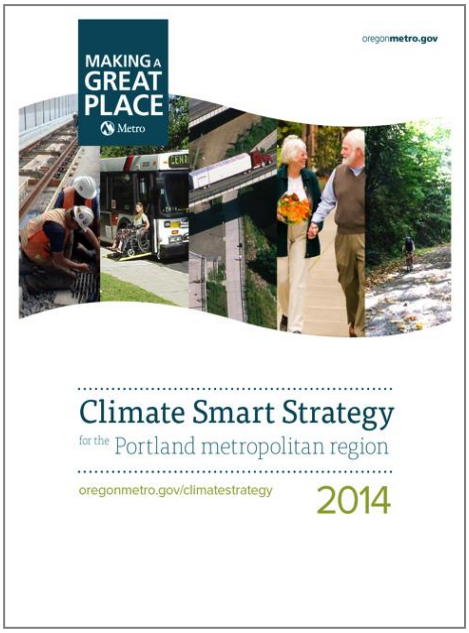
Climate change is the defining challenge of this century. Global climate change poses a growing threat to our communities, our environment and our economy, creating uncertainties for the agricultural, forestry and fishing industries as well as winter recreation. Documented effects include warmer temperatures and rising sea levels, shrinking glaciers, shifting rainfall patterns and changes to growing seasons and the distribution of plants and animals. Warmer temperatures will affect the service life of transportation infrastructure, and the more severe storms that are predicted will increase the frequency of landslides and flooding. Consequent damage to roads and rail infrastructure will compromise system safety, disrupt mobility and hurt the region's economic competitiveness and quality of life.

Recognizing the significant impact the transportation sector has on overall greenhouse gas emissions, there are a number of actions that can be pursued to lessen the carbon footprint of transportation. This report summarizes the key mitigation approaches adopted in the region's Climate Smart Strategy as well as implementation activities since 2014 and monitoring and analysis conducted through the 2023 Regional Transportation Plan update.

Climate Smart Strategy (2014)

As directed by the Oregon Legislature in 2009, the Metro Council and the Joint Policy Advisory Committee on Transportation (JPACT) developed and adopted a regional strategy to reduce per capita greenhouse gas emissions from cars and small trucks (light-duty vehicles) by 2035 to meet state-mandated targets. Adopted by the Metro Council and JPACT in December 2014 with broad support from community, business and elected leaders, the Climate Smart Strategy relies on policies and investments that have already been identified as local priorities in communities across the greater Portland region.

Adoption of the strategy affirmed the region's shared commitment to provide more transportation choices, keep our air clean, build healthy and equitable communities, and grow our economy—all while reducing greenhouse gas emissions.



The 2023 Regional Transportation Plan is a key tool for the greater Portland region to implement the adopted Climate Smart Strategy.

As part of the process, Metro, in partnership with the Oregon Department of Transportation (ODOT), conducted a detailed modeling analysis of various greenhouse gas scenarios and identified the types of transportation-related mitigation strategies that would have the greatest potential for reducing greenhouse gas emissions in the long term. This informed the final strategy.

The analysis of the adopted strategy demonstrated that with an increase in transportation funding for all modes, particularly transit operations, the region can provide more safe and reliable transportation choices, keep our air clean, build healthy and equitable communities and grow our economy while reducing greenhouse gas emissions from light-duty vehicles as directed by the Oregon Legislature. It also showed that a lack of investment in needed transportation infrastructure will result in falling short of our greenhouse gas emissions reduction goal and other desired outcomes. The Land Conservation and Development Commission approved the region's strategy in May 2015.

Figure 1: Climate Smart Strategies by level of impact

Climate Smart Strategy | Largest potential carbon reduction impact	
	**Vehicles and Fuels (Investment)** • Newer, more fuel efficient vehicles • Low- and zero-emission vehicles • Reduced carbon intensity of fuels
	**Pricing (Policy)** • Carbon pricing • Gas taxes • Per-mile road usage charges (e.g., OReGO) • Parking management and pricing • Pay-as-you-drive private vehicle insurance
	**Community Design (Policy with Investment)** • Walkable communities and job centers facilitated by compact land use in combination with walking, biking and transit connections
	**Transit (Investment)** • Expanded transit coverage • Expanded frequency of service • Improvements in right-of-way to increase speed and reliability of buses and MAX

Climate Smart Strategy | Moderate potential carbon reduction impact

Active Transportation (Investment)

- New biking and walking connections to schools, jobs, downtowns and other community places

Travel Information and Incentives (Investment)

- Commuter travel options programs
- Household individualized marketing programs
- Car-sharing and eco-driving techniques

System Management and Operations (Investment)

- Variable message signs and speed limits
- Signal timing and ramp metering
- Transit signal priority, bus-only lanes, bus pull-outs
- Incident response detection and clearance

Climate Smart Strategy | Low potential carbon reduction impact

Street and Highway Capacity (Investment)

- New lane miles (e.g., general purpose lanes, auxiliary lanes)

Source: *Understanding Our Land Use and Transportation Choices Phase 1 Findings* (January 2012), Metro.

CLIMATE SMART STRATEGY IMPLEMENTATION

Strategy implementation Since 2015

Responsibility for implementation of the Climate Smart Strategy does not rest solely with Metro. Continued partnerships, collaboration and increased funding from all levels of government will be essential. To that end, the Climate Smart Strategy also identified actions that can be taken by the state, Metro, cities, counties and others to enable the region to monitor performance and report on progress in implementation. Since adoption in 2014, Metro has continued to work with partners to implement the Climate Smart Strategy as follows.

2022-2023 implementation (Metro actions)

- **Updated the Regional Transportation Plan** (2021-2023), including:
    - Adopted an updated High Capacity Transit (HCT) Strategy and HCT investment priorities.
    - Updated the RTP climate goal, objectives, policies and investment priorities.
    - Piloted a project-level assessment of the RTP project list with respect to RTP goal areas—safety, climate, equity, mobility and economy—to inform investment priorities.
    - Updated the regional mobility policy in partnership with ODOT. The new policy replaces the "volume to capacity" vehicle throughput-focused approach to identifying transportation needs and prioritizing projects. Developed collaboratively by Metro, ODOT and regional partners, the new approach focuses on safety, mobility and access using three measures to identify needs and priorities: household-based vehicle miles traveled per capita, system completion of all modes (including TSMO and TDM) and throughway reliability. The policy addresses OAR 660-012-0160 and OAR 660-012-0215.
    - Improved climate modeling tools and methods to align with state Target Rule evaluation methods OAR 660-044) and planning requirements (OAR 660-012).
    - Convened a Climate and Transportation Expert Panel with JPACT and the Metro Council to learn about national best practices and tools for climate analysis, build a shared understanding of state requirements and set the foundation for regional collaboration to reduce climate pollution through the RTP (June 2022).
- **Convened an internal Metro Climate Justice Task Force** to create a framework to envision, develop, implement and coordinate regional climate justice and resilience

strategies across Metro departments that will serve as a foundation for better coordinating and advancing climate action across Metro departments and position the agency to serve as a regional leader in developing a coordinated, regional climate justice and resilience strategy (Fall 2022 – July 2023)

- **Initiated update to the Urban Growth Report.** Metro began working with state and local partners to develop the 2024 Urban Growth Report for adoption by Dec. 31, 2024. This This work will include preparing amendments to Title 6 of the Urban Growth Management Functional Plan (UGMFP) as directed OAR 660-012-0012(4)(d). This report will be the basis for the population and employment forecast for the 7-county metropolitan statistical area (MSA) that will be used for the 2028 RTP update.
- **Led an EPA Climate Pollution Reduction regional planning grant for the Portland-Vancouver metropolitan statistical area** that will lead to development of a Priority Climate Action Plan (by March 2024) and will create a Comprehensive Climate Action Plan (by July 2025) for the region. Completion of the PCAP will establish eligibility of Metro and agency partners for federal Climate Pollution Reduction implementation grants offered by EPA. The transportation element of the CCAP will advance implementation of the Climate Smart Strategy. (Fall 2023 – ongoing)
- **Conducted an expedited allocation of nearly $19 million of federal Carbon Reduction Program (CRP) funds to these Climate Smart Strategy priorities**:
    - Project development to advance bus rapid transit in the Tualatin Valley Highway and 82nd Avenue corridors.
    - Transit signal priority in the McLoughlin Boulevard corridor.
    - Transportation system management and operations (TSMO) investments in priority TSMO corridors throughout the region.

  The allocation of the CRP funds was directed by policies from the RTP, Climate Smart Strategy, the draft Oregon Carbon Reduction Strategy, and federal eligibility rules. A second allocation is planned in 2025. Metro also coordinated with ODOT on development of the Oregon Carbon Reduction Strategy. (Spring/Winter 2023)
- **Adopted an updated Regional Transportation System Management and Operations (TSMO) Strategy** that further advances Climate Smart Strategy investments and related activities, including traffic signal timing, coordinated traffic incident response and traveler information and increased coordination of transportation operators and transportation assets to effectively and efficiently manage the region's multimodal transportation networks, optimize operations for reliability and help people connect to more transportation options that are equitable, safe, reliable and climate-friendly (Jan. 2022)

- **Initiated an update to the Urban Growth Report.** Metro began working with state and local agency partners to develop the 2024 Urban Growth Report for consideration by the Metro Council by Dec. 31, 2024.

2023 implementation (Local actions)

Local communities and transit agencies in the Portland region have also demonstrated leadership in developing localized strategies and policies to reduce greenhouse gas emissions and mitigate the impacts of climate change in support of implementation of the Climate Smart Strategy.

- **Development of climate action plans.** At least a third of the region's cities and counties and TriMet have adopted local climate action plans including:
    - City of Milwaukie's Community Climate Action Plan
    - TriMet's Climate Action Plan and Non-Diesel Bus Plan
    - City of Portland's Climate Emergency Workplan and Pathways to Net-Zero Carbon by 2050
    - City of Beaverton's Climate Action Plan
    - City of Lake Oswego's Sustainability and Climate Action Plan
    - Clackamas County's Climate Action Plan
    - City of Tigard's Climate Action Report
    - Multnomah County's Climate Action Plan, 2020 Progress Report, and Climate Justice Plan
    - City of Gresham's Climate Action Strategies
    - City of Hillsboro's 2035 Community Plan (includes an extensive set of climate-related Energy and Mobility Actions)
- **Updates to local parking codes.** The cities of Portland, Beaverton and Tigard repealed all parking mandates in 2023. Clackamas and Washington counties and several cities anticipate adopting state-required parking reforms in 2024, including Cornelius, Fairview, Forest Grove, Gladstone, Gresham, Happy Valley, Hillsboro, Lake Oswego, Milwaukie, Oregon City, Sherwood, Tualatin and West Linn.
- **Updates to transportation system plans.** The cities of King City, Tualatin, Milwaukie and Beaverton initiated updates to their TSPs in 2023 that will continue in 2024.

2015-2021 Implementation (Metro actions)

- **Adopted 2018 Regional Transportation Plan and supporting Regional Transit Strategy, Regional Transportation Safety Strategy, Regional Freight Strategy and Emerging Technology Strategy** that further advance Climate Smart Strategy investments and related policies and actions to reduce greenhouse gas emissions from all vehicles (Dec. 2018)
- **Initiated activities to support regional efforts to secure needed funding** to build planned transportation investments needed to serve our growing and changing region (2018 – ongoing)
- **Adopted new Regional Travel Options Strategy** that further advances Climate Smart Strategy investments and related activities, including trip reduction services for commuters, vanpools and carpools, Safe Routes to Schools and tools to connect people to demand-responsive transit options (May 2018)
- **Prioritized funds allocated through the Regional Flexible Funds Allocation Process** toward more effective Climate Smart investments, including making the most of existing roads and transit, bike and pedestrian safety retrofits and complete street designs, and expanding high capacity transit and enhanced transit service through subsequent regional flexible fund allocation processes (2017 – ongoing)
- **Expanded Regional Travel Options Grant Program** criteria and emphasis on funding climate smart investments and actions; the grant program implements the RTP, Climate Smart Strategy and the Regional Travel Options Strategy (2015 – ongoing)
- **Advocated for increased funding** for transit operations, transportation investment, transition to cleaner, low-carbon fuels and more fuel-efficient vehicles, state-level carbon pollution reduction programs and other Climate Smart Strategy actions in state and federal legislative agendas (2015 – ongoing)
- **Expanded 2040 Planning and Development Grant program** to include funding local efforts aimed at development of Climate Smart policies and actions in local plans (2015 – ongoing)
- **Used the Transit Oriented Development Program** to provide funding to stimulate private construction of multi-unit and multi-family housing, affordable housing and mixed-use projects near transit to help implement the 2040 Growth Concept and Climate Smart Strategy (2015 – ongoing)

The Climate Smart Strategy and subsequent updates to the RTP in 2018 and 2023 presented opportunities for the region to work together to demonstrate leadership on reducing greenhouse gas emissions while addressing the need to identify funding to

implement adopted local and regional plans. The Climate Smart Strategy adopted by JPACT and the Metro Council in 2014 included a set of performance measures and performance monitoring targets for tracking implementation and progress. The purpose of the performance measures and targets is to monitor and assess whether key elements or actions that make up the strategy are being implemented, and whether the strategy is achieving expected outcomes. The Climate Smart Strategy highlighted the need for a diverse set of policies and investments to achieve the GHG emission target. The performance measures give Metro and its partners the ability to get a sense of progress toward the goals in a quick and comprehensive way. It also provides insight into what may be lagging in terms of responses to achieving the GHG target and where further action may be needed. See Table 4 for a full list of performance measures and monitoring targets.

Target rule updates

The Oregon GHG target rules require that Metro (as a federally designated metropolitan planning organization) must assess its GHG target, which is a reduction in per capita GHG emissions from light-duty vehicles within the Portland metropolitan area by 20 percent from 2005 levels by 2035, 30 percent by 2045 and 35 percent by 2050.[1] The Climate Smart Strategy was designed to achieve the 2035 target reduction.

The most recent updates to the state GHG target rules in OAR 660-044 and the Climate-Friendly and Equitable Communities (CFEC) land use and transportation planning rules that support implementation of OAR 660-044 and the Climate Smart Strategy were adopted by LCDC in July 2022.

The state, recognizing the role that RTPs play in influencing transportation policies, projects, and outcomes, has relied on RTPs to help reduce transportation emissions. The state is responsible for allocating state and federal funds to reduce GHG emissions by making vehicles and fuels cleaner; it assigns regions targets that are designed to make up the gap between those State-led reductions and State goals.

The 2023 RTP includes actions and strategies consistent with the Climate Smart Strategy to achieve the 2045 GHG target. The targets pertaining to the Portland metropolitan region are:

- A 20 percent reduction in per capita greenhouse gas emissions by the year 2035 (the original Climate Smart Strategy and planning horizon for the 2014 RTP)

[1] OAR Section 660-044-0020 specifically identifies the targets for the Portland Metro Area. 660-044-0000 & 660-044-0005. https://secure.sos.state.or.us/oard/displayDivisionRules.action?selectedDivision=3093

- A 25 percent reduction by 2040, the planning horizon for the 2018 RTP.
- A 30 percent reduction by 2045, the planning horizon for the 2023 RTP.
- A 35 percent reduction by 2050, the planning horizon for the 2028 RTP.
- Targets for the years 2041-2049 steadily increase from 26 to 34 percent in order to maintain progress toward the 2050 target.[2]

These targets are relative to a 2005 base year. They are based on per capita emissions in order to control for population growth and focus on the impact of transportation policies, programs, and plans on GHG emissions. Regional targets only apply to certain types of emissions and reduction strategies:

- **Targets apply to household travel**, including light duty passenger vehicles (cars, pickup trucks and SUVs) and commercial trucks with a vehicle weight rating of 10,000 pounds or less. Light-duty household travel captures average daily travel and transportation needs, whether physically traveled by the members of the household or deliveries and miscellaneous commercial travel to their home.[3]
- **Regional targets are focused on reducing vehicle miles traveled.** The state has the primary responsibility for regulating vehicles and fuels sold in Oregon and allocates almost all state and federal funding for clean vehicles and fuels spent in Oregon. As discussed above, the state estimates the impact of state-level vehicle- and fuel-based GHG reduction strategies and then sets regional greenhouse gas targets to fill the remaining gap needed to meet Oregon's emissions goals. The state requires regional GHG analyses to be consistent with the vehicle and fuel assumptions used by the state in order to avoid double-counting of the resulting GHG reductions, which would lead agencies to overestimate progress toward Oregon's climate goals. Because of this, the state has clarified that the updated targets shown above are equivalent to VMT reduction targets, and now allows regions to demonstrate that they are meeting the targets based on forecasted VMT rather than requiring a full GHG analysis. The RTP's progress toward climate goals, and local/regional agencies are only able to count vehicle electrification strategies and other clean vehicle/fuel strategies toward meeting regional targets if those strategies are funded and implemented locally (i.e., above and beyond what is done at the state level).

[2] Oregon Administrative Rule 660-044-0020, https://secure.sos.state.or.us/oard/displayDivisionRules.action?selectedDivision=3093; https://www.oregon.gov/lcd/LAR/Documents/2022-01_Div44.pdf

[3] ODOT Scenario Planning Technical Guidelines

2023 Regional Transportation Plan

The 2023 RTP includes key investments and policy recommendations that continue to implement the Climate Smart Strategy policies and actions adopted in 2014. Progress toward these actions is measured by the performance measures identified in the Climate Smart Strategy and included in the RTP and Regional Framework Plan.

The performance monitoring targets are not policy targets, but instead reflect a combination of the planning assumptions used to evaluate the adopted Climate Smart Strategy and outputs from the evaluation to monitor and assess whether key elements or actions that make up the strategy are being implemented. The measures and performance monitoring targets are shown in Table 4 of this report.

Table 4 documents progress implementing the strategy since 2014, using observed data sources to the extent possible for the 2020 Base Year, and expected progress that would be achieved if planned projects included in the 2023 RTP financially constrained list are fully implemented by 2045. The Climate Smart Strategy targets were established for the year 2035 and are not directly comparable to the 2045 values that represent full implementation of the 2023 RTP. Nonetheless, comparing these two sets of values can still provide a sense of where the region is on track to achieve the targets established through the Climate Smart Strategy, and where more work is needed to meet these targets.

Specifically, OAR 660-012-0160 in the transportation planning rule was updated to direct the GHG emissions reduction targets in OAR 660-044-0020 to be monitored and reported as a VMT per capita measure. This is the goal that is supported by actions measured in Table 4.

Key findings include:

1. **The 2023 RTP makes satisfactory progress towards implementing the Climate Smart Strategy**. If fully funded and implemented, the 2023 RTP can reasonably be expected to meet the state-mandated targets for reducing per capita greenhouse gas emissions from cars and small trucks (light-duty vehicles) for 2045**.**
2. **By 2045, the 2023 RTP meets or surpasses many of the Climate Smart Strategy performance monitoring targets shown in Table 4**.
    - The RTP **meets or surpasses all targets related to implementing local and regional land use plans**, which is critical to creating walkable, transit-supportive communities where people can choose to drive less.
    - The RTP **surpasses most targets to make transit more convenient, affordable, and accessible** by expanding transit coverage and frequency and by locating more jobs and homes near transit.

- The RTP **meets or surpasses all targets related to managed parking** by expanding the use of managed and priced parking in the region.
- The clean vehicle- and fuel-related assumptions provided by the state suggest that **the region will surpass targets for the share of passenger cars and light trucks that are electric or plug-in hybrid electric vehicles**.

3. **The 2023 RTP does not meet most Climate Smart Strategy targets to make walking and biking safe and convenient or to expand the use of travel options.**
   - Under the 2023 RTP, **the total number of transit service revenue hours in 2045 falls short of Climate Smart Strategy targets**. Oregon House Bill 2017 significantly increased funding for transit to allow for the region to increase service to the levels envisioned in the Climate Smart Strategy. However, the impact of the COVID-19 pandemic, ongoing challenges hiring drivers, and inflationary project costs have prevented these resources from achieving the envisioned levels of transit service and ridership.
   - The number of trips and miles traveled by bicyclists and pedestrians increases, but **except in the case of pedestrian trips the RTP falls short of the targets established in the Climate Smart Strategy**.
   - The total length of the bicycle and pedestrian networks increases, but except for the trail network the **RTP does not appear on track to meet Climate Smart Strategy targets to add to these networks—nor does it meet policy targets to complete the active transportation network**, as discussed in Chapter 7 of the plan.
   - **The plan falls short of targets to reduce fatal and severe crashes across all modes**, and pedestrian crashes have increased over the past decade, as discussed in more detail in Chapter 7. However, fatal and severe crashes involving bicyclists have been declining and do appear to be on track to meet targets.
   - **The plan falls significantly short of targets to reach households and employees with travel options programs**. Metro changed its approach to measuring progress toward these targets during the 2023 RTP update, and now uses historical data on engagement in travel options programs to estimate both base year and 2045 results. This data shows that under projected funding levels agency partners in the region will only be able to reach 0.5% of households and 5% of employees; well short of the targets established in Climate Smart (45% and 30%, respectively).
   - In part due to the issues noted above, **the RTP is not expected to achieve policy targets to triple biking, walking and transit mode share region-**

wide. However, use of these modes grows considerably under the 2023 RTP; collectively the share of travelers using these three modes grows from 15 percent in the base year to 17 percent in 2045.

4. **The RTP is expected to meet state-mandated targets for reducing per capita household-based vehicle miles traveled and corresponding per capita greenhouse gas emissions from household light-duty vehicles by 2045**.
    - Under the RTP, **per capita vehicle miles traveled falls to 10.7 miles per day**, **a 35% reduction below 2005 levels, surpassing the target to reduce GHG emissions to 30%** below 2005 levels by 2045.
    - By 2045, the plan, together with advancements in fleet and technology, is expected to **reduce per capita annual greenhouse gas emissions from household light-duty vehicles by 89 percent** below 2005 levels.
5. **Metro remains unable to report on several of the original Climate Smart Strategy monitoring targets**, including those related to travel time and reliability, and managing the region's transportation system, typically because the data needed to forecast future performance for these measures as identified in the Climate Smart Strategy is not yet available. These measures will be revisited as part of a future update to the Climate Smart Strategy.
6. **Table 4 includes new reporting measures related to lane miles of road construction and teleworking**, which provide important context for interpreting the VMT and GHG results of the analysis, but which do not have corresponding targets established in the Climate Smart Strategy. **This finding, along with the finding above, indicates a need to update these measures and targets to align with available data that best captures the RTP's progress in reducing GHG emissions.**

FUTURE ACTIONS AND RECOMMENDATIONS MOVING FORWARD

The findings in the previous section demonstrate the RTP surpasses the state mandated VMT reduction targets if fully implemented along with state-led pricing actions adopted in the Statewide Transportation Strategy and assumed in the region's targets. However, the findings also show mixed progress on implementation of several key elements of the region's adopted Climate Smart Strategy. As a result, and as required by OAR 660-012-0900(7)(D), Metro staff identified the following future actions and recommendations that will be addressed prior to the next update to the RTP (due by November 30, 2028).

1. **Metro will begin monitoring and reporting current state and regional trends in transportation-related GHG emissions in coordination with ODOT.** This information will be communicated to JPACT and the Metro Council and as part of the annual minor reports Metro must submit to DLCD on behalf of the region to report on implementation of the region's Climate Smart Strategy. The first minor report will be due in 2025. Current state monitoring efforts are now published online at: https://www.oregontransportationemissions.com.
2. **Metro will continue to improve its climate analysis tools, assessment methods and capabilities in advance of the 2028 RTP update to better estimate GHG emissions impacts of RTP projects and to better inform regional policy and investment decisions that impact climate.** Projects occurring in 2024-25, such as development of a Comprehensive Climate Action Plan through the EPA Climate Pollution Reduction Grant program, allocation of federal Carbon Reduction Program (CRP) grant funding, the Regional Flexible Funds Allocation process, and next Metropolitan Transportation Improvement Program (MTIP) update provide opportunities to test and develop new approaches to estimating GHG impacts of different project types over the next several years.
3. **Metro recommends state agencies conduct a detailed, comprehensive review of the STS assumptions used to set regional greenhouse gas emissions reduction targets as described in OAR 660-044-0035 (Division 44 - Metropolitan Greenhouse Gas Reduction Targets Rules) and to update the STS and GHG target rules as needed.** The goals of this review should include:
    - ensuring that state-provided assumptions reflect current trends,
    - clarifying how state-led pricing assumptions used in setting regional greenhouse gas emissions targets should be accounted for in future regional climate analyses, and

- ensuring that the assumed implementation and GHG impact of state-led policies and assumptions are documented in a manner consistent with how regions are required to document their RTP climate analyses.

This will help improve the analysis in next RTP update and provide clarity on what different state-led pricing actions are assumed in the state targets in OAR 660-044-0020 and how those pricing actions should be accounted for in future analyses.

Metro included assumptions about state-led STS actions (including state-led pricing programs) in the RTP climate analysis because these actions were assumed by the state when it set GHG reduction targets for the region. Metro recommends that the pricing assumptions be reviewed and updated by the state to best reflect how pricing will be implemented. Other assumptions include ambitious state-led pricing programs such as pay-as you-drive insurance, mileage-based road user fees to replace the gas tax (e.g. VMT fees), a carbon tax, and congestion pricing in the Portland area. While the state does have authority to implement these actions, limited progress has been made to date. The state-adopted climate targets were set at a level that assumed that some combination of these forms of pricing would be implemented in Oregon by 2050. These assumptions should be reviewed and updated as necessary. This information will also help the region identify pathways to meet its targets while accounting for uncertainty in state-led pricing actions.

The most recent STS Monitoring Report, completed in 2023,[4] reports back on general progress on categories of actions like improving passenger vehicle technology – it does not quantitatively examine whether specific individual assumptions used in the STS are consistent with current trends and policy changes.

This level of detail will improve the transparency and accuracy of the assumptions and targets used in the RTP climate analysis. Metro encourages the State agencies to make this a transparent process and to collect robust public and policymaker feedback on underlying assumptions so that it does not fall to Metro and other partners to communicate the State's assumptions as part their climate analysis and monitoring. The State Agencies' review should also identify corrective actions needed to achieve STS assumptions that are not on track.

4. **Metro recommends ODOT update the Statewide Transportation Strategy, as needed, if the review described above reveals that assumptions are significantly off-track, and subsequently update Division 44 using the updated STS assumptions.** This process would need to be completed by 2026 to inform the climate analysis that will be conducted as part of the next RTP update (due in 2028).

[4] https://www.oregontransportationemissions.com/

5. **Metro will work with state and local partners to conduct a comprehensive review and update to the Climate Smart Strategy to inform the next RTP update.** This work will reflect new information about the potential to implement different GHG reduction measures (e.g., the changing transportation funding landscape and evolving State plans to implement congestion pricing) and new data and tools that will improve methods for estimating the GHG reduction potential from different policies and actions. Metro will also incorporate any required updates emerging from the review of STS assumptions described above. If the State does not address the issues identified about the STS vehicle/fuel and pricing assumptions identified elsewhere in this report, Metro may also explore more realistic assumptions and GHG reduction scenarios representing these assumptions for comparative purposes to inform regional policymaker discussions.
    - This will result in more clarity and an updated Climate Smart Strategy that can guide how the region can best reduce GHG emissions and meet climate targets that are predicated on both the State and region doing their part to reduce GHG emissions.
    - This may include in-depth planning to address some of the areas where the region is falling short on climate implementation (e.g., TDM funding) as well as new GHG reduction strategies identified by agency partners (e.g., promoting electric bikes and scooters and exploring other potential actions to advance transportation electrification that complement federal and state policies and programs).
    - This work will also include a review and recommendations for updates to the adopted Climate Smart Strategy performance monitoring measures and targets, as appropriate.
6. **Metro will update its Climate Smart Strategy implementation monitoring and reporting to reflect the updated strategy and any changes recommended to the Climate Smart Strategy performance monitoring measures and targets.** The next RTP update is due by November 30, 2028. The next major report to DLCD is due the following year, in 2029.
7. **Metro will update the Regional Travel Options (RTO) Strategic Plan and develop a Regional Transportation Demand Management (TDM) strategy**. A goal of this work is to provide clearer direction regarding the role of transportation demand management in helping implement the Climate Smart Strategy – an area in which the region is falling short based on the implementation monitoring results shown in Table 4. As called for in Chapter 8 of the RTP, the new strategy will provide implementation guidance to state agencies, transit providers, local agency and non-profit partners that

administer TDM programs, as well as direction on how the Metro RTO program can support these efforts and implementation through transportation system plans.

8. **Metro will work with regional partners to identify actions to advance transportation electrification in the greater Portland region that complement existing federal and state policies and programs.**
9. **Metro will work with cities, counties, community-based organizations and transportation agencies to improve the process of developing and evaluating the project list in advance of the next RTP update.** Called for in Chapter 8 of the RTP, this work will include:
    - Convening a group or multiple groups to review Metro's existing metrics and tools for evaluating the impacts of transportation decisions on the region's safety, climate, equity, mobility and economy to ensure metrics and tools reflect community and regional priorities.
    - Conducting a review of processes and best practices used by four to five peer MPOs to identify needs and evaluate and prioritize investments.
    - Working with cities, counties and transportation agencies to share best practices and information on conducting inclusive, equitable engagement and applying safety, climate and equity data and metrics to identify investment priorities in advance of the 2028 RTP call for projects.
    - Developing strategies to improve coordination on submitting projects on state highways and facilities that cross multiple jurisdictional boundaries.
    - Reviewing lessons learned during past RTP project-level evaluations, including those conducted during the 2018 and 2023 RTP updates. The 2018 RTP tested a rigorous qualitative, self-scoring approach to comparing selected RTP projects across ten factors, and Metro encountered several technical challenges in producing consistent information for projects of varying types and sizes. The 2023 RTP tested a qualitative, GIS-based approach that provided consistent information across all projects for each RTP goal area, but did not provide information in enough detail for decision-makers to distinguish between the potential greenhouse gas emissions and VMT impacts of both larger-scale projects and smaller-scale projects. This suggests that a hybrid approach that involves a qualitative evaluation of most RTP projects and a more detailed quantitative evaluation of larger-scale projects could better meet the region's needs.
10. Working in coordination with state and local partner agencies, **Metro will increase efforts to prioritize and secure funding for transit service, bicycle and pedestrian infrastructure, and other regional greenhouse gas reduction**

strategies identified in the updated Climate Smart Strategy. Over the past several RTP cycles Metro and its local agency partners have shifted funding from projects that support driving to bicycle, pedestrian and transit projects, and the state has increased funding for transit projects in the region. However, this increase in funding has not kept up with inflation, and is not adequate either to address recent challenges to transit nor to make transit and active transportation as ubiquitous and convenient as driving is throughout the region.

Metro will work with local, regional and state partners to implement these actions and recommendations and submit annual progress reports to DLCD as required by OAR 660-012-0900(3).

GREENHOUSE GAS EMISSION ANALYSIS IN THE RTP

Overview

The 2023 Regional Transportation Plan update includes a review of key Climate Smart Strategy actions, updating climate analysis tools and responding to the latest state requirements in OAR Division 12 and OAR Division 44. The new state requirements in Division 12 shifted the emphasis to analyzing per capita VMT reduction as a proxy for measuring progress toward state GHG reduction targets defined in Division 44. The RTP also summarizes progress toward meeting these goals with the monitoring report on the actions identified in the Climate Smart Strategy.

History

The greenhouse gas emissions targets were first set for the Portland metropolitan region in 2012 using ODOT's GreenSTEP software tool. The Climate Smart Strategy performance measures and targets provided the preliminary set of actions and set a pathway toward achieving the GHG reduction target for the region. The Climate Smart Strategy guides policies and actions that are included in the Regional Transportation Plan and the Urban Growth Report that, together, track existing land use and transportation policies and expected outcomes. The Climate Smart Strategy performance monitoring targets are not policy targets, but instead reflect a combination of the planning assumptions used to develop and evaluate the Climate Smart Strategy and outputs from the evaluation of the adopted strategy using a metropolitan version of ODOT's GreenSTEP software package. The Climate Smart Strategy performance measures and monitoring targets were adopted in 2014 with an acknowledgement that they will be reviewed during subsequent RTP updates to account for new information, such as federal transportation performance-based planning rulemaking and changes to the applicable state rules.

GreenSTEP has since been replaced with a more robust analysis tool that is called VisionEval Regional Strategic Planning Model (VE-RSPM). The 2023 RTP updates the analysis by using VE-RSPM to calculate the VMT and GHG reductions for the various RTP investment scenarios.

MOVES emission modeling will continue to provide a direct emissions output from the network-based travel demand model accounting for greenhouse gas emissions, criterion pollutants and other air toxins. Metro has an agreement with the Oregon Department of Environmental Quality to report on air toxin emissions for the regional transportation plan scenarios as part of RTP updates.

These MOVES-based estimates are going to produce results that are not directly comparable to the greenhouse gas emissions forecasts from VE-RSPM. MOVES is based on

outputs from Metro's network-based travel model that describe number of trips by each mode that occur on each link in the network during different periods of the day (as well as the speed distribution and estimated fleet composition for motor vehicles on each link of the network, which are important inputs in estimating pollution and air toxin levels). VE-RSPM is not a network-based model; it estimates travel demand and fuel consumption based on inputs such as the aggregate cost of travel by mode, total length of facilities by mode, and the overall composition of the passenger vehicle fleet. The network-based approach is more nuanced. For example, when forecasting how future investments in infrastructure and transit service will change people's mode choices and VMT, VE-RSPM compares the average cost and travel time to drive versus using other modes *across all trips in the region*, whereas Metro's network-based model compares the cost and travel time of driving versus other modes *for specific times and routes within the region* and then aggregates those results, which better captures how local conditions shape people's travel choices. In addition to these differences, each tool has a different vehicle choice model, uses a different geographic configuration, and may have other variability in the fuels and energy consumption modeled for the vehicles on the network.

Modeling tools

VisionEval is a transportation planning and policy analysis tool developed by ODOT in partnership with the Federal Highway Administration (FHWA) for evaluating the transportation related impacts of land use, transportation, and policy decisions. It is an integrated model that simulates the interactions between land use, transportation, and the environment. VisionEval is designed to help transportation planners and policy makers understand the potential impacts of different transportation and land use scenarios on factors such as travel behavior, vehicle emissions, air quality, and energy consumption. It can be used to evaluate the potential impacts of a wide range of policy and investment decisions, such as the construction of new highways, the expansion of public transportation, or the implementation of land use regulations. It allows for the implementation of different policy scenarios and can be used to evaluate the potential impact of these scenarios on transportation performance, energy consumption, and emissions.

Metro primarily uses VisionEval to assess its regional GHG target in accordance with the state target rule guidance. Previously, the extent of GHG reduction and changes in per capita household VMT in the STS were evaluated using the statewide model GreenSTEP, an earlier form of VisionEval that has evolved into the state-level model in the VisionEval platform (VE State). A separate regional version of VisionEval, the Regional Strategic Planning Model (VE-RSPM), is also available.

The VisionEval suite of tools account for average daily travel at the household level across a specific geographic region and apply a detailed accounting of the vehicles, fuels, and miles traveled to estimate the GHGs produced in the model region. Metro's Climate Smart Strategy, adopted in 2014, used GreenSTEP to analyze and define the suite of state and regional policies to achieve the GHG reduction targets. DLCD has clarified that VE-RSPM is the preferred tool for evaluating progress toward meeting the DLCD Target Rule GHG reductions. Given the differences between MOVES- and VisionEval-based GHG estimates discussed above, Metro cannot use MOVES in its GHG analysis. The ideal approach would be to use a tool that is consistent with both the VisionEval model that the state used to set targets and with the network-based model that is used to assess all other aspects of the RTP's performance, but no such tool is currently available. Metro therefore used VE-RSPM in the 2023 RTP climate analysis in order to ensure that results are comparable to targets.

MODELING THE TARGET RULE

Overview

The latest Oregon Administrative Rule regarding the GHG emission reduction targets was adopted by LCDC as part of the Climate-Friendly Equitable Communities (CFEC) rulemaking in July 2022. Those rules describe the extent of the reduction targets and the types of emissions covered by the rules. The new state targets were set at a specific point in time under an agreed set of policy and investment assumptions. Assessing Metro's progress and plan for achieving the GHG targets during each RTP update requires using a consistent approach. That approach includes a consistent definition of the geographic area included and who is counted in the per capita values versus who is excluded from that analysis. The approach also applies the state-led GHG reduction actions that were assumed in original target rule and included in the Oregon Statewide Transportation Strategy (STS).

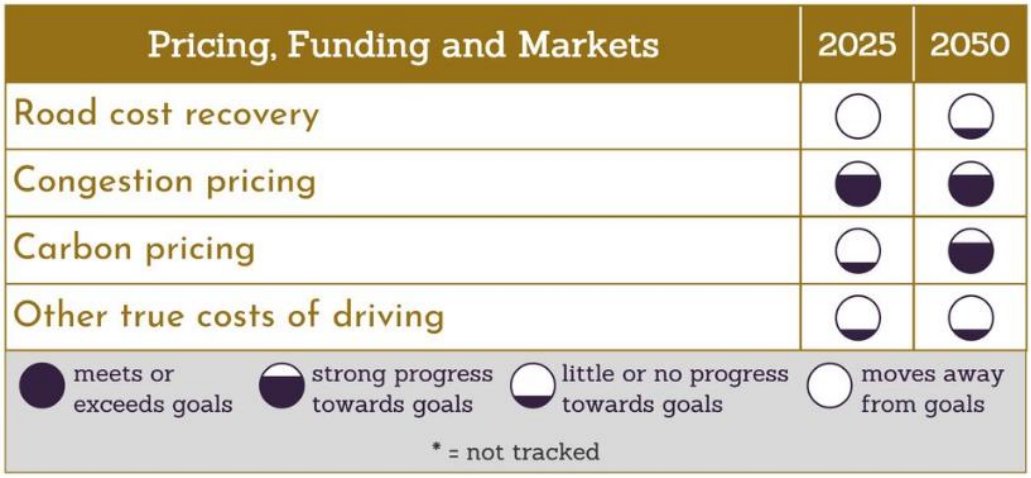
The STS includes state-led pricing actions and captures implementation of clean vehicle and fuel programs and regulations at the state and federal levels. The fleet and technology actions cover variables such as the share of zero-emission vehicles, the carbon intensity of fuels, the balance of cars and trucks in the passenger fleet, and vehicle turnover. The state-led pricing-actions in the STS assume that the state will implement extensive changes to how transportation revenues are collected in Oregon—both to replace the gas tax, which is not producing enough revenue to meet Oregon's transportation needs, and to reduce GHG emissions by managing demand for driving and encouraging the use of cleaner modes and vehicles. The STS includes policies such as pay-as-you-drive insurance. This isn't so much a new form of pricing, but it converts a fixed cost to a marginal cost in a way that benefits people who drive less.

New revenue mechanisms in the STS include a road user charge that levies carbon taxes, per-mile fees on drivers, and other additional road pricing beyond what is currently included in the 2023 RTP. These changes are not reflected in the RTP because they are not yet adopted in state policies or regulations, but the climate analysis for the RTP is allowed to include them because these state-led pricing actions areadopted in STS and because the state agencies assumed significant implementation of new pricing when setting the region's climate targets in 2017.[5] The State of Oregon has put together a website, https://www.oregontransportationemissions.com/pricing, to introduce the pricing

[5] OAR 660-044-0030(4)(a): https://secure.sos.state.or.us/oard/viewSingleRule.action;JSESSIONID_OARD=Pk5WeLsr40n1ZMdFGJr943D9KeHyA7LSgdLuG_bsnXZJvNrXnI8x!-286176765?ruleVrsnRsn=293065

concepts that are included in the STS. Exhibit B contains a memo prepared by ODOT that describes these concepts with a recommendation for Metro to include them in the 2023 RTP climate analysis.

Figure 2: State of Oregon progress toward implementing state-led pricing (ODOT, DEQ, ODOE, and DLCD)



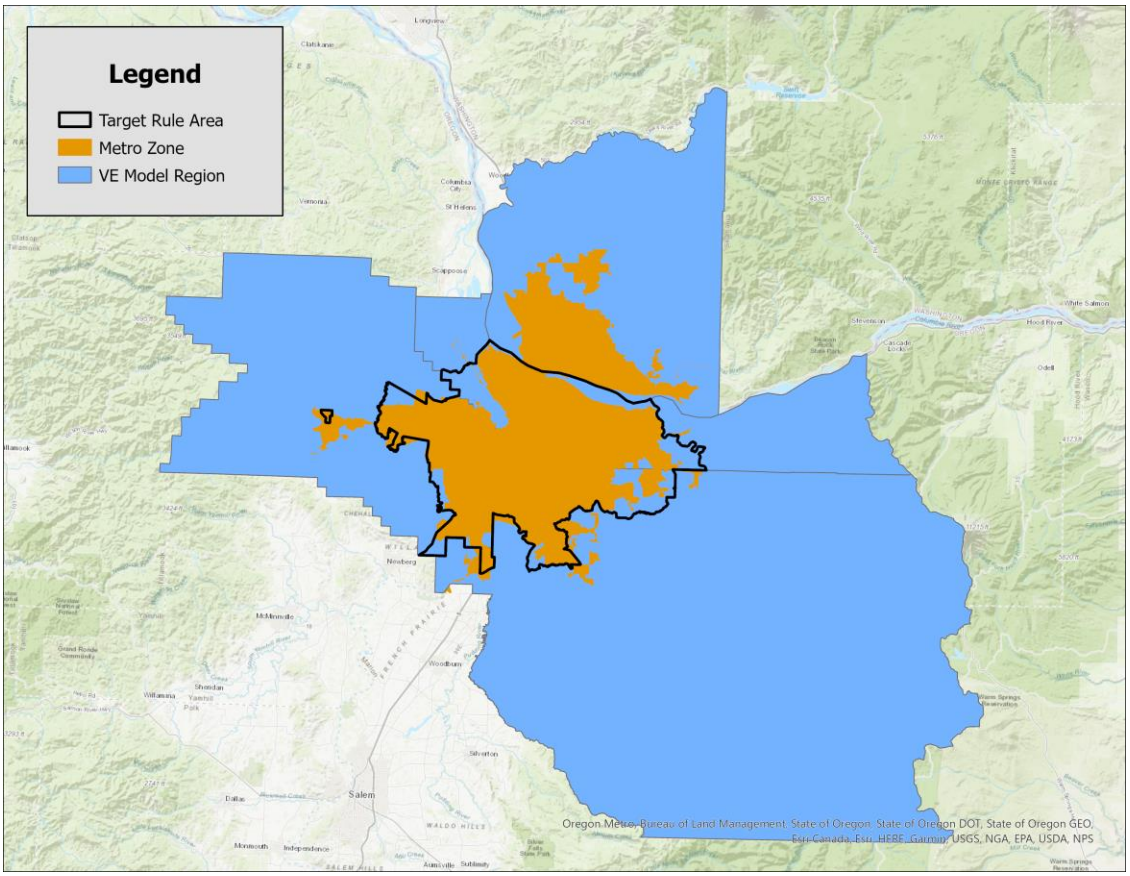
Geography

The VisionEval model, like the regional travel demand model, covers a wider region to account for regional interactions but the reporting is done only for the households within the reporting boundary shown in Figure 3. Note that the target rule area is intended to include the urban growth boundary (UGB) within Metro's metropolitan planning area boundary by excluding the area in Washington state.

The VisionEval model accounts for the daily travel for a household, regardless of where on the network their actual travel took place. The miles per vehicle are aggregated at the household level for all households within the reporting area—which means that the miles traveled outside of the region still count toward the total travel reported by VisionEval. However, the GHG emissions and VMT for any household that is located within the VisionEval modeling region but outside of the UGB (e.g., a household located in Vancouver, WA) is excluded from the Target Rule analysis. This approach in VisionEval differs from the travel behavior accounted for in the Metro's travel demand model, which uses on-road link by link aggregation of trips to account for the total GHG produced on all links in the regional travel network that are within Metro's planning boundary. There is no aggregation to households or to other land uses associated with those trips.

The target rule analysis is centered on the behaviors of households within the Target Rule Area shown in Figure 3.

Figure 3: Model boundaries used within the VisionEval model



While the light-duty vehicle emissions captured by state-mandated targets include local service and delivery vehicles, this type of vehicle activity is produced within VisionEval at the regional scale and is not currently accounted for in Metro's VisionEval target rule analysis. Capturing these vehicles using the VisionEval model would require a consistent and valid way to prorate the regional scale of some results (i.e., commercial vehicles and transit vehicles) results down to the specific target rule area of analysis in Figure 3. Given that this limitation exists in both the base and future conditions, the current approach implicitly assumes that delivery trips grow in proportion with household vehicle trips.

VisionEval model

The VisionEval platform supports several model versions, consisting of different sets of inputs and structures. The development of a VisionEval model suitable for the target rule analysis for the 2023 RTP included:

- Updating a core module to improve the consideration of built-form factors including those produced by the national Smart Location Database (SLD) and would be more sensitive to changes in transit service. This update also included estimating the

module using 2017 National Household Travel survey data rather than 2009 data. The current SLD inputs were translated for use within the Metro models.

- Introducing a teleworking module to account for future changes in teleworking, or working from home, in their daily travel. A review and analysis of the travel behaviors resulting from differing teleworking rates led to the final recommendation to assume a future rate of teleworking in the year 2045 similar to that of teleworking rates observed during the fall of 2022—roughly 45 percent of workers commute full-time, roughly 15 percent telework full time, and the remaining 40 percent do a hybrid of the two.
- Updating the inputs to reflect existing and planned future conditions in the Metro region. This included core input files such as roadway capacity and lane miles, transit revenue miles and transit service frequency, expected density and the share of households in mixed use areas, fuel taxes, travel demand management programs and participation rates, safety data and crash rates, and ITS and operations programs.
- The 2020 base year was modeled using the updated Metro inputs along with the current adopted state-led vehicles and fuel inputs. This model was compared to available empirical data produced by the Bureau of Transportation Statistics (BTS) Local Area Transportation Characteristics for Households (LATCH). The comparison shown below in Table 1 provided confidence that the updated local model closely approximated empirical daily household travel for the base 2020 year.

Table 1: VisionEval vs. LATCH validation results

	MIN	1Q	MEDIAN	3Q	MAX	MEAN
BTS LATCH 2017	14.9	34.2	39.3	46.1	57.9	40.0
Validation Model Run (Regional Base Model 2020)	7.5	34.0	41.9	49.9	66.7	41.5

This produced a model adequate for evaluating the conditions in the 2023 RTP in future years. Two versions of the future are created to represent different trajectories based on state-led policy and pricing actions as described above.

- An **adopted plans (AP) model** that uses the adopted trajectory for state-led pricing, and the adopted-plan trajectory for vehicles and fuels. The AP model provides a goal post that can demonstrate anticipated changes over time as a result of currently adopted policies and actions, both at the regional and the state levels. This scenario is meant only to inform what a future would look like in the absence of changing policies and investments intended to reduce GHG and VMT.
- A **target rule model (also referred to as the STS model)** the STS state-led trajectory for state-led pricing, and the STS trajectory for vehicles and fuels. The Climate Smart

Strategy and subsequent updates to RTPs, including the 2023 RTP, account for regional actions (investments and policies that can be done at the regional level) while also assessing the effects of the state-led actions adopted in the STS in 2018. The combination of RTP and STS actions are what is assessed relative to the state target rule, and whether or not the region is complying with the OAR 660-044 (Targets Rule).

Table 2 outlines key inputs to the Metro Target Rule Model, which primarily reflect the vehicle- and fuel-related assumptions provided by the state to capture the policies and programs in the STS.

Table 2: Key greenhouse gas emissions estimation assumptions and VE inputs

Measure and Description	**Year**	**VisionEval RSPM – Metro Target Rule Model (RTP+STS Scenario)**
Model version(s)	-	RSPM v3.0 "Next Gen"
Vehicle activity captured	-	VMT from households that live within the MPA boundary regardless of where driving occurs
GHG emissions captured	-	Vehicle operation using the carbon intensity of EV/PHEV electricity consumed in EV/PHEVs and carbon intensity of fossil fuels.
Vehicles analyzed	-	Light-duty- vehicles only
Fleet mix Calculated from the following VE inputs: azone_lttrk_hh_prop: Proportion of household vehicles that are light trucks by Azone and specified model year.	2010	Household: 54.5% passenger car 45.5% light truck Commercial Service: 68.3% light truck 32.7% automobile
	2020	Household: 58% passenger car 42% light truck Commercial Service: 55% light truck 45% automobile
	2030	Household: 63% passenger car 37% light truck Commercial Service: 41% light truck 59% automobile
	2035	Household: 66% passenger car Commercial service: 35% light truck

Measure and Description	Year	VisionEval RSPM – Metro Target Rule Model (RTP+STS Scenario)
region_comsvc_lttrk_prop: Proportion of commercial service vehicles that are light trucks throughout the model region by model year.		34% light truck 65% automobile
	2040	Household: 69% passenger car 31% light truck Commercial Service: 35% light truck 65% automobile
	2045	Household: 72% passenger car 28% light truck Commercial Service: 35% light truck 65% automobile
Average vehicle age (Age distributions available upon request) Calculated from VE Outputs: Vehicle, "Age"	2010	8.1 years light-duty vehicle
	2020	7.7 years light-duty vehicle
	2030	7.1 years light-duty vehicle
	2035	6.8 years light-duty vehicle
	2040	6.6 years light-duty vehicle
	2045	6.3 years light-duty vehicle
Fuel mix Calculated from VE RSPM inputs: hh_fuel and comsvc_fuel.	2010	98% gas, 2% diesel
	2020	95% gas, 2% diesel, 3% CNG
	2030	88% gas, 2% diesel, 10% CNG
	2035	79% gas, 1% diesel, 20% CNG
	2040	69% gas, 1% diesel, 30% CNG
	2045	49% gas, 1% diesel, 50% CNG
Average fuel economy (miles/gallon) Calculated from VE outputs: internal combustion, electric and hybrid engines from Vehicle, "average of MPG" and "MPGe."	2010	22.2
	2020	32.2
	2030	53.0
	2035	62.8
	2040	70.6
	2045	78.4
Fuel carbon intensity Calculated from VE outputs: grams CO2 Equivalent/Mj, from Vehicle, Electricity Carbon Intensity	2010	175.2
	2020	140.4
	2030	105.5
	2035	88.1
	2040	70.7

Exhibit E: Major Report Describing Progress Toward Climate Performance Targets

Measure and Description	Year	VisionEval RSPM – Metro Target Rule Model (RTP+STS Scenario)
	2045	53.3
Average GHG emissions rate (Grams CO2 Equivalent/mile)	2010	524
	2020	357
	2030	180
Calculated from VE output: Daily CO2e/DVMT	2035	145
	2040	126
Rates are fleet-wide composites	2045	100

Source: Metro (VE Target Rule Model Results)

RTP AND TARGET RULE RESULTS

The two models, Adopted Plans and the STS/Target Rule Model, were used during development of the 2023 RTP to illustrate how scenarios consisting of different assumptions, policies, and investments performed relative to the region's climate targets, as allowed in the target rule analysis process. Metro presented five scenarios that were based on the state assumptions reflected in either the Adopted Plans and STS Vision scenarios (the latter of which reflects the Target Rule) created by ODOT, as well as different levels of pricing, infrastructure and transit service that come from the RTP and are based on different regional planning scenarios:

- **RTP23 + STS:** Includes adopted 2023 RTP investments, transit service, and throughway pricing, as well as all additional pricing and revenue mechanisms adopted in the STS Vision in 2018 and assumed by the state when setting the region's climate targets in 2017. These consist of a combination of fees and taxes that are modeled as per-mile fees. This is the scenario that is used in the RTP climate analysis and based on the adopted 2023 RTP.
- **RTP23 + adopted plans (AP):** Includes adopted 2023 RTP investments, transit service, and throughway pricing, as well as currently adopted plans and policies adopted in the STS in 2018. It includes a lower level of additional state-led throughway pricing than the RTP23+STS Vision scenario and excludes the pricing and revenue mechanisms described as "additional" under that scenario. This is one of several illustrative scenarios developed during the RTP process to help Metro and agency partners identify the final RTP23+STS scenario described above.
- **Target 1:** adopted 2023 RTP investments, transit service, and throughway pricing, as well as the amount of additional pricing and revenue mechanisms from the STS that are necessary to meet regional climate targets by using pricing to manage travel demand. This is one of several illustrative scenarios developed during the RTP process to help Metro and agency partners identify the final RTP23+STS scenario described above. RTP-related inputs for this scenario come from the public review draft RTP.
- **Target 2:** Includes adopted 2023 RTP investments, transit service, and throughway pricing, as well as the amount of additional pricing and revenue mechanisms from the STS that are necessary to meet regional climate targets by using pricing to manage travel demand—assuming that all revenues from these new pricing mechanisms generated within the region are reinvested in increasing transit service.[6] To create

[6] This scenario assumes that 50% of revenues from the STS pricing and revenue mechanisms for toward funding increases in transit service, and that investments in transit service would be consistent with the mix of transit

this scenario, the consulting team supporting this analysis tested several different levels of pricing and corresponding increases in transit service until they identified the scenario that meets regional climate targets using the smallest amount of additional pricing. This is an illustrative scenario that did not consider the many nuances and policy constraints involved in using pricing revenues to fund transit service. It is one of several illustrative scenarios developed during the RTP process to help Metro and agency partners identify the final RTP23+STS scenario described above. RTP-related inputs for this scenario come from the public review draft RTP.

- **RTP23 + STS + current fleet:** adopted 2023 RTP investments, transit service, and throughway pricing, as well as all additional pricing and revenue mechanisms included in the STS but replaces two of the assumptions in the STS—the mix of light/heavy duty vehicles in the fleet and the amount of time that people hold on to their vehicles—with current trends. Metro developed this illustrative scenario to address concerns raised by partner agencies and community members that the values assumed for these inputs in the STS are not reflective of current trends.[7] RTP-related inputs for this scenario come from the public review draft RTP. Refer to Exhibit A to this report for a more detailed discussion of this scenario and its results.

Table 3 describes the assumptions behind these five scenarios.

modes (e.g., local bus, frequent bus, light rail) and transit service costs reflected in the 2023 RTP constrained investments.

[7] The STS projects that people will replace their vehicles sooner and that most passenger vehicles will be cars instead of light trucks and sport utility vehicles when in fact people are generally hanging onto their vehicles for longer and light trucks and sport utility vehicles are dominating the passenger vehicle market. See Attachment 1 to this document for more background information on this scenario.

Table 3: Climate scenarios, assumptions and results

	RTP23 + STS	RTP23 + AP	Target 1 (pricing)	Target 2 (pricing + transit)	RTP23 + STS + Current Fleet[8]
Scenario Description	Official RTP climate scenario for the purposes of target analysis / state rule compliance	Illustrative bounding scenario showing the GHG impacts of "business as usual" defined by the state; assumptions about clean vehicles and pricing are based on adopted plans	Illustrative pathway to meeting climate targets by assuming the minimum level of state-led pricing needed to close the gap between RTP23 GHG reductions and targets	Illustrative pathway to meeting climate targets by assuming the minimum level of state-led pricing needed to close the gap between RTP23 GHG reductions and targets if revenues are used to expand transit service	Illustrative bounding scenario that explores the GHG impacts of using current values instead of STS values for vehicle age and mix
Throughway pricing	STS pricing on the entire throughway network, averaging $0.17/mile	RTP pricing on portions of I-5 and I-205 averaging $0.11/mile	$0.11/mile on the entire throughway network	$0.08/mile on the entire throughway network	STS pricing on the entire throughway network, averaging $0.17/mile
Other STS per-mile fees	$0.20/mile	None	$0.12/mile	$0.10/mile	$0.20/mile
Pay-as-you drive (PAYD) insurance[9]	State requires PAYD insurance with 40% participation[10]	State leaves PAYD insurance to the market with 6% participation	State requires PAYD insurance with ~68% participation	State requires PAYD insurance with ~27% participation	State requires PAYD insurance with 100% participation
Transit service	RTP level of transit service	RTP level of transit service	RTP level of transit service	77% increase above RTP level of transit service	RTP level of transit service
Clean fuels and vehicles	STS assumptions	State AP (adopted plans) assumptions	STS assumptions	STS assumptions	STS assumptions except current fleet vehicle age and mix (32% car / 68% SUVs and light-duty trucks)

[8] Refer to Attachment 1 to this document for a more detailed discussion of this scenario and its results.

[9] Per guidance from ODOT, pay-as-you-drive insurance is assumed to effectively create an additional per-mile fee on driving that is equivalent to $0.08/mi in 2020 and increases to $0.22 in 2045.

[10] The original Climate Smart Strategy was adopted in 2014 when pay-as-you-drive insurance was growing more popular and assumed 40% market-driven adoption of PAYD. Since then, insurers have scaled back their PAYD offerings and fewer consumers are using them, which makes it seem unlikely that the market will provide a path to 40% adoption. However, the State has the power to regulate auto insurance sold in Oregon, and for the 2023 RTP update Metro assumed that the state would implement PAYD by requiring Oregon drivers to use it. Though it would be feasible to apply such a requirement to 100% of Oregon drivers and would also support progress toward meeting Oregon's climate goals, Metro assumed 40% adoption of PAYD for consistency with the original Climate Smart Strategy adopted in 2014, which is the basis for the required progress reporting under the RTP climate analysis.

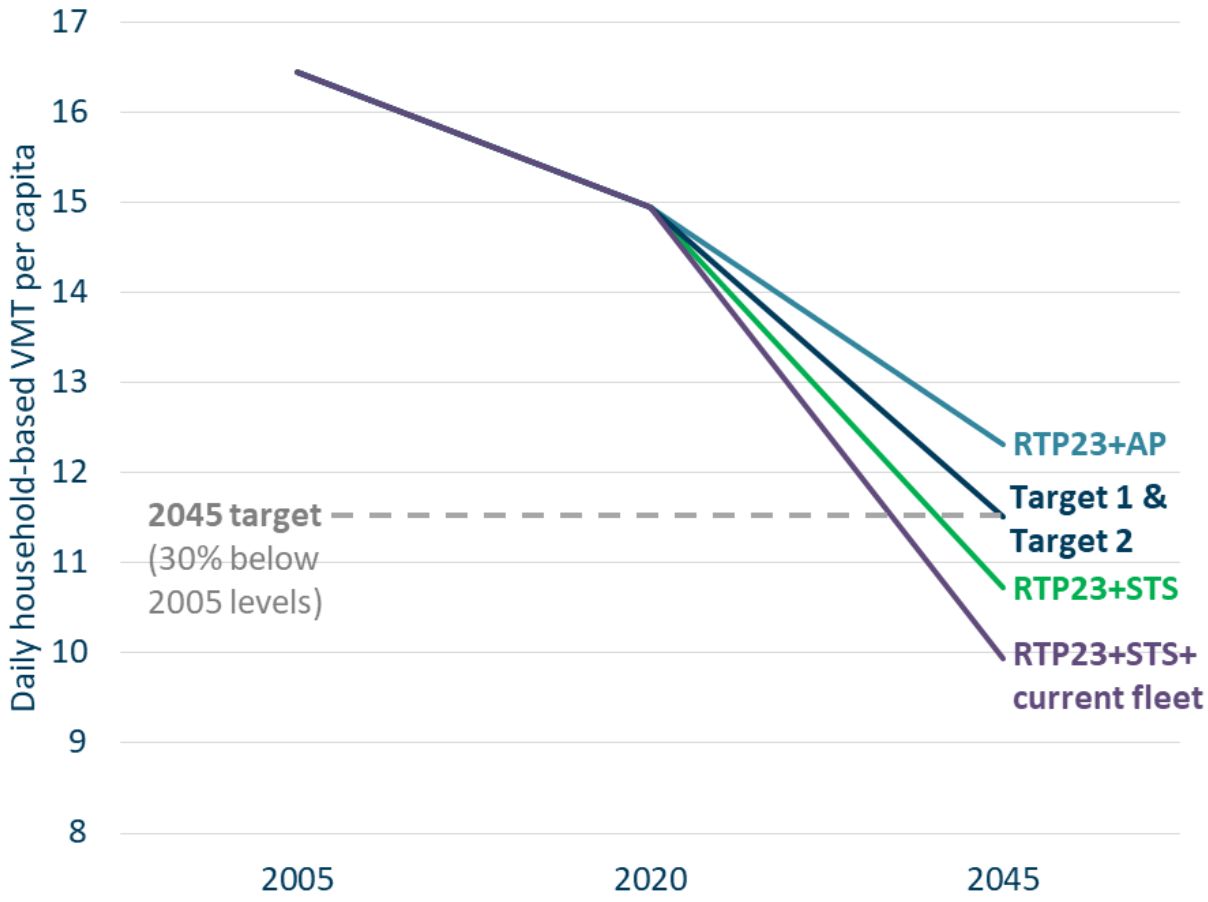
Exhibit E: Major Report Describing Progress Toward Climate Performance Targets

	RTP23 + STS	RTP23 + AP	Target 1 (pricing)	Target 2 (pricing + transit)	RTP23 + STS + Current Fleet[8]
GHG/capita reductions (from 2005 levels)	89%	70%	85-89%[11]	85-89%[11]	87%
VMT/capita reductions (from 2005 levels)	35%	25%	30%	30%	40%
Meets targets?	Yes (surpasses)	No	Yes (meets)	Yes (meets)	Yes (surpasses)

[11] The Target 1 and Target 2 scenarios were developed as informational scenarios during the RTP process to identify the minimum level of pricing and additional transit service needed to meet regional climate targets.

Figure 4 shows the VMT per capita results for each of the scenarios discussed above.

Figure 4: Daily VMT per capita by scenario vs. regional climate target (source: Metro/RSG VisionEval analysis)[12]



These results demonstrate that there are multiple paths to meeting regional climate targets through a combination of increased pricing and other climate strategies including demand management, system management, and increased investment in alternatives to driving. The fact that the RTP23+STS scenario significantly surpasses the target for 2045 while the RTP+AP scenario falls about 5% far short of meeting the target for 2045 illustrates the extent to which state-led actions may be needed for the RTP to achieve the target rule. But most importantly, these results show that the 2023 RTP update will meet regional VMT per capita reduction targets through the policies and investments included in the RTP in concert with state-led actions in the STS, including pricing. There is a

[12] Historical 2005 and 2020 VMT per capita vary slightly (i.e., by less than 0.5 VMT/capita/day) between the STS and AP scenarios provided to Metro by the state. For the purposes of this chart, Metro uses the more conservative AP scenario-based values for 2005 and 2020 across all scenarios.

minimum degree to which state-led actions are needed, as reflected in the Target 1 and 2 scenarios, but the RTP23+STS exceeds targets to such an extent that it creates a buffer—even if the state were not able to achieve the full suite of policies included in the STS, it would still be possible for the region to meet its climate targets.

Climate Smart Strategy implementation monitoring

To monitor and assess implementation of the Climate Smart Strategy, Metro will continue to use observed data sources and existing regional performance monitoring and reporting processes to the extent possible. These processes include regularly scheduled updates to the Regional Transportation Plan and Urban Growth Report and reporting in response to ORS 197.301 and ORS 197.296. When observed data is not available, data from regional or state models may be reported. Metro staff will continue to consult with DLCD, DOE, DEQ and ODOT on the assumptions and methods used and on the presentation of results.

If future assessments find the region is deviating significantly from the Climate Smart Strategy performance monitoring targets, then Metro will work with local, regional and state partners to consider the revision or replacement of policies and actions to ensure the region remains on track with meeting adopted targets for reducing greenhouse gas emissions.

In addition, Metro staff will monitor future changes to fleet and technology assumptions in collaboration with DLCD, DOE, DEQ and ODOT and continue to improve emissions analysis methods, data and tools through its air quality and climate change program.

Table 4 below shows current implementation and performance monitoring results.

Table 4: Climate Smart Strategy implementation and performance monitoring

	Climate Smart Strategy Baseline (2010)	Climate Smart Strategy Monitoring Target (2035)	2023 RTP Base Year (2020)	RTP 23 +STS Target Scenario Constrained (2045)
1. Implement the 2040 Growth Concept and local adopted land use and transportation plans				
a. Share of households living in a walkable mixed used development in the UGB	26%	37%	29%	37%
b. New residential units built through infill and redevelopment in the UGB	58%	65%	54%	75%
c. New residential units built on vacant land in the UGB	42%	35%	46%	25%
d. Acres of urban reserves	Not applicable	12,000	Not applicable	4,739
e. Household-based daily vehicle miles per capita	20	16	15	11
2. Make transit convenient, frequent, accessible and affordable				
a. Daily transit service revenue hours (excluding C-TRAN service hours)	4,900	9,400	6,803	9,059
b. Share of households within 1/4-mile all day frequent transit service	30%	37%	47%	53%
c. Share of low-income households within 1/4-mile all day frequent transit service	39%	49%	66%	81%
d. Share of employment within 1/4-mile all day frequent transit service	41%	52%	55%	67%
3. Make biking and walking safe and convenient				
a(1). Daily trips made walking	505,000	768,000	464,312	622,201
a(2). Daily trips made biking	179,000	280,000	216,912	293,153
b(1). Per capita biking miles per week	2.1	3.4	2.7	3.0
b(2). Per capita pedestrian miles per week	1.3	1.8	1.1	1.1
c(1 and 2). See 4a(2) and 4a(3) below				
d(1). New miles of bikeways	623 existing miles	421	626	132
d(2). New miles of sidewalks[13]	5072 existing miles	Data not available	597	131

[13] Metro is only able to forecast new sidewalks added on the regional network that is covered in the RTP. These forecasts are not consistent with the baseline data collected during development of the Climate Smart Strategy, which covered sidewalks on both local and regional roads. Both the RTP Base Year and 2045 results only cover the

	Climate Smart Strategy Baseline (2010)	Climate Smart Strategy Monitoring Target (2035)	2023 RTP Base Year (2020)	RTP 23 +STS Target Scenario Constrained (2045)
d(3). New miles of regional trails	229 existing miles	140	248	82
4. Make streets and highways safe and reliable[14]				
a(1). Fatal and severe injury crashes - motor vehicles	398	199	358	No forecast data
a(2). Fatal and severe injuries – pedestrians	63	32	107	No forecast data
a(3). Fatal and severe injuries - bicyclists	35	17	19	No forecast data
b. Change in travel time and reliability in regional mobility corridors	Data not available	Not evaluated	Data not available	No forecast data
c. Share of freeway lanes blocking crashes cleared within 90 minutes	Data not available	100%	Data not available	No forecast data
5. Use technology to actively manage the transportation system				
a. Share of arterial delay reduced by traffic management strategies	10%	35%	Data not available	No forecast data
b. Share of regional transportation system covered with system management/TSMO	Data not available	Data not available	Data not available	No forecast data
6. Provide information and incentives to expand the use of travel options[15]				
a. Share of households participating in individual marketing	9%	45%	0.2%	0.5%
b. Share of workforce participating in commuter programs	20%	30%	6%	5%
7. Manage parking to make efficient use of vehicle parking and land dedicated to parking				
a(1). Share of work trips occurring in areas with actively managed parking	13%	30%	17%	32%
a(2). Share of non-work trips occurring in areas with actively managed parking	8%	30%	7%	30%

regional network so that the two values can be compared, but they are not comparable to the original Climate Smart Strategy baseline.

[14] See Chapter 7 for a discussion of Metro's approach to setting performance targets for safety.

[15] The RTP values reported in this section are more modest than the original Climate Smart Strategy assumptions because the amount of funding available for transportation demand management programs is significantly lower than the amount needed to meet those assumptions. Until the Climate Smart Strategy is updated, Metro recommends using the more modest assumptions to reflect coverage at available levels of funding.

	Climate Smart Strategy Baseline (2010)	Climate Smart Strategy Monitoring Target (2035)	2023 RTP Base Year (2020)	RTP 23 +STS Target Scenario Constrained (2045)
8. Support transition to cleaner low carbon fuels, efficient fuels and pay-as-you-go insurance				
a(1). Share of registered passenger cars that are electric or plug-in-hybrid electric	1%	8%	2%	35%
a(2). Share of registered light trucks that are electric or plug-in-hybrid electric	1%	2%	0.4%	32%
b. Share of households using pay-as-you-go insurance	1%	40%	6%	40%
9. Secure adequate funding for transportation investments				
a. Address local, regional, and state transportation funding gap	Not evaluated	Not evaluated	See note[16]	Not evaluated
10. Demonstrate leadership on climate change				
a. Region-wide annual tons per capita greenhouse gas emissions (MTCO2e) from household-based light-duty vehicles within the Target Rule area	3.7	1.2	2.3	0.4
b. Region-wide annual tons per capita greenhouse gas emissions (MTCO2e) from all vehicles within the Target Rule area	Not evaluated	Not evaluated	4.2	0.7
11. New metrics[17]				
NA. Current / new lane miles	4,832	474	5,461	292
NA. Current / new throughway lane miles	550	52	627	36
NA. Current / new arterial lane miles	4,282	386	4,834	256
NA. % of workers who telework 1-4 days per week	Not evaluated	Not evaluated	37%	29%
NA. % of workers who telework full time	Not evaluated	Not evaluated	17%	33%

[16] JPACT and the Metro Council have advocated for more funding to increase transit service and implement the Climate Smart Strategy in multiple ways since it was adopted in 2014, including preparing annual federal and state legislative agendas that advocate for these resources. The Metro Council worked with regional and community partners to develop a regional transportation funding measure in 2020 (which voters did not approve). Oregon House Bill 2017 significantly increased funding for transit to allow for the region to increase service to the levels envisioned in the Climate Smart Strategy. However, the impact of the COVID-19 pandemic, ongoing challenges hiring drivers, and inflationary project costs have prevented these resources from achieving the envisioned levels of transit service and ridership.

[17] Metro included these measures in this report to provide additional context for interpreting the results of the climate analysis.

MODEL DEVELOPMENT SUPPORTING DOCUMENTATION

Input re-calculations

Multiple inputs were re-calculated to align with forecasts from ODOT and future projections of land use changes that are reflected in the growth distribution adopted by the Metro Council.

Lane miles

The lane miles input was re-calculated to align with ODOT values. ODOT provided HPMS 2020 data. Links were filtered to those with AADT values and aligned with ODOT's own calculations. The 2020 values were adjusted to reflecting the addition of 35 lane miles on freeways by 2045 as reflected in the RTP financially constrained project list. All remaining values were interpolated.

Table 5: Updated lane-mile inputs

Geo	Year	Updated Freeway Lane Miles	Updated Arterial Lane Miles
Metro	2005	538	1867
Metro	2010	549	1934
Metro	2020	577	2090
Metro	2025	584	2114
Metro	2030	591	2138
Metro	2035	597	2154
Metro	2040	602	2171
Metro	2045	607	2188
Metro	2050	613	2205

Land use changes: mixed-use residential

The input showing the proportion of households within mixed use zones was updated to reflect changes under the RTP 23 scenario (see Section 3.1 of Appendix M for more information on the adopted growth distribution used in the RTP analysis). The proportion was calculated for projected years 2020, 2030, and 2045. Values for intermediate, past, and future years were interpolated from these data points.

Table 6: Updated mixed-use residential results

Year	June 23 Asserted Mixed Use (Average) for the Model Region	Target Rule Area
2005	18%	27%
2010	19%	28%
2020	20%	29%
2025	21%	31%
2030	22%	32%
2035	22%	33%
2040	23%	35%
2045	23%	35%
2050	28%	38%

Transit service

The transit service input uses a Smart Location Database (SLD) variable (D4C) to estimate transit services within one-quarter mile of a transit line. This was developed using transit frequency data provided by TriMet for the region and its transit lines. Historical and 2020 calculated values and then scaled using TriMet's previous estimates.

Table 7: Updated transit service inputs

	Initial Transit Frequency (D4C)	Interim Transit Frequency (D4C)	Updated Transit Frequency (D4C)
Average	251.9	10.2	34.3
Median	215.3	6.7	24.5
Standard Deviation	246.6	13.9	38.6
Min	0	0	0
Max	2566.2	118	302.5

Intersection density

The intersection density input uses a SLD variable (D3bpo4) to estimate the density of four-leg pedestrian-oriented intersections per square mile. This input was updated using the latest SLD database and the spatial extent of the model.

Table 8: Updated intersection density results

	Original Intersection Density (D3bpo4)	Updated Intersection Density (D3bpo4)
Average	32.7	38.2
Median	17.0	18.3
Standard Deviation	38.5	52.4
Min	0.1	0.0
Max	174.7	347.2

Multimodal module

The multimodal module was originally developed by Portland State University to update the methodology for daily household VMT estimation and improve on the estimation of non-vehicular travel demand. The original module was estimated using the 2009 National Household Travel Survey (NHTS). The module was updated during the spring of 2022 by RSG for use in the Oregon Transportation Plan after evaluating the estimates of daily VMT and non-vehicular PMT relative to more recent travel surveys, namely the 2017 NHTS. The 2017 multimodal module includes new coefficient values for the two core models within the module. The module accounts for additional land use sensitivities in the calculation of daily household VMT including NHTS variables of life cycle and EPA Smart Location Database variables such as population density, mixed use neighborhoods, residential/job mix, worker density, intersection density, and transit accessibility. The module introduces new data to enable safety metrics to be produced as well as person miles traveled and trip lengths for transit, biking, and walking trips. The multimodal module provides for greater insight into the behavior changes associated with specific network changes, land use changes, and improved sensitivity to the land use/transportation nexus.

Teleworking module

The teleworking module used within the VisionEval model was originally developed for the Massachusetts Department of Transportation for a statewide scenario planning evaluation of how teleworking affects travel behavior. The module was later used in the Oregon VisionEval Statewide model for the Oregon Transportation Plan. The module has been adapted to work within the regional context of the Metro VisionEval VERSPM. The module asserts one of three 'teleworking categories' for each worker in the model by using available occupation data either from BLS, or in the case of Metro, the Oregon SWIM was used to determine a distribution of occupations at a sub-county resolution. Each worker in the VE model also has a commute distance along with other household characteristics (vehicle availability, etc.). A new probability of teleworking model was estimated based on explanatory variables including occupation (or more specifically the

teleworking category), commute distance, and other household characteristics. A second model accounts for the change in daily household travel as a result of that probability of teleworking. This model is estimated on empirical rMove (smart phone based) survey data based on a statewide household travel survey of individuals teleworking part-time and full-time prior to the COVID-19 pandemic. Therefore, the change in VMT associated with teleworking is not linear and not only connected to the change in the commute trip, but accounts for the variety of travel needs that remain regardless of a physical commute.

Teleworking has been identified as important behavior in the greater Portland region that should be accounted for when estimating and forecasting GHG emissions in relation to the state target rule. The next section describes existing research and model development examples regarding teleworking, which will inform the development of a teleworking module for the VisionEval model developed for the RTP.

Overview

Teleworking has become ubiquitous for a sizeable share of the US workforce as a consequence of and response to the COVID-19 pandemic. Before the pandemic, teleworking was largely considered a worthwhile travel demand management (TDM) action intended to reduce travel miles associated with commutes to a fixed place of work.

Accounting for teleworking in travel demand models, including the strategic demand model VisionEval, is challenging given the relationships between individual employee – employer dynamics, the household composition (represented as "life cycle" in National Household Travel Data), the occupation, distance and travel options to work, etc.

RSG has been studying teleworking behavior as part of household travel surveys conducted on the behalf of regions and states often as part of a travel demand model update. RSG expanded the survey program in May 2020 to create a longitudinal panel survey to monitor travel behavior changes during the significant upheaval associated with the COVID-19 pandemic. The following notable changes in travel behavior were observed in the data of survey responses[18]:

- Grocery pickup and delivery will likely continue to supplement in-store shopping, particularly among high-income and zero-vehicle households.

[18] The RSG COVID panel started in May 2020. It continued through Sept 2021 with nine waves. Additional surveys were later administered and added to the data sample. Each wave had over 3000 participants, and weighted to be statistically representative of the national population. See this survey summary for additional information: https://rsginc.com/wp-content/uploads/2022/01/How-COVID-19-Necessities-Have-and-Havent-Changed-the-Way-People-Travel.pdf

- Similarly, telehealth will likely continue to supplement in-person appointments, especially among adults in households with children.
- Income continues to significantly influence telework access, which in turn impacts telework access among Black and Hispanic residents.

RSG also initiated a study for the Massachusetts DOT for evaluating various future scenarios and the impact on travel behavior and investment decisions as a result of teleworking in the state. This remains an on-going study comprised of an extensive literature review on teleworking, defining the actions, setting the status quo, and creating a model to better understand who might be teleworking and what resulting travel behaviors may result. An important outcome of this study is the production of a VisionEval Teleworking module that has since been integrated into the VisionEval-State model for Oregon and is being tested for use within the VE-RSPM for Metro and the RTP.

RSG used the Bureau of Labor Statistics (BLS) Standardized Occupational Codes (SOC) to classify the employed persons into the three categories associated with their propensity to telework. The categories were defined based on the literature review done in Massachusetts, the COVID-19 Survey, and an extensive analysis of a longitudinal household travel survey in Ohio using an rMove dataset made available to relate workers' occupation to travel behavior. Occupational data had a stronger relationship with teleworking as compared to industry classification (i.e., NAICS), however, occupational data is less frequently sampled or available as industry data.

The teleworking category assigned to each of the 2-digit BLS SOC labels is shown in Table 9 along with the number of workers in each occupation per the 2021 BLS summary for the Portland MSA.

Table 9: Teleworking rate category by BLS SOC

BLS Occupations	SOC	Teleworking Category (RSG)	Number of Workers for the Portland MSA
Business and financial operations occupations	13-0000	remote	160,790
Computer and mathematical occupations	15-0000	remote	92,590
Architecture and engineering occupations	17-0000	remote	68,660
Arts, design, entertainment, sports, and media occupations	27-0000	remote	32,580
Office and administrative support occupations	43-0000	remote	287,870
Educational instruction and library occupations	25-0000	on-site	110,510
Healthcare practitioners and technical occupations	29-0000	on-site	119,410

BLS Occupations	SOC	Teleworking Category (RSG)	Number of Workers for the Portland MSA
Healthcare support occupations	31-0000	on-site	81,680
Food preparation and serving related occupations	35-0000	on-site	172,420
Building and grounds cleaning and maintenance occupations	37-0000	on-site	54,660
Personal care and service occupations	39-0000	on-site	40,990
Farming, fishing, and forestry occupations	45-0000	on-site	6,890
Construction and extraction occupations	47-0000	on-site	107,930
Installation, maintenance, and repair occupations	49-0000	on-site	77,150
Production occupations	51-0000	on-site	130,980
Transportation and material moving occupations	53-0000	on-site	199,080
Management occupations	11-0000	mixed	161,000
Life, physical, and social science occupations	19-0000	mixed	24,900
Community and social service occupations	21-0000	mixed	45,310
Legal occupations	23-0000	mixed	19,020
Protective service occupations	33-0000	mixed	35,190
Sales and related occupations	41-0000	mixed	194,930

Source: https://www.bls.gov/oes/current/oes_38900.htm

The share of workers in each teleworking category is used to understand the overall makeup of the worker fleet and the typical commuting patterns of each of the three categories.

Table 10 shows the share of workers by teleworking category. The data indicates that 50 percent of the workers across the MSA are in the on-site category, which has the lowest level of teleworking.

Table 10: Share of workers by teleworking category

Teleworking Category	Number of Employees	% of MPO Regional Employees
Remote	642,490	29%
Mixed	480,350	22%
On-site	1,101,700	50%

Source: BLS SOC for the MSA

The three teleworking categories are used in the VisionEval module to identify how travel behavior may change for workers within each group as a result of changes in the overall level of teleworking. The base data, aligning with national pre-COVID commute trends, for the three teleworking categories and the commute patterns is displayed in Table 11.

Table 11: Teleworking rates by teleworking category

	Days per week Teleworking	Raw Mode Shares (100% within each category)	Weighted Share of All MSA Workers
Remote	Commute only	63.0%	18.20%
	full time home	13.0%	3.8%
	1-2 days	10.0%	2.89%
	3-4 days	14.0%	4.04%
Mixed	Commute only	65.8%	14.2%
	full time home	12.0%	2.6%
	1-2 days	9.2%	2.0%
	3-4 days	12.9%	2.8%
On-Site	Commute only	79.5%	39.4%
	full time home	7.2%	3.6%
	1-2 days	5.5%	2.7%
	3-4 days	7.8%	3.8%

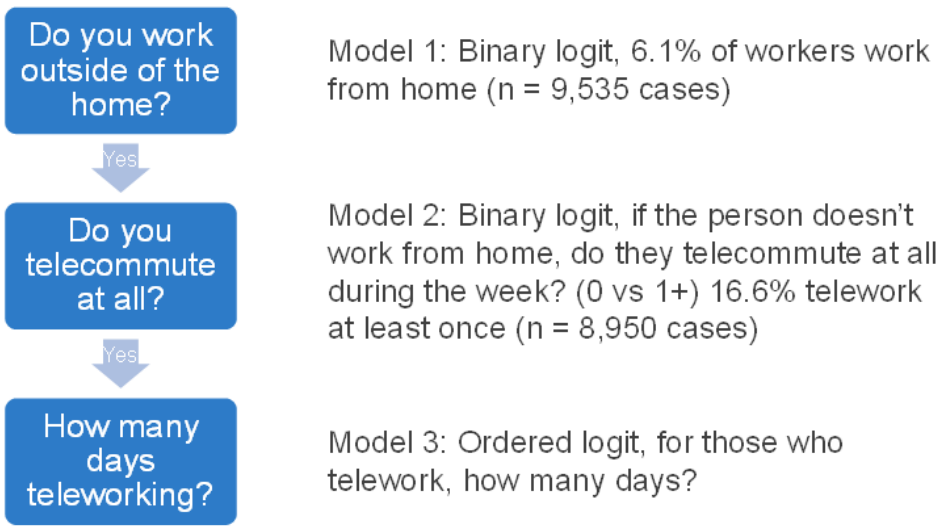
Source: RSG

Modeling teleworking travel behavior

The VisionEval strategic travel model was enhanced as part of the on-going Massachusetts Teleworking Study to account for teleworking rates among the workers in the model. The VisionEval model estimates the average daily travel behavior for households with a specific sub-routine focused on employed members of the household. Important explanatory variables that affect teleworking rates and frequency include: occupation, commute distance, nearby land use, income, vehicle availability, age, and household composition (life cycle).

RSG used a robust multi-year rMove sample from a household travel survey to estimate the relationship between occupation, teleworking category, and average daily travel that Ohio DOT made available for this research purpose. The data informed a new Teleworking Module within the VisionEval models. The teleworking module includes three core models as shown in Figure 5.

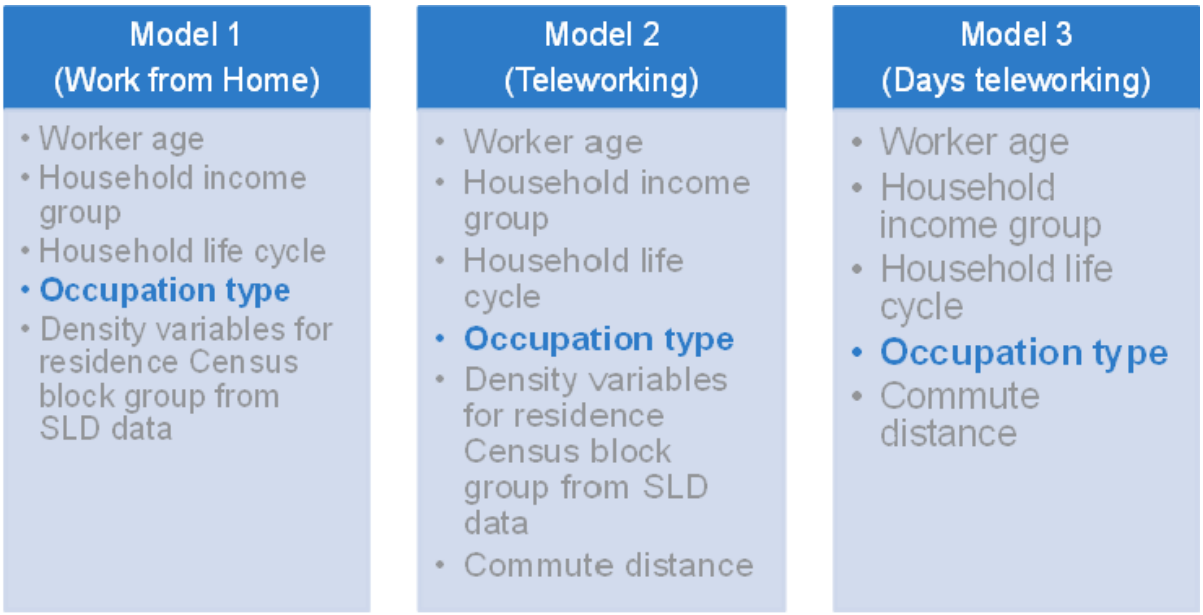
Figure 5: Teleworking model sequence



Source: RSG

Each of the three models uses a similar set of explanatory variables as shown below. The Occupation Type is the new assertion that needs to be added to the VisionEval model through a new model input.

Figure 6: Teleworking model components



Source: RSG

The models are included in the VisionEval Teleworking Module structure using an input file that estimates the percentage of workers within each of the three teleworking categories by the location type in the VisionEval model.

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ATTACHMENT 1: SUPPLEMENTAL CLIMATE ANALYSIS FINDINGS AND RECOMMENDATIONS

Summary

This document summarizes policy and technical background about the required, state-defined vehicle and fuel assumptions used in the 2023 Regional Transportation Plan (RTP) climate analysis and reports the findings of a supplemental climate analysis conducted about these assumptions and the final RTP climate analysis. **This information is intended to provide a more detailed understanding of why certain vehicle and fuel assumptions were used in the RTP climate analysis and how changes to these assumptions impact the progress toward the region's greenhouse gas emissions reduction targets** set in OAR 660-044 (Metropolitan Greenhouse Gas Reduction Targets Rule). This document provides a basis for recommendations to the State of Oregon about updating statewide technical assumptions used in setting greenhouse gas reduction targets for each of Oregon's metropolitan areas.

Purpose and background

The Climate Friendly and Equitable Communities (CFEC) update to the Transportation Planning Rule OAR 660-012-0160(6) requires Metro to adopt a regional transportation plan in which the projected vehicle miles traveled per capita of the financially constrained project list is consistent with the region's metropolitan greenhouse gas (GHG) reduction target. The climate analysis prepared by Metro for the 2023 RTP indicates that using the RTP financially constrained project list investments and Statewide Transportation Strategy (STS) levels for state-led pricing, fleet and technology policies will achieve a vehicle miles traveled per capita reduction that surpasses the metropolitan GHG target. The RTP target for 2045 is a 30 percent reduction (below 2005 levels) in vehicle miles traveled per capita.

When measuring progress on the region's greenhouse gas emissions reduction targets through each update to the RTP, Metro is allowed to use certain assumptions and must use emissions rates that reflect future state-led STS actions that were assumed when the targets were first adopted by the Land Conservation and Development Commission (LCDC) in 2011 and updated in 2017.[19] These assumptions include state-led pricing and

[19] As required, the RTP climate analysis followed the analysis methodology provided by state agencies in the Scenario Planning Guidelines Technical Appendix Target Rules Methodology as provided in Attachment 4. The guidelines and analysis methodology are available at: https://www.oregon.gov/odot/Planning/Documents/Oregon-Scenario-Planning-Guidelines-Tech-Appendix.pdf

energy policies and are in addition to state-led actions on vehicle and fuel technology advancements, including vehicle mix, vehicle fuel efficiency, fuel mix, and fuel carbon intensity. As defined in OAR 660-044-0030(3), projections of greenhouse gas emissions must use emission rates based on the STS as adopted by the Oregon Transportation Commission (OTC) that reflect the reductions likely to result by the use of improved vehicle technologies and fuels. Metropolitan area greenhouse gas target modeling efforts must rely on emission rates agreed to by the Oregon Department of Transportation (ODOT) and the Department of Land Conservation and Development (DLCD) to ensure this compliance. Using these assumptions for state-led actions allows the evaluation of meeting the metropolitan GHG target to focus on the actions to reduce vehicle mile traveled (VMT) that are within local and regional authority, in combination with the supportive actions within federal and state authority and that were assumed when the targets were first adopted by LCDC.

Adopted by the OTC in 2018, the STS is Oregon's roadmap to reduce emissions from the transportation sector and achieve the state's GHG reduction goal and metropolitan GHG reduction targets. The STS was cooperatively developed by state agencies, and state agencies work in partnership to implement the STS. When LCDC adopted original metropolitan GHG targets in 2011, the STS was still being developed by ODOT requiring the original targets to be set independent of the final STS. During the 2017 Metropolitan Target Rule update, LCDC reviewed and updated the metropolitan GHG reduction targets based on the future vehicle fleet, fuel, and technology assumptions set forth in the adopted STS (built in collaboration with the Departments of Energy and Environmental Quality), as well as other state-led actions adopted in the STS. These actions include state-led pricing programs such as pay-as you-drive insurance, mileage based road user fees to replace the gas tax (e.g. vehicle miles traveled fees), social cost recovery pricing (e.g., carbon tax), and congestion pricing in the Portland area. Even though the state, which has the authority to implement these actions, had made limited progress on these actions, the updated targets were set at a level that assumed that some combination of these forms of pricing would be implemented in Oregon by 2050. The RTP climate analysis assumed the levels of pricing assumed by the state agencies when setting the region's targets. **At that time, state agencies acknowledged that significant changes to the fleet, fuel, and technology assumptions, such as significant vehicle advances or repealing of existing vehicle or fuel emission reduction programs, could prompt review of the Metropolitan GHG Reduction Targets Rule. In addition, the Targets Rule directs LCDC to review the targets and assumptions upon which they are based every four years; the next review is due by June 1, 2025**.[20]

[20] The process for this review is described in OAR 660-044-0035.

Clean vehicle and fuel assumptions in the RTP climate analysis

Reviewing STS vehicle and fuel assumptions

Greenhouse gas emissions from transportation are primarily driven by three factors: the GHG content of fuels, vehicle fuel efficiency, and the amount of vehicle miles traveled (VMT) by drivers and freight haulers. The fuel efficiency of a vehicle, commonly measured in how many miles it can travel per gallon of fuel used, is largely driven by vehicle technology, but can also be affected by congestion and driving efficiency. **Plans to meet Oregon's climate goals must account for the relationships between these factors.** As vehicles and fuels become cleaner, vehicles emit fewer GHGs per mile, and therefore reducing VMT and creating conditions where vehicles can operate more efficiently become less effective GHG reduction strategies. The reverse is also true; VMT reductions and efficient travel will need to account for a larger share of GHG reductions in Oregon if vehicles and fuels do not turn out to be as clean as projected.

In order to ensure coordination between the State of Oregon, which plays a primary role for making fuels and vehicles cleaner, and Metro and its partners, which play a primary role for reducing per capita passenger vehicle VMT in the Portland region (except in the case of pricing actions where the state has implementation authority), **both the regional climate targets to reduce VMT per capita and the RTP's analysis of progress toward these targets are required to use the same underlying set of inputs about vehicles and fuels as were used when the region's targets were adopted by LCDC in 2017.** Specifically, the Metropolitan GHG Reduction Targets Rule specifies an emissions rate (in grams of CO_2 equivalent emitted per mile of travel) for each year that must be used in regional climate analysis, and this rate is based on underlying assumptions about vehicle mix, turnover rates and other assumptions. [21]

Three key inputs used in determining the emissions rate include:

- **Sales by powertrain type**, which estimates the share of new vehicle sales that are gas powered vehicles versus electric vehicles (EVs) for both cars and trucks. The proportion of vehicle types, along with underlying projections about the efficiency of different types of powertrains, defines how efficient the new vehicles that are for sale each year will be.

[21] The GHG emissions rates (grams per mile) are the vehicle emissions projected to result from the use of improved vehicle technologies and fuels for each year through 2050. The emissions rates are reflected in the model assumptions about mix of vehicles sold each year and rates of vehicle turnover specified for the target rules analysis. When the model is run, households are assigned vehicles of a certain age, and the attributes of those vehicles determine emissions, fuel consumption, and household travel cost.

- **Household vehicle mix**, which estimates the share of household vehicles that are cars versus trucks and sport utility vehicles (SUVs). This input helps to estimate the fleet efficiency of the new vehicles that consumers purchase each year. There are fewer EV models available for trucks and SUVs than for cars, and the truck/SUV EV models that are available tend to be less energy efficient (e.g., more kilowatt-hours per mile). Buyers who have a strong preference for trucks and SUVs are less likely to purchase the most efficient vehicles that are available.
- **Average vehicle age**, which estimates the number of years that the average consumer retains a vehicle after purchasing it. This variable influences the length of time it takes for newer, cleaner vehicles to enter the fleet and begin reducing GHG emissions.

These assumptions combine within VisionEval to influence the average fuel efficiency of vehicles in the transportation system, the average GHG emissions rate, and other assumptions used in the RTP climate analysis. Table 3 above contains a complete summary of these assumptions.[22]

Table 12 summarizes the values used in the RTP climate analysis for the three assumptions listed above. For each assumption, the table includes the values assumed by the STS adopted in 2018, which is the source of the assumptions used in the climate analysis, for both 2020 and 2045. It compares these values to current observed values and recent trends and summarizes policies and programs that could influence current trends to conform more closely to the projections contained in the STS.

[22] VisionEval includes separate assumptions for passenger and commercial vehicles. This section focuses on passenger vehicles, which are the focus of the RTP climate analysis and also contribute a higher share of the region's GHG emissions.

Table 12: Key fuel- and vehicle- related assumptions in the RTP climate analysis

Input	2020 STS assumption	2045 STS assumption	Current observed values[23]	Notes on recent trends	Policies and programs that could influence trends
Sales by powertrain type[24]	Cars: 59% gas, 41% EV Trucks: 69% gas, 31% EV	Cars: 1% gas, 99% EV Trucks: 11% gas, 89% EV	All U.S. vehicles (2021): 93% gas, 7% EV[25] OR vehicles (2022): 89% gas, 11% EV[26]	The market share of electric vehicles has been climbing rapidly. EVs' share of sales grew from 3% to 12% between 2011 and 2021.[25] Analysts expect this growth to continue such that EVs could account for 40-50% of new U.S. vehicle sales in 2030.[27] This falls short of the projections in the STS, which estimate EV market shares of 86% for cars and 67% for trucks in 2030.	The Advanced Clean Cars II rules require that all light vehicles sold in Oregon be EVs by 2035 with some credit allowances. Other state and federal programs to accelerate EV adoption include rebates and tax credits for EV buyers, and funding and deployment for EV chargers. The state projects that these policies and programs put Oregon on track to meet its target that of at least 90 percent EV market share by 2035.[28]

[23] Based on research conducted by Metro staff and consultants. Data may not always align with the definitions or the 2020 base year used in the STS and RTP climate analysis and may reflect post-2020 trends and changes that are not accounted for in the 2020 base year projections. The goal of this exercise is to highlight base year assumptions that may be in need of updating prior to the next RTP update (due in 2028) – not to recommend revisions to the current base year assumptions.

[24] The term "EV" (electric vehicle) as used here includes hybrid electric vehicles (HEVs), plug-in hybrid electric vehicle (PHEVs), battery electric vehicle (BEVs) unless otherwise noted. Though these vehicles emit GHGs at different rates (i.e., BEVs and PHEVs tend to be much cleaner than HEVs because they are capable of traveling long ranges in electric mode), the available data does not always distinguish between these 3 different powertrains. This table uses a general definition of EVs in order to compare data from different sources.

[25] https://www.bts.gov/content/gasoline-hybrid-and-electric-vehicle-sales and https://www.bts.gov/content/new-and-used-passenger-car-sales-and-leases-thousands-vehicles.

[26] https://www.autosinnovate.org/resources/insights/or. The selected data source combines gas-powered vehicles with HEVs, which is inconsistent with how other sources reviewed present this data. Other data sources place the percentage of EV sales in Oregon at 16% in 2023 (https://www.oregon.gov/energy/energy-oregon/Pages/BIZEV.aspx). Though the data vary, it is clear that PHEVs and BEVs account for a much higher share of new sales in Oregon than nationally.

[27] https://www.bls.gov/opub/btn/volume-12/charging-into-the-future-the-transition-to-electric-vehicles.htm

[28] https://www.oregon.gov/energy/energy-oregon/Pages/BIZEV.aspx

Input	2020 STS assumption	2045 STS assumption	Current observed values23	Notes on recent trends	Policies and programs that could influence trends
Household vehicle mix	58% car, 42% SUV / truck	72% car, 28% SUV / truck	As of 2022 Oregon's passenger fleet is 32% car, 68% SUV / truck.[29]	More and more people are picking SUVs or trucks over cars. Prior to 1983, trucks and SUVs made up less than 25% of new passenger vehicle sales in the U.S.; by 2023 that figure increased to 80%.[30]	As the state's monitoring shows,[31] Oregon is on track to meet the STS goal to "clean up every mile," because the faster-than-expected roll-out of EVs compensates for the slower-than-expected uptake of EVs and older, larger vehicles remaining in use. In the future, DMV registration fees could be set to incentivize smaller vehicles.
Average vehicle age	7.7 years	6.3 years	As of 2022, the average lifetime of passenger vehicles in Oregon is 14.2 years.[26]	People are keeping their vehicles longer that previously assumed. The average age of U.S. passenger vehicles increased from under 9 years in 2000 to over 12 years in 2022,[32] and Oregon drivers tend to keep their vehicles longer than average.[26]	As noted above, the state expects the faster-than-expected roll-out of EVs to compensate for the slower-than-expected uptake of EVs and older, larger vehicles remaining in use. In the future, increased use of car and ride sharing services could shift miles to newer vehicles that are more fuel efficient. New "cash-for-clunkers" programs incentivize drivers to trade in older vehicles that pollute more.

[29] https://www.autosinnovate.org/resources/insights/or
[30] https://fredblog.stlouisfed.org/2021/03/long-term-trends-in-car-and-light-truck-sales/
[31] The Oregon Transportation Emissions website monitors the state's progress on the Statewide Transportation Strategy, including "Emissions per Vehicle mile" on the Progress page, and further actions by category. https://www.oregontransportationemissions.com/progress
[32] https://www.bts.gov/content/average-age-automobiles-and-trucks-operation-united-states

All three of the 2020 STS assumptions shown in Table 12 are out of step with current observed values. The 2045 values are also out of step with current trends, though in different ways. **Both the STS and other data sources estimate that EVs are going to account for a significantly larger share of vehicle sales in the future – they just differ on the anticipated increase – whereas the STS assumptions that people will increasingly favor cars over trucks and keep their vehicles for less time directly contradict current trends.** Furthermore, there are a number of state policies and programs designed to increase the number of electric vehicles for sale, including a robust requirement that all vehicles sold in Oregon be zero-emission vehicles by 2035, whereas the state is not currently implementing any policies and programs designed to increase the popularity of cars over trucks and SUVs or to incentivize people to shorten the time that they keep their vehicles – though the state has identified potential trends and actions to address these issues, as noted in Table 12.

This raises questions about whether the RTP climate analysis is overly optimistic because the STS assumptions differ from observed data in a way that increases projected GHG emissions reductions due to clean vehicles and fuels. These assumptions are used both in setting regional VMT per capita reduction targets (which are based on the total VMT reductions that the state estimates are necessary to meet Oregon's climate goals after accounting for GHG reductions due to clean vehicles and fuels) and in the RTP climate analysis to ensure that the analysis is comparable to the targets. **If the assumptions discussed above remain off-track, a review of the state's assumptions and process for defining regional climate targets and measuring progress is warranted.** This would require significant coordination between Metro and the state and may result in revisions to the region's climate targets that would inform future RTP climate analyses. This could include adjusting the level of regional targets or changing the metrics that are used to define those targets. The Transportation Planning Rules and Metropolitan Greenhouse Gas Reduction Target Rules (as amended by LCDC in August 2022 during the CFEC rulemaking process) define regional targets in terms of reductions in VMT per capita. This means that changes to vehicle fuels and technology that affect the average GHG emissions rate, such as those discussed in Table 12, do not directly affect the region's progress toward its climate targets. These changes do have an impact on total GHG reduction and GHG emissions rates, and these factors are documented in Exhibit A and RTP Appendix J for the purpose of ensuring that the climate analysis is using required assumptions from the STS correctly, but any action to make fuels and vehicles cleaner – or lack of progress in meeting the STS assumptions – does not bear on the region's VMT per capita targets.

2023 RTP + STS + Current Fleet scenario analysis

As an interim step, Metro staff and consultants examined how it would impact the results of the RTP climate analysis if the analysis holds vehicle mix and vehicle age constant at today's levels instead of using the assumptions provided by the STS. These are the two STS assumptions shown in Table 12 that appear most at risk of remaining off track given current data and the lack of supportive policies and programs. As discussed above, changing these assumptions will not have a significant effect on VMT per capita, which is the key metric used in the RTP climate analysis, because the age of people's vehicles and whether those vehicles are cars or trucks generally does not have a strong influence on how much people drive. However, these changes will have a change on the carbon intensity of driving (which is measured in grams of GHG emissions per mile driven) and the overall GHG results in the RTP analysis. These results can be used in future RTP climate analyses to calculate the additional VMT reductions that would be necessary to compensate for the increase in GHG emissions due to assuming that vehicles will be older and heavier than projected in the STS.

Table 13 compares the assumptions and results of this new 2023 RTP + STS + Current Fleet scenario to the other scenarios used in the RTP climate analysis.

Table 13: Summary of climate scenarios and assumptions used in the 2023 RTP update

	RTP23 + STS	RTP23 + AP	Target 1 (pricing)	Target 2 (pricing + transit)	RTP23 + STS + Current Fleet
Scenario Description	Official RTP climate scenario for the purposes of target analysis / state rule compliance	Illustrative bounding scenario showing the GHG impacts of "business as usual" defined by the state; assumptions about clean vehicles and pricing are based on adopted plans	Illustrative pathway to meeting climate targets by assuming the minimum level of state-led pricing needed to close the gap between RTP23 GHG reductions and targets	Illustrative pathway to meeting climate targets by assuming the minimum level of state-led pricing needed to close the gap between RTP23 GHG reductions and targets if revenues are used to expand transit service	Illustrative bounding scenario that explores the GHG impacts of using current values instead of STS values for vehicle age and mix
Throughway pricing	STS pricing on the entire throughway network, averaging $0.17/mile	RTP pricing on portions of I-5 and I-205 averaging $0.11/mile	$0.11/mile on the entire throughway network	$0.08/mile on the entire throughway network	STS pricing on the entire throughway network, averaging $0.17/mile
Other STS per-mile fees	$0.20/mile	None	$0.12/mile	$0.10/mile	$0.20/mile
Pay-as-you drive (PAYD) insurance[33]	State requires PAYD insurance with 40% participation[34]	State leaves PAYD insurance to the market with 6% participation	State requires PAYD insurance with ~68% participation	State requires PAYD insurance with ~27% participation	State requires PAYD insurance with 100% participation
Transit service	RTP level of transit service	RTP level of transit service	RTP level of transit service	77% increase above RTP level of transit service	RTP level of transit service
Clean fuels and vehicles	STS assumptions	State AP (adopted plans) assumptions	STS assumptions	STS assumptions	STS assumptions except current fleet vehicle age and mix (32% car / 68% SUVs and light-duty trucks)

[33] Per guidance from ODOT, Pay-as-you-drive insurance is assumed to effectively create an additional per-mile fee on driving that is equivalent to $0.08/mi in 2020 and increases to $0.22 in 2045.

[34] The original Climate Smart Strategy was adopted in 2014 when pay-as-you-drive insurance was growing more popular and assumed 40% market-driven adoption of PAYD. Since then, insurers have scaled back their PAYD offerings and fewer consumers are using them, which makes it seem unlikely that the market will provide a path to 40% adoption. However, the state has the power to regulate auto insurance sold in Oregon, and for the 2023 RTP update Metro assumed that the state would implement PAYD by requiring Oregon drivers to use it. Though it would be feasible to apply such a requirement to 100% of Oregon drivers and would also support progress toward meeting Oregon's climate goals, Metro assumed 40% adoption of PAYD for consistency with the original Climate Smart Strategy adopted in 2014, which is the basis for the required progress reporting under the RTP climate analysis.

	RTP23 + STS	RTP23 + AP	Target 1 (pricing)	Target 2 (pricing + transit)	RTP23 + STS + Current Fleet
GHG/capita reductions (from 2005 levels)	89%	70%	85-89%[35]	85-89%[35]	87%
VMT/capita reductions (from. 2005 levels)	35%	25%	30%	30%	40%
Meets targets?	Yes (surpasses)	No	Yes (meets)	Yes (meets)	Yes (surpasses)

[35] The Target 1 and Target 2 scenarios were developed as informational scenarios during the RTP process to identify the minimum level of pricing and additional transit revenues needed to meet regional climate targets. These scenarios did not undergo the same level of detailed development and analysis as the other scenarios, which prevented Metro from forecasting precise 2045 GHG results for these scenarios that are comparable to the other results shown in this table. Metro estimated a range of potential GHG reductions for these scenarios based on the RTP23 + STS + Current Fleet scenario. The two Target scenarios contain less pricing than the Current Fleet scenario and significantly cleaner vehicles, such that GHG emissions under these scenarios would likely be within +/-2% of those under the Current Fleet scenario.

Findings of the supplemental climate analysis

Holding vehicle mix and age constant in the RTP23 + STS + Current Fleet scenario has a mixed impact on progress toward Oregon's GHG reduction goals and the region's targets. On one hand, this scenario produces fewer overall GHG reductions than the two Target scenarios because it assumes that the vehicle fleet will be significantly less efficient. On the other hand, the RTP23 + STS + Current Fleet scenario produces larger reductions in VMT per capita than the Target scenarios because VisionEval (which is the model used to quantify progress toward regional climate targets) assumes that less efficient cars are more expensive to operate and maintain, and therefore that **people drive slightly less if their car is less efficient and more costly to operate.** In other words, **this scenario actually supports progress toward regional climate targets, because those targets are defined only with respect to VMT per capita** (as per 2020 CFEC DLCD Rule updates), even though it increases overall per capita GHG emissions.

Based on these results, Metro estimates that **the region would need to achieve an additional 11% reduction in VMT per capita on top of the 39% reduction that is forecasted to occur under the RTP 23 + STS + Current Fleet scenario** (i.e., the region would need to achieve a total 50% reduction in VMT per capita) **to compensate for the older, less efficient vehicles assumed therein and maintain per capita GHG reductions that are consistent with state targets.** However, the process set by the State for monitoring progress toward regional climate targets does not allow for more detailed examination of the potential need to increase VMT per capita reductions to compensate for slower-than-anticipated progress in greening the vehicle fleet. This is because the process makes the State responsible for setting vehicle- and fuel-related assumptions and the region responsible for achieving VMT per capita reductions. **This division of roles between the region and state does not currently allow for a collaborative analysis of the relationships between vehicle technology and VMT per capita, and even if it did, the State has not documented its vehicle- and fuel-related assumptions in sufficient detail to support such an analysis.**

Recommended updates to future climate analysis assumptions and process

The results above reveal three important findings:

1. If State assumptions regarding clean vehicles and fuels turn out to be unrealistic, additional state, regional and local actions will be needed to further reduce VMT per capita to close the gap to achieve the Oregon's GHG reduction goals.

2. Under the current target monitoring process, dialing back State-level assumptions regarding clean vehicles and fuels supports progress toward regional climate targets because it makes driving more expensive, reducing how much people drive.
3. The current target monitoring process and the available information on State assumptions does not allow for a detailed analysis of the trade-offs between VMT per capita reductions and progress toward greening the vehicle fleet.

Though the analysis above only focuses on two of the many assumptions that are provided by the State for the RTP climate analysis, it raises broader questions about whether the changes to the assumptions discussed above need to be reflected in setting regional climate targets in the Metropolitan GHG Reduction Targets Rule as well as in future RTP climate analyses. Significant updates to the process for setting and evaluating progress toward regional climate targets would be needed to address these issues and are recommended to be addressed by the State in advance of the next update to the RTP (due in 2028).

Metro encourages the State to:

- Conduct a detailed, comprehensive review of the STS assumptions used to set the metropolitan GHG reduction targets as part of the next STS Implementation Monitoring Report, as described in OAR 660-044-0035.[36] The most recent STS Monitoring Report, completed in 2023,[37] reports back on general progress on categories of actions like improving passenger vehicle technology – it does not examine whether specific individual assumptions used in the STS are consistent with current trends and policy changes, as Table 12 does. This level of detail is necessary to ensure the validity of the assumptions and targets used in the RTP climate analysis. Metro encourages the State to make this a transparent process and to collect robust public and policymaker feedback on underlying assumptions so that it does not fall to Metro and other agencies to communicate the State's assumptions as part their climate analysis and monitoring. This review should also identify actions needed to achieve STS assumptions that are not on track.
- Update the Statewide Transportation Strategy, as needed, if the implementation monitoring report reveals that assumptions are significantly off-track, and subsequently update the Metropolitan Target Rule using updated STS assumptions. This process would need to be completed by 2026 to inform the climate analysis that will be conducted as part of the next RTP update (due in 2028).

[36] The next Commission review of the targets is due by June 1, 2025 per OAR 660-044-0035.
[37] https://www.oregontransportationemissions.com/

ATTACHMENT 2: ODOT MEMO ON STATEWIDE TRANSPORTATION STRATEGY STATE-LED PRICING ACTIONS FOR METRO RTP ANALYSIS

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Oregon
Tina Kotek, Governor

Department of Transportation
Policy, Data and Analysis Division
Climate Office
555 13th Street NE
Salem, Oregon, 97301

To: Kim Ellis, RTP Project Manager
Eliot Rose, Senior Transportation Planner

From: ODOT Climate Office
Suzanne Carlson, Climate Office Director

Date: June 29, 2023

Subject: Statewide Transportation Strategy State-Led Pricing Actions for Metro RTP Analysis

This memo describes the state-led pricing actions that Metro is allowed to assume for analysis to demonstrate Regional Transportation Plan compliance with the metropolitan greenhouse gas reduction targets (OAR 660-044 or target rules). The Climate Friendly and Equitable Communities updates to the Transportation Planning Rules OAR 660-012-0160 (6) requires Metro to adopt a regional transportation plan in which the projected vehicle miles traveled per capita of the financially-constrained project list is consistent with the region's metropolitan greenhouse gas (GHG) reduction target.

Metro is allowed to utilize assumptions on future state actions that affect auto operating costs, including state-led pricing and energy policies. These are in addition to state-led actions on vehicle and fuel technology advancements, including vehicle mix, vehicle fuel efficiency, fuel mix, and fuel carbon intensity. Utilizing these assumptions for state-led actions allows the metropolitan GHG target to focus on the actions to reduce vehicle mile traveled (VMT) that are within local authority, in conjunction with the supportive actions within federal and state authority.

The target rules assumptions for state-led pricing actions are developed based on the Statewide Transportation Strategy using the ODOT VisionEval tool. The VisionEval tool is used to measure progress towards achieving the state GHG reduction goal and metropolitan GHG reduction targets set in OAR 660-044-0020 and 660-044-0025. The Statewide Transportation Strategy (STS) is Oregon's roadmap to reduce emissions from the transportation sector and achieve the state's GHG reduction goal and metropolitan GHG reduction targets. The STS was cooperatively developed by state agencies and adopted by the Oregon Transportation Commissions, and state agencies work in partnership to implement the STS. The STS includes strategies and trajectories related to congestion pricing, road coast recovery gas tax equivalent fees, pay as you drive insurance, and carbon pricing.

Initial analysis presented by Metro indicate that using STS levels for state-led pricing policies will achieve a vehicle miles traveled per capita reduction that exceeds the metropolitan GHG target. ODOT recommends that Metro utilize STS level assumptions for state-led pricing actions for analysis towards achieving the GHG target.

Congestion Pricing

Congestion pricing is a type of road pricing that reduces traffic congestion by shifting some trips to non-driving means, alternative destinations, or to other times of day. Congestion pricing works best on heavily congested roads. It uses tolls that vary in cost depending on the time of day. Toll prices are higher at peak driving times (like rush hour) and lower at less busy driving times (like late at night.) This

encourages drivers to use the road during less-congested periods — or travel by non-driving means — and allows traffic to flow more freely during peak times.

ODOT is developing a congestion pricing program for the Portland region along Interstate 5 and I-205, based on direction from the Oregon Legislature. The Oregon Transportation Commission sets both flat rate and congestion pricing fees.

Congestion pricing will have several benefits for Oregonians:

- Less traffic during peak rush hour times, leading to more reliable travel times.
- More people choosing non-driving ways to get around, which leads to less greenhouse gas emissions.
- A tool to address latent demand and induced demand.
- More reliable and efficient goods movement.

Road Cost Recovery

Road cost recovery prices are gas-tax-equivalent fees including taxes, per mile fees, registration fees, and other additional fees that pay for the wear and tear on roadways. Oregon has to date relied on a fuel tax at the gas pump to pay for the costs of the transportation system. Vehicle registration fees also help cover road maintenance costs. However, as people buy more electric, or fuel-efficient vehicles it results in less revenue from the fuel tax. Which means less funding to maintain roadways, and to help recover the external social-environmental costs of the transportation system. These types of fees can also be set to help recover the social-environmental costs of driving, such as vehicle registration fees that provide incentives for drivers to choose lower-emission modes of travel. The social-environmental cost of driving can include higher health care costs for individuals and a lower quality of life for communities. In some disadvantaged communities, the cost is higher, relative to other communities. State agencies can help reduce the harm and frequency through pricing programs that encourage travel with lower social costs. This approach is called “user pays true cost” and ensures that activities that create pollution or result in negative impacts have more transparent costs because of these impacts.

Shifting to “road use charging,” which is a system that asks drivers to pay for the miles they drive, not the fuel they use. ODOT has a voluntary road use charging program in place since 2015 for cars, trucks and SUVs called the OReGO program. It ensures all vehicles pay their fair share for using Oregon’s roads, including electric vehicle drivers. People who drive farther or more often will pay more. People who drive shorter distances or less often will pay less. ODOT has good data on how to scale the program to the entire state, leveraging the technology available in newer model vehicles, and is working with the legislature to make the program mandatory for certain vehicles.

In 2017 the legislature increased gas taxes and vehicle registration fees to cover the drop in road funding as Oregon shifts to electric vehicles and vehicles that are more efficient. Current registration fees are based on vehicle fuel efficiency.

Pay as You Drive Insurance (PAYD)

To complement the shift to mileage-based fees, other existing transportation related costs can be shifted to a per-mile basis. Pay as you drive insurance programs charge insured drivers based on the miles they drive.

Pay as you drive insurance programs charge insured drivers based on the miles they drive, instead of paying an annual insurance premium. If you drive less, your rates are lower, which encourages people to drive less to save money. Which in turn translates into less greenhouse gas emissions and less time on the road, reducing the chance of crashes and injuries.

Pay as you drive insurance programs aren't solely based on miles driven — they also factor in variables like age, location, etc. to calculate rates — and for people who are able to drive less often, they can save insurance costs.

Today, about 1% of insured drivers statewide are enrolled in pay as you drive programs. Future steps to reach increase participation include public education about these programs and Oregon state government working with insurance companies to increase adoption through tax incentives, and legislative mandates. Enrollment in PAYD insurance can be combined with road use charging via a "mobility marketplace" to enhance the user experience and increase adoption.

Carbon Pricing

Regulations can influence fuel prices based on how much greenhouse gas emissions those fuels emit. Governments can apply carbon pricing through regulations in different ways. In Oregon, the Department of Environmental Quality runs the Climate Protection Program (adopted in 2021), which sets decreasing limits from fossil fuels used in the state and generates revenue through issuing credits on those emissions. Oregon DEQ also runs the Clean Fuels Program (adopted in 2016 and extended in 2022), which sets decreasing limits for lifecycle emissions from transportation fuels use statewide. The program has a marketplace for high-emission fuel providers to buy credits from low-emission fuel providers. This lowers the cost of low-emission fuel options.

Both programs incentivize replacing higher-emission fossil fuels with lower-emission fuels like biofuels, renewable natural gas, and electricity. These market-based regulations have varying impacts on fuel prices, which also encourages less driving. Fuel price impacts of the Clean Fuels program is estimated and tracked by the DEQ (see Clean Fuels Program).

Additionally, funding generated from the Climate Protection Program can potentially be reinvested in travel options that produce less greenhouse gas emissions — like public transit, biking, and walking. While the STS assumed funding from carbon pricing would generate dedicated transportation funding to support multi-modal investments, the Climate Protection Program covers all sectors.

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ATTACHMENT 3: ODOT OREGON TRANSPORTATION EMISSIONS WEBSITE ANALYSIS FACTSHEET, APRIL 2023

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OREGON TRANSPORTATION EMISSIONS Website
Analysis Factsheet, April 2023

The Model: VisionEval

Oregon Department of Transportation (ODOT) uses a tool called VisionEval to forecast Oregon greenhouse gas emissions from transportation. VisionEval is a long-range strategic planning tool that forecasts how community development and transportation investment choices could influence planning goals, land use goals, and other community livability outcomes. You can learn more about the VisionEval tool, including national awards (ODOT Tools webpage), and how it is used in Oregon (VisionEval factsheet) with these links.

The Process

ODOT leads the VisionEval forecast process and relies on expert review and inputs from partner agencies at the local and state level to produce the best forecasts given future uncertainties.

- Vehicle and fuel assumptions are coordinated with Oregon Departments of Environmental Quality (DEQ) and Energy (DOE), with historic data pulled from Department of Motor Vehicle (DMV) registration data.
- Local policy inputs are coordinated with metropolitan areas, e.g., adopted plans, surveys, travel models.
- Official state and national sources are used for population forecasts and fuel prices.
- VisionEval model functionality is maintained as part of an FHWA-hosted pooled fund partnership.
- Historic years are validated to ODOT statewide miles travelled (HPMS) and fuel sales (Highway Statistics).
- 2015 is the last historic year reported, given the complications of pandemic conditions in 2020.

Two Scenarios

ODOT maintains two scenarios in the VisionEval model, which make assumptions about policies and investments within Oregon's eight largest metropolitan planning areas (MPOs) and statewide.

1. **STS Vision** – The preferred set of policies from a two-year stakeholder process to meet statewide GHG reduction goals, published in the 2012 Statewide Transportation Strategy (STS).
2. **Plans & Trends** – The current set of policies reflected in adopted plans and market trends.

Assumptions for the STS Vision scenario are reflected in Appendix 5 of the Statewide Transportation Strategy. The Plans & Trends scenario values are updated over time; 2022 assumptions are noted below. The focus of updates since the 2018 STS Monitoring report were the Vehicle Technology and Fuel Technology action assumptions.

2022 Plans & Trends Assumptions

Actions: Vehicle Technology and Fuel Technology.

- **Vehicle powertrain mix** reflects Oregon's 2021-22 new laws, as shown in **Figs. 1-3**:
  - Advanced Clean Cars II rule (Dec 2022). Requires an increasing percentage of cars, light trucks, and SUVs sold in Oregon to have zero tailpipe emissions, starting at 35% in model year 2026 rising to 100% by 2035.
  - Advanced Clean Trucks rule (Nov 2021). Requires an increasing percentage of truck sales in Oregon to have zero tailpipe emissions by model year 2035 – 55% of new Class 2b–3 (pickup trucks and vans); 75% of new Class 4-8 (rigid trucks); and 40% of new Class 7-8 (tractor trucks).

  Oregon DMV vehicle registration data are used for historic years' powertrain mix (combustion, gas-hybrid, plug-in electric, battery-electric). Forecasts and historic truck data used 2021 DEQ rulemaking Illustrative Compliance Scenarios assumptions (Scenario 1a) in the Argonne National Lab's VISION model. ODOT made adjustments to accelerate statewide light vehicle sales to 100% ZEV vehicles from 2035 (ACCII), dampened adoption to account for credit trading allowed in the regulations (through 2030), dampening adoption given that some state vehicle miles travelled use vehicles purchased out of state.

- **Vehicle fuel efficiency (MPG)** comes from Oregon DMV vehicle registration data for historic years. Federal Corporate Average Fuel Economy (CAFÉ) standards from VISION model assumptions (Scenario "All") from the 2021 DEQ rulemaking Illustrative Compliance Scenarios. See **Fig. 4** for passenger vehicles.
- **Fuel Technology** assumptions reflect Oregon's 2021-22 new laws, as shown in **Figs. 5-6**:
  - Clean Fuels Program Expansion (Sept 2022). Requires Oregon fuel providers to almost triple the carbon intensity reductions required through 2035. These changes will continue to drive the transition to lower carbon renewable and alternative fuels, an almost 50% reduction in tailpipe GHG emissions.
  - Clean Energy Targets (HB2021). Requires reduced electricity emissions for the two largest Oregon electricity utilities, meaning nearly all electricity used in Oregon will be emissions-free by 2040.

  Oregon DEQ Clean Fuels reporting is used for historic years' carbon intensity, reflecting transportation fuels sold and electricity used statewide. Forecasts use VISION model assumptions (Scenario "All") from the 2021 DEQ rulemaking Illustrative Compliance Scenarios. DEQ combined the forecast fuel quantities by type and vehicle group through 2035 by fuel carbon intensities, adjusting for EV credits.
- **Transit Vehicle and Fuel Technology** is based on 2020 National Transit Database fleet reporting, along with ODOT OPTIS data, and reviews by metropolitan areas for 2018 STS monitoring. Forecasts were updated to reflect purchased EV transit buses in Portland (TriMet) and Eugene (LTD) in 2020. Assumes both agencies' commitments to renewable diesel continue (all Trimet buses and demand response vehicles, all LTD buses).

Actions: Transportation Options and Parking in Metropolitan areas reflect adopted plans. Assumptions on short trip diversion to non-driving modes, funding/participation in Transportation Demand Management programs (TDM), and parking coverage and rates were reviewed by MPOs in the 2018 STS Monitoring report. Updates in 2022 included Portland Metro's parking and TDM programs for consistency with Portland's VisionEval model.

Actions: Transit service for the Metropolitan areas used service miles reported to the National Transit Database (NTD). Forecasts are based on historical federal funding and Oregon's Statewide Transportation Improvement Fund forecasts from payroll taxes. NTD analysis provided assumptions to estimate transit service levels from forecast transit funding, such as share of capital expenditures spent on transit vehicles and cost-per-service-mile.

Actions- System Operations: Historic road lane-miles reflect state and metropolitan area reporting (Highway Performance Monitoring System data, 1990-2015) and future changes pull from funding-constrained adopted long range transportation plans in the eight MPOs. Freeway (ramp metering, incident response, active traffic management) and arterial (signal coordination, access management) operations program coverage rely on data from ODOT System Operations & ITS unit and city public works departments.

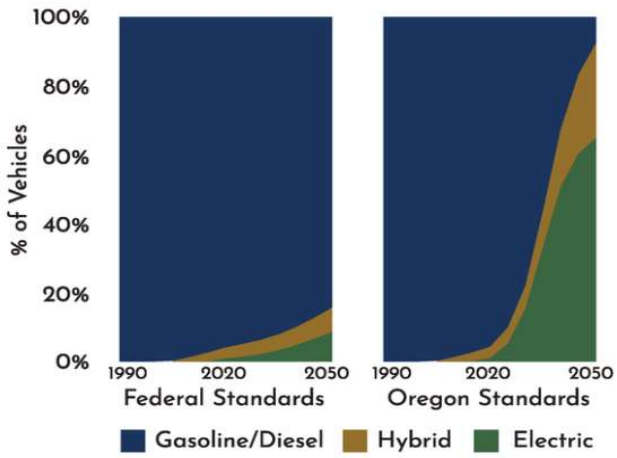
Actions: Land use – ODOT and Department of Land Conservation and Development (DLCD) evaluated the growth in Urban Growth Boundaries (UGB) across all MPOs for 1990-2015 and found overall growth of land within the eight Metropolitan areas tracked with the STS Vision assumption of UGB growing at 15% of population growth.

Actions – Pricing: Gas taxes and annual vehicle registration fees reflect historic rates held constant after Legislative changes allowed in 2017 and decline with inflation over time. Electric vehicles are assumed to shift to OReGO road user fee. No congestion fees assumed. Low levels of pay-as-you-drive auto insurance.

Energy Prices: Oregon historic fuel and electricity prices are indexed to forecasts from the US Energy Information Administration's Annual Energy Outlook (2021 for fuel, 2015 for electricity). Estimates of fuel price impacts of the Oregon Clean Fuels program were added per DEQ historic impacts and obligation forecasts.

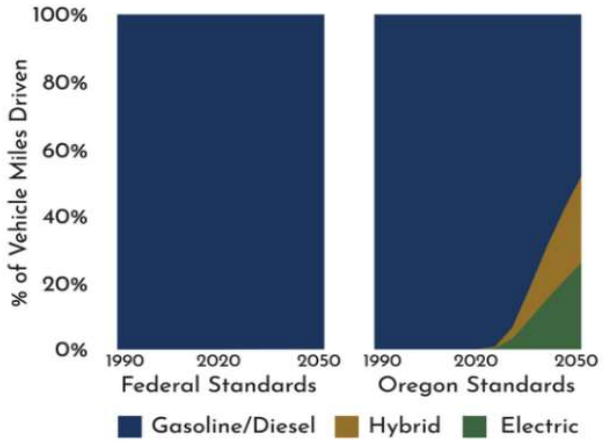
Demographics: Official state and urban growth boundary population forecasts come from Portland State University's (PSU) Population Resource Center (January 2022), and Portland Metro forecast (February 2022). Household size assumptions come from US Census (February 2022 ACS 5-year and Decennial tables). ODOT statewide per capita income growth is assumed to be roughly 1% per year 2015-2050.

1) Passenger Vehicle Powertrains



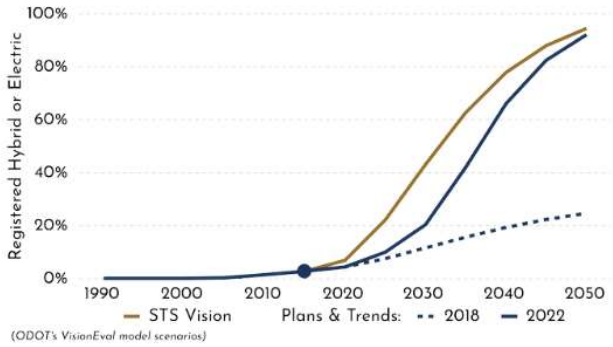
Source: Federal numbers from 2021 Annual Energy Outlook Reference Scenario. Oregon numbers are adjustments to 2021 Oregon VISION Scenarios. Forecasts are subject to uncertainty.

2) Heavy Duty Vehicle Powertrains



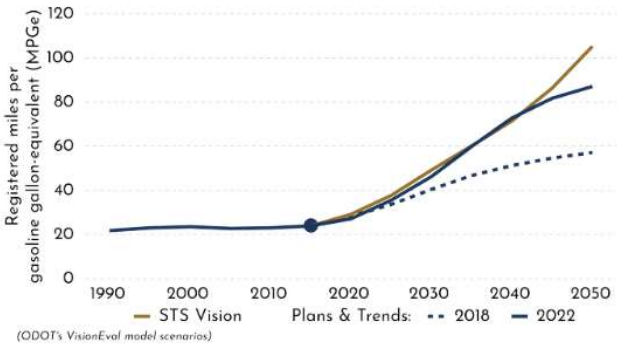
Source: Federal numbers from 2021 Annual Energy Outlook Reference Scenario. Oregon numbers are adjustments to 2021 Oregon VISION Scenarios. Forecasts are subject to uncertainty.

3) Passenger Vehicle Powertrain



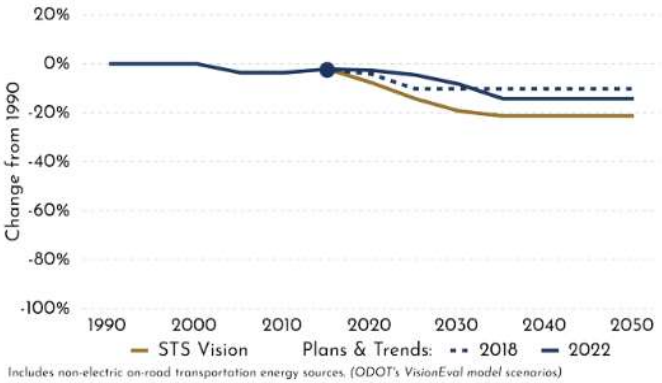
(ODOT's VisionEval model scenarios)

4) Passenger Vehicle Efficiency



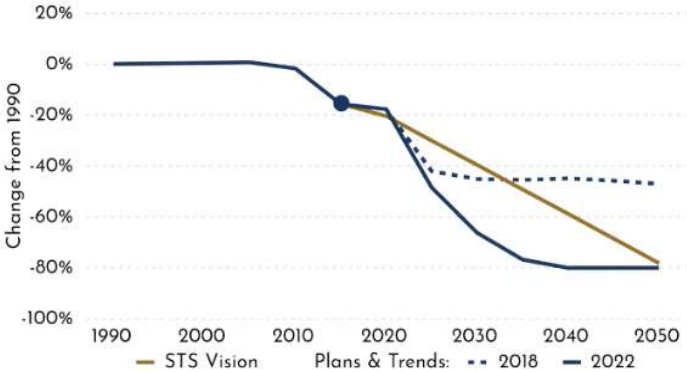
(ODOT's VisionEval model scenarios)

5) Passenger Fuel Carbon Intensity



Includes non-electric on-road transportation energy sources. (ODOT's VisionEval model scenarios)

6) Electricity Carbon Intensity



Statewide population-weighted values. May not show full impacts of Oregon HB2021. (ODOT's VisionEval model scenarios)

ATTACHMENT 4: SCENARIO PLANNING GUIDELINES TECHNICAL APPENDIX: TARGET RULES METHODOLOGY, AUGUST 2017

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Target Rules Methodology

This document summarizes the policy and technical background for the Metropolitan Greenhouse Gas (GHG) Reduction Targets and outlines in detail the target calculation methodology using example model results. The information presented apply to the updated Target Rules (OAR 660-044) as adopted by the Land Conservation and Development Commission (LCDC) in 2017, with progress measured using the Oregon Department of Transportation's (ODOT) Regional Strategic Planning Model (RSPM). This information is intended to provide a more detailed understanding of the targets and modeling. However, application of the information provided here should be done in coordination with both ODOT and the Department of Land Conservation and Development (DLCD).

Policy Framework

This section presents the policy framework in which the Metropolitan GHG Targets relate to other state and federal policies and programs.

Oregon's Overall GHG Reduction Goals

HB 3543 (ORS 468A.205)
Adopted in 2007 by the Oregon Legislature, sets a 2050 goal for GHG emissions reductions across all sectors as follows:

- By 2010, arrest the growth of emissions and begin to reduce emissions.
- By 2020, achieve levels that are 10 percent below 1990 levels.
- By 2050, achieve levels that are at least 75 percent below 1990 levels.

GHG Reduction Targets for Metropolitan Areas

HB 2001 (Section 37 (6), chapter 865, Oregon Laws 2009), and SB 1059 (Section 5 (1), chapter 85, Oregon Laws 2010) direct the Oregon Land Conservation and Development Commission (LCDC) to adopt rules identifying greenhouse gas emissions reduction targets for emissions caused by ***light vehicle travel*** for each of the state's metropolitan areas. These statutes direct that the rules must:

- Reflect greenhouse gas emissions reduction goals set forth in ORS 468A.205 (described above)
- Take into consideration the reductions in vehicle emissions that are likely to result from the use of improved vehicle technologies and fuels
- Take into consideration methods of equitably allocating reductions among the metropolitan areas given differences in population growth rates

The legislation requires scenario planning and adoption of a preferred scenario to reach the reduction target for Portland Metro and required scenario planning to identify a scenario to reach the reduction target for the Central Lane Metropolitan Planning Organization (MPO). For all other metropolitan areas, scenario planning is voluntary.

2011 Metropolitan GHG Reduction Target Rules (OAR 660-044)

In accordance with the Metropolitan GHG Reduction Target Rules, LCDC first adopted GHG reduction targets for the state's metropolitan areas (OAR 660-044) in 2011. The rules establish the percentage reductions (from 2005 to 2035) in metropolitan area light vehicle GHG emissions beyond the reductions expected to occur due to changes to light vehicle technologies and the fuels they use. The establishment of these targets was informed by technical analysis performed by ODOT, Oregon Department of Environmental Quality (DEQ), and Oregon Department of Energy (ODOE) on future assumptions of vehicle technologies and fuels. In short, the analysis made recommendations on:

1. An overall light vehicle per capita emissions reduction goal
2. A range of forecasts for reductions in light vehicle emission rates due to changes in light vehicles and the fuels they use
3. The target percentage reductions needed to meet the per capita emissions reduction goal given the vehicle emission rate forecasts

Development of the targets was supported by the Agencies Technical Report (ATR) and the Target Rulemaking Advisory Committee (TRAC). The TRAC selected an emissions rate forecast they thought to be sensible and would result in achievable metropolitan area targets. This low-end emission forecast and the resulting targets were then adopted in the target rules.

2017 Metropolitan GHG Reduction Target Rules Update (OAR 660-044)

In January of 2017, LCDC adopted amendments to the Target Rules based upon the recommendations presented to the commission from a Target Rulemaking Advisory Committee (RAC) in the RAC Recommendations Report. In summary the updates to the Target Rules are as follows:

- Extends horizon year, providing flexibility in offering a schedule of targets for all years between 2040 and 2050
- Emission rates are specified more simply given new information and studies since the 2011 Target Rule. A single grams per mile rate for each year replaces details on vehicle mix, turnover rates, etc.
- Establishes one target for the Portland metropolitan area, and separate target for all other metropolitan areas. Prior rule distinctions among the smaller MPOs were attributed to adjustments in moving from the statewide 1990-based reduction goal, to the metropolitan targets 2005-based reduction goal. In retrospect, these distinctions in 1990 to 2005 vehicle and emissions variations by MPO were uncertain, given the age of this data. Thus, a common target is used for all non-Metro MPOs.
- Includes two new metropolitan areas, Albany Area and Middle Rogue MPOs
    - Relies upon the Statewide Transportation Strategy (STS) for future vehicle technology and fuel assumptions that align with state and federal policies.
    - Updated the latest county population forecasts. (Portland Metro 3-county, PSU Population Research Center where available, Office of Economic Analysis otherwise)
- Changed the definition of light vehicle travel to be considered; from light-duty vehicle travel on metropolitan area roadways to light-duty vehicle travel by metropolitan area households (and related light-duty commercial service vehicle travel).

The adopted targets for the state's metropolitan areas are identified in OAR 660-044-0020 (Portland Metro) and 660-044-0025 (other MPOs) for various planning years. The targets are in units of GHG percentage reduction per capita resulting from light vehicle travel in a metropolitan area needed in the planning year in order to meet the state goal of a 75 percent reduction in greenhouse gas emissions from 1990 levels by the year 2050. They represent reductions in GHG emissions from light vehicle travel beyond what is expected to occur from improvements to vehicle technologies and fuels.

The per capita units account for the differences in population growth rates among the metropolitan areas. The larger reduction targets for Portland Metro, reflect the capabilities demonstrated in scenario planning efforts in Metro relative to Strategic Assessments in Corvallis and Rogue Valley. Larger than all other metropolitan areas combined, Portland Metro can implement policies that would be difficult in other metropolitan areas since it contains areas of significantly higher density supported by high baseline levels of transit service and parking management.

OAR 660-044-0020 (Portland Metro), 660-044-0025 (other MPOs)

(a) Local governments in metropolitan planning areas may use the relevant targets of this rule as they conduct land use and transportation scenario planning to reduce greenhouse gas emissions.

(b) This rule does not require that local governments or metropolitan planning organizations conduct land use and transportation scenario planning. This rule does not require that local governments or metropolitan planning organizations that choose to conduct land use or transportation scenario planning develop or adopt a preferred land use and transportation scenario plan to meet targets in section (2) of this rule.

Statewide Transportation Strategy

The Statewide Transportation Strategy (STS) was developed in response to legislative direction in Senate Bill 1059 (Chapter 85, Oregon Laws 2010), which required ODOT to develop a strategy on greenhouse gas (GHG) emission reductions to aid the state in achieving the reduction goals set forth in ORS 468A.205 (a 75% reduction below 1990 levels by 2050). The STS identifies short- and long-term actions and strategies to reduce transportation-related GHG emissions in Oregon while supporting other important goals such as livable communities, economic vitality, and public health. Three key travel markets included in the STS are ground passenger and commercial services, freight, and air passenger. The STS was completed in 2013, and an ODOT Short-Term Implementation Plan created shortly thereafter. Among other efforts, the Implementation Plan calls for ODOT and DLCD to support scenario planning in metropolitan areas.

When the original metropolitan GHG targets were adopted by LCDC in 2011, the STS was still being developed requiring the targets to be set independent of the STS. The metropolitan GHG reduction targets adopted in 2017 were set assuming the future vehicle fleet, fuel, and technology assumptions set forth in the STS (built in collaboration with the Departments of Energy and Environmental Quality), as well as the statewide actions identified in the preferred scenario.

Technical Considerations

The following are technical considerations when calculating a metropolitan area's anticipated GHG reduction against the Target Rule OAR 660-044. Some are requirements identified in the rule, while others are best practices with more flexibility.

1. Household-based Travel,

The targets capture emissions from light-duty vehicle travel related to the activities of households (and university group quarters populations) that live within the metropolitan area regardless of where the driving occurs. This includes the full extent of the solid-line trips shown in Figure 1 (excluding "External-Internal" and "Through" trips). These are assumed to be the trips that are most fully influenced by policy actions of the local metropolitan area. In addition to the travel of household members, the GHG Target rule travel definition also includes travel by light duty commercial vehicles related to household members or household demand (for example household deliveries

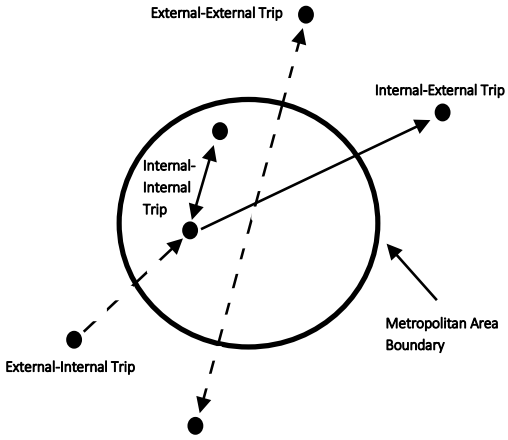


Figure 1. Example of Household Trip

OAR 660-044-0005 Definitions (selected)

(4) "Greenhouse gas" has the meaning given in ORS 468A.210. Greenhouse gases are measured in terms of carbon dioxide equivalents, which means the quantity of a given greenhouse gas multiplied by a global warming potential factor provided in a state-approved emissions reporting protocol.

(5) "Greenhouse gas emissions reduction target" or "target" means a reduction from 2005 emission levels of per capita greenhouse gas emissions from travel in light vehicles. Targets are the reductions beyond reductions in emissions that are likely to result from the use of improved vehicle technologies and fuels.

Travel in light vehicles includes all travel by members of households or university group quarters living within a metropolitan area regardless of where the travel occurs, and local commercial vehicle travel that is a function of household labor or demand regardless of where the travel occurs. Examples include commuting to work, going to school, going shopping, traveling for recreation, delivery vehicles, service vehicles, travel to business meetings, and travel to jobsites.

(7) "Light vehicles" means motor vehicles with a gross vehicle weight rating of 10,000 pounds or less.

(9) "Metropolitan planning area" or "metropolitan area" means lands within the planning area boundary of a metropolitan planning organization.

(10) "Metropolitan planning organization" means an organization located wholly within the State of Oregon and designated by the Governor to coordinate transportation planning in an urbanized area of the state pursuant to 49 U.S.C. 5303(c). The Longview-Kelso-Rainier metropolitan planning organization and the Walla Walla Valley metropolitan planning organization are not metropolitan planning organizations for the purposes of this division.

(11) "Planning period" means the period of time over which the expected outcomes of a scenario plan are estimated, measured from a 2005 base year, to a future year that corresponds with greenhouse gas emission targets set forth in this division.

(13) "Statewide Transportation Strategy" means the statewide strategy accepted by the Oregon Transportation Commission as part of the state transportation policy to aid in achieving the greenhouse gas emissions reduction goals set forth in ORS 468A.205 as provided in chapter 85, section 2, Oregon Laws 2010.

and work travel by household members). This allows metropolitan areas to get credit for vehicle programs such as compressed natural gas and renewable natural gas used in local commercial fleet and public transit vehicles.

2. Taking Credit for State-led Actions

The Target Rules specify that metropolitan areas may take credit for allowable state-led actions found in the Statewide Transportation Strategy (STS), which are reflected in the default emissions rates. These actions include pricing programs such as pay-as you-drive insurance, mileage based taxes (e.g. vehicle miles traveled fees), social cost recovery fee pricing (e.g., carbon tax), and congestion pricing (Metro area only).

In evaluating whether scenarios meet the GHG reduction target, the rules allow metropolitan areas to take credit for selected state-led policies and programs included in the STS other than those from vehicle technologies and fuels), implying local support for these policies and programs. These actions, although orchestrated at the state level, are unlikely to be adopted or successfully implemented without support from communities across the state. To include these in the analysis, support for these policies should be explicitly mentioned in the scenario planning report when comparing to Target Rule reductions. Absent local support for these state-led actions, metropolitan areas are allowed to propose an alternative set of policy actions in an attempt to reach the target requirement.

> ***660-044-0030(3) (a)***
> Projections of greenhouse gas emissions may include reductions projected to result from state actions, programs, and associated interactions up to, but not exceeding, the levels identified in the STS; however local governments may choose to assume a lower level of state actions.
>
> ***044-0030(3) (b)***
> Projections of greenhouse gas emissions may include local or regional actions similar to actions in the STS if the local governments have authority to and have adopted plans that would implement the actions.

A list of the key allowed state-led policies and actions are identified below. For the most current information, please contact DLCD/ODOT:

- **Full Cost Pricing**, including *Pay-as-you-Drive (PAYD) insurance*, *Mileage-based fees* (e.g., gas tax replacement, expected surcharge from the Oregon Renewable Fuels Program), **Social cost recovery fees** (e.g., through a carbon tax), and *Electricity prices* (reflecting costs to clean up the electric grid, important with the shift to electric vehicles)
- **Driving Efficiency Programs**, including *Eco driving* and *Low-rolling-resistance tire* programs.

3. Default Statewide Emission Rates for Vehicle Technologies and Fuels

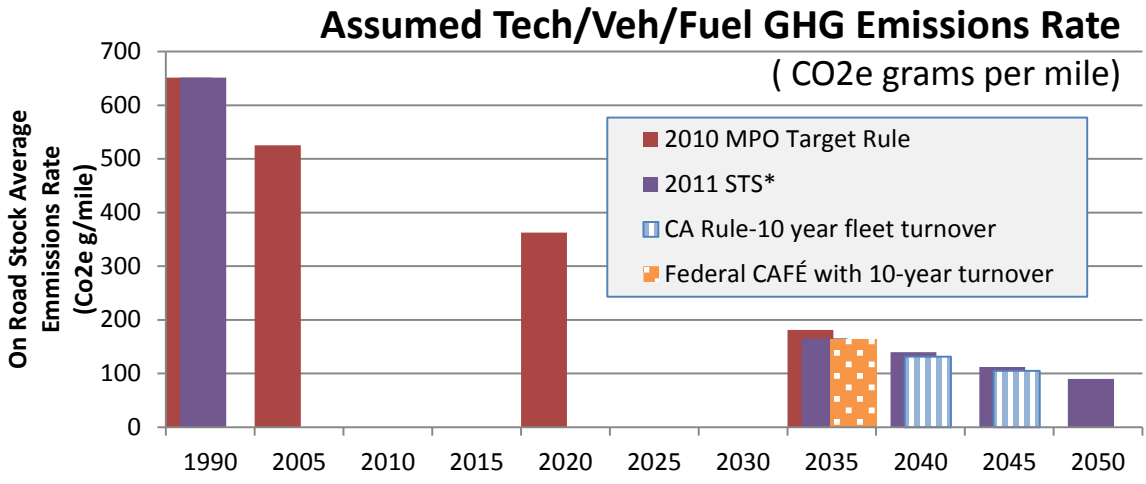
Policies that move vehicular travel to newer vehicle technologies (with higher fuel efficiency and or electrification) and fuels (with lower emissions) are critical to achieving state and metropolitan GHG reduction goals. Since these policies affect every mile of emissions, they are the most impactful in meeting GHG targets. Default GHG emission rates (grams per mile) are specified in 660-044-0030(2), shown in the last column of Table 3 below. These are the vehicle emissions projected to result from the use of improved vehicle technologies and fuels through 2050. The emissions rates are reflected in the model assumptions about mix of vehicles sold each year and rates of vehicle turnover specified for the target rules analysis. When the model is run, households are assigned vehicles of a certain age, and the attributes of those vehicles determine emissions, fuel consumption, and household travel cost. The metropolitan GHG reduction target only considers light duty vehicle emissions.

> 660-044-0030(2) (a)
> Projections of greenhouse gas emissions may use the emission rates listed below, which are based on the Statewide Transportation Strategy and reflect reductions likely to result by the use of improved vehicle technologies and fuels. Rates are measured in grams of carbon dioxide equivalent (CO^2e**)** per vehicle mile.
>
> *See the last column in Table 3 for the Statewide Default Emission Rates*

During the 2017 Metropolitan Target Rule update, DOE and DEQ confirmed these default statewide emission rates were consistent with statutory long term state programs and requirements. However they also cautioned that there are risks and challenges as policies are not fully in place to reach these emission rate goals by 2050. ODOT, along with DOE and DEQ, is monitoring progress in achieving the assumed emissions rate reductions. Significant changes, such as significant vehicle advances or repealing of existing vehicle or fuel emission reduction programs could prompt review of the metropolitan area GHG target rule.

Comparing Emission Rates – Oregon, California, and Federal Projections

Although the vehicle and fuel assumptions in the STS are aggressive, they are not out of line with other state and federal policies, including the federal CAFE standards and California Rule/multi-state Zero Emission Vehicle (ZEV) standards. The figure below approximates comparable values over time against the STS emission (all metropolitan areas, as used in the 2017 Metropolitan Target Rule update). To do so, the 2025 CAFE and 2030/2035 ZEV new car sales standards were simply assumed to represent average fleet values 10 years later (2014 Bureau of Transportation Statistics data notes the national average vehicle age of 11.4 years).



* STS only reported on years 1990 and 2050, although interim years were modeled.

4. More Ambitious Vehicle Technologies and Fuels Assumptions

There are actions within a metropolitan area that can result in emission rates that differ from the statewide actions, noted above. OAR 660-044-0030(2) (b) allows for this option.

660-044-0030(2) (b)

Projections of greenhouse gas emissions may use emission rates lower than the rates in 660-044-0030(2) (a) if local or regional programs or actions can be demonstrated to result in changes to vehicle fleet, technologies, or fuels above and beyond the assumption in the Statewide Transportation Strategy (STS). One example would be a program to add public charging stations that is estimated to result in use of hybrid or electric vehicles greater than the statewide assumption in the Statewide Transportation Strategy.

This is an important point, since vehicle technologies and fuel assumptions do not just affect the emissions rates; they also affect the operating cost and ultimately the amount of vehicle travel. Indeed, many metropolitan area land use and transportation scenarios are likely to include programs or actions that may impact emission rates. Below are a couple of examples of possible reasons a metropolitan area emission rate (grams per mile) might differ from the statewide default:

- **Local Actions on Vehicles and Fuels**: Localities can adopt policies that have a direct impact on local emission rates. These include provision of alternative fuels for light duty vehicles, such as Rogue Valley's Clean Cities efforts that have developed a compressed natural gas (CNG) station that fuels government/ commercial vehicle fleets and buses, with plans to shift to cleaner renewable natural gas (RNG) (capturing landfill gas for fuel usage), or alternatively providing subsidies to increase adoption of hybrid or electric vehicles within the metropolitan area.

- **Operating Cost Impacts**: Miles driven can be affected by the significantly lower operating costs with higher MPG and Electric Vehicles (on average gas-powered cars cost around three times as much per mile as electric vehicles, depending upon gas prices), or pricing policies that affect per mile fees. This is called the rebound effect and is important to account for in emissions models. That is, policies implemented to reduce vehicle miles traveled (VMT) can have positive or negative impacts on emission rates (grams per mile).
- **Land Use Impacts**: Plug-in hybrid electric vehicles (PHEVs) are powered both by electricity from the grid and by on-board fuels. The relative portions depend on the amount of use each day as well as the battery range. In general, households who live in denser areas are more likely to own PHEVs and these PHEVs will be more likely to power a larger portion of their travel using electricity rather than fuel because they have fewer daily miles traveled and/or shorter trips. The extent to which electricity can replace on-board fuel use, then those households will have lower emission rates as well as lower operated costs.
- **Congestion Impacts**: Emissions rates for internal combustion engine vehicles are affected significantly by congestion because of efficiency losses due to idling and to frequent acceleration and deceleration. In contrast, the "stop-start" technology included in newer hybrid vehicles of all sizes, means idling, such as in congestion, emits significantly less emissions Local Policies can affect congestion and hence emissions rates.
- **ITS/Op Impacts**: Newer Advanced Traffic Management programs, such as implemented on OR217 in Portland, including variable speed signs, changeable message signs and advance ramp metering, are designed to reduce congestion and incidents, but also have impact on emissions. "Speed harmonization" which limits acceleration and deceleration also reduce emissions from vehicles on the roadway.
- **Other Impacts**: VMT-reducing policies consistently reduce emissions, but have an indirect and thus varying effect on congestion. For example, a policy which reduces VMT by limiting roadway capacity does so by increasing congestion (people make fewer vehicle trips or drive shorter distances to avoid spending more time on the road). On the other hand, a road pricing policy can reduce both VMT and congestion. If metropolitan areas identify other actions with substantial impact on emissions rate, estimation of the amount of GHG emissions reductions expected to result within the metropolitan area from these programs and actions may be allowable if analysis and methods are made in consultation with DLCD and ODOT.

Because the rate of emissions and amount of travel are bound together (i.e., local actions can enable decreases in both VMT and emissions rate) localities can reach their target by either reductions in travel demand or, emission rates.

5. Analysis Tool for Estimating Greenhouse Gas Emissions and Emissions Reductions

The Regional Strategic Planning Model (RSPM) is the recommended tool, given its use in setting the GHG reduction targets. RSPM is a metropolitan version of the GreenSTEP strategic planning model, developed by ODOT for use in the STS, and is part of the VisionEval suite of tools, supported by cities and state transportation departments with help from the FHWA. Beyond consistency with other state and local efforts, using RSPM in Target Rule calculations provides the following advantage over other tools (e.g., application of emission rates to travel demand model VMT):

660-044-0040(2) - Applies only to Portland Metro

(d) Use evaluation methods and analysis tools for estimating greenhouse gas emissions that are:

(A) Consistent with the provisions of this division;

(B) Reflect best available information and practices; and,

(C) Coordinated with the Oregon Department of Transportation.

- Matches the Target Rule's definition of household-based travel emissions
- Captures impact of pricing and policy actions on travel and emissions
- Captures interaction of policy actions on travel behavior and emission rates (e.g., see Consideration #4 above)

ODOT supports the use of RSPM for metropolitan area GHG target rule calculations. This may include running the tool, working with MPOs to gather data, design scenarios, and interpret results, as well as efforts that work to build such capacity through training.

6. Fiscal Constraints

The target rules requirements for Portland Metro allows their preferred scenario meeting the targets to include projects without programmed funding if a discussion of estimated costs and sources is identified. For other metropolitan areas, there is no fiscal constraint. However, best practices are for a metropolitan area to assess the GHG impacts of their fiscally constrained "Adopted plans", as a gauge for progress towards the target. This scenario would include the region's best assessment of anticipated funding and policies, as represented in Regional Transportation Plans (RTP) and Transportation System Plans (TSP), and anticipated funding sources for transit and transportation options programs. It is recommended that other scenarios be run as well, reflecting more ambitious policies (e.g., longer time frame with more funding), as well as resilience testing of policies under alternative conditions (e.g., different economic growth and fuel price scenarios). This scenario planning approach can provide a basis for understanding "what would it take" to meet the targets, and provide the basis for discussion of GHG as well as other regional performance measures, resulting in a desired long term policy mix that meets the region's goals.

660-044-0040 - Applies only to Portland Metro

(i) Evaluate if the preferred scenario relies on new investments or funding sources to achieve the target, the feasibility of the investments or funding sources including:

(A) A general estimate of the amount of additional funding needed;

(B) Identification of potential/likely funding mechanisms for key actions, including local or regional funding mechanisms; and,

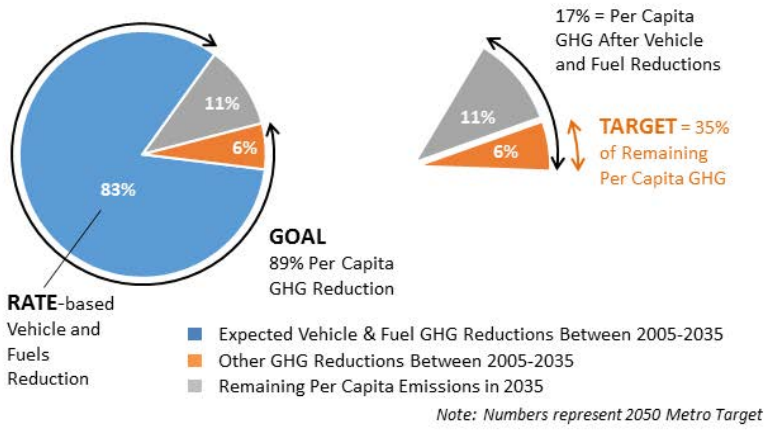
(C) Coordination of estimates of potential state and federal funding sources with relevant state agencies (i.e. the Oregon Department of Transportation for transportation funding); and,

(D) Consider effects of alternative scenarios on development and travel patterns in the surrounding area (i.e. whether proposed policies will cause change in development or increased light vehicle travel between metropolitan area and surrounding communities

Target Rule Calculation-Technical Detail

Figure 2 illustrates how the metropolitan area GHG reduction **TARGET** is calculated from the per capita emissions reduction **GOAL** and the forecast for reduction in the light vehicle emissions **RATE**. It uses the Portland Metro 2050 target reductions from Table 3, as an example. The circle represents total metropolitan area per capita emissions from light duty vehicles in 2005 while the grey slice shows per capita emissions that still remain in 2050 after reductions from all sources. Since the overall **GOAL** is to reduce per capita emissions by 89% from 2005 to 2050, the remaining per capita emissions in 2050 (gray slice) would be 11% of the 2005 emissions (100%-89% = 11%). The blue slice indicates the reduction in per capita emissions due to the forecasted change in the light vehicle emissions **RATE**, i.e., expected improvements in vehicles and fuel policies. Since forecasted change in the emission rate would reduce per capita emissions by 83%, the remaining emissions in 2050 would be 17% of the 2005 emissions (100% - 83% = 17%) if only the forecasted changes to light vehicles and the fuels they use occur. An additional 6 percentage point reduction is necessary to meet the overall 89% reduction goal (89% – 83%). That represents 25% of the remaining emissions (6% ÷ 17%). This 35% is the 2050 Metropolitan **TARGET** for Portland Metro; the percentage reduction in emissions beyond the reductions expected from changes in vehicle technologies and fuels.

Figure 2. Calculating Metropolitan Area Target from the Goal



The overall **GOAL** (89% in figure 2), emission RATE (results in 83% reduction in figure 2), and resulting metropolitan **TARGET** (6% in figure 2) are shown in Table 3 for each year, reflecting Target Rule OAR 660-044. Analysis showing a metropolitan area meets either the **TARGET** or the **GOAL** is mathematically equivalent. Analysis must compare local light-duty GHG reductions relative to 2005, and show that the metropolitan region meets (A) the **TARGET** reduction of GHG reduction per capita beyond vehicle technologies and fuels (or equivalent GOAL reduction) as well as (B) comparing the change in the average vehicle emissions per mile to the default **RATE**.

Targets vs Goals

Communicating what the existing targets mean and how they relate to other expressed goals (e.g. reducing total emissions statewide by 75%) is challenging. The **TARGET** is not a percent of total emission reductions or a percentage point portion of the overall reduction. In some circumstances, it may be useful to communicate using the **GOAL**, i.e., the overall reduction in total per capita emissions, including the impacts from vehicles and fuels. In contrast, the **TARGET** makes an additional step to remove reductions from vehicle and fuel policies to be comparable to the Target Rule Table 3 values. Using the RULE (overall emissions reductions per capita) rather than the **TARGET** (emission reductions beyond the default vehicle and fuels emission rate) may be easier to explain given that it involves less steps (skips step 4) and is somewhat more comparable units with the statutory statewide GHG emissions reduction requirement (75% between 1990 and 2050 in total state emissions, which translates to 89% in *per capita* emissions just within *metropolitan* areas between *2005* and 2050). Since the **RULE** and **TARGET** are mathematically equivalent, either can be used in communication.

Table 3. Metropolitan Target Rule Values

Year	PER CAP: GHG Reductions (% Light-Duty Vehicle emissions relative to 2005)				PER MILE: Default Emission RATE (CO^2e grams per mile)
	Metropolitan TARGET (beyond vehicles & fuels)		Overall GOAL		
	Portland	Other MPOs	Portland	Other MPOs	
2040	-25%	-20%	-80.1%	-78.7%	140
2041	-26%	-21%	-81.2%	-79.9%	134
2042	-27%	-22%	-82.3%	-81.0%	128
2043	-28%	-23%	-83.2%	-82.0%	123
2044	-29%	-24%	-84.2%	-83.0%	117
2045	-30%	-25%	-85.1%	-84.0%	112
2046	-31%	-26%	-85.9%	-84.9%	108
2047	-32%	-27%	-86.7%	-85.7%	103
2048	-33%	-28%	-87.4%	-86.5%	99
2049	-34%	-29%	-88.1%	-87.3%	94
2050	-35%	-30%	-88.8%	-88.0%	90

To determine whether a metropolitan area meets the GHG reduction target involves the following steps:

1. Model the Metropolitan Area Travel & Emissions using RSPM, Reflecting the Following:

- **Base Year and Trend Scenarios**: 2005 base year and future year Adopted Plans scenarios. Future year should reflect fiscally constrained adopted plans (e.g., RTP or TSP)
- **Emission Rates**: Statewide default emission rates (i.e., carbon intensity of technology and fuels) shown above in Table 3 for the future year Trend Scenario (adopted plans). These rates can be used directly or as part of a series of tables (vehicle sales mix by vehicle age plus fuel carbon intensity tables by year), as used in the RSPM.
- **Units**: GHG emissions are measured in carbon dioxide equivalents (CO_2e), reflecting the calculations of combining the various man-made GHGs with different heat retention capabilities created with the combustion of fossil fuels. The quantity of man-made GHG emissions is typically represented in terms of the weight of CO_2e emitted. Only household and commercial light duty vehicles (less than 10,000 lbs.) are included in the Metropolitan Target Rule calculations.

  GHG emissions are expressed in metric tons of CO_2e per person.
  Emission rates are expressed in grams of CO_2e per mile of travel.

2. Using the Model Results:

a) Calculate the modeled GOAL (overall percent change in per capita GHG emissions)
b) Calculate the modeled RATE (change in the average GHG emissions per mile)

3. Compare per Capita Emissions

a) Calculate the modeled TARGET: percent change in per capita GHG emissions beyond vehicle technology and fuels, by dividing the modeled GOAL reduction by the modeled RATE reduction, as follows:

Target = Goal / Rate

b) Compare the modeled TARGET change to the rule specifications (Table 3 first column). The modeled change should be equal to or less than the change specified in the rule.

4. Compare per Mile Emissions

Compare the calculated 2005 emissions to the future year change in the modeled RATE with the default statewide rule specification (Table 3 last column). The modeled emissions rate change should be equal to or greater than the change specified in the rule.

Comparison to statewide default emission rates is necessary in order to determine that the TARGET is not being met just because more ambitious assumptions are being made about improvements to vehicle technologies and fuels. However, a metropolitan area may assume a greater reduction in the modeled emissions RATE than the rule default if the difference is due to synergistic interactions due to local policy actions (see Technical Consideration #3 above). To use a lower rate, the cause for the difference must be explained in a manner acceptable to DLCD.

Example Calculation

The Example Calculation in Table 4 below walks through a hypothetical assessment of GHG emission reductions for a non-Portland MPO based on possible RSPM model outputs, providing formulas to calculate model-based GHG reduction estimates. The shaded box to the right hand side of Table 4 shows the comparable Target Rule values from Table 3.

To start, 2005 and 2050 RSPM scenarios would be run using the assumptions noted above. These include assumptions on vehicle, fuels, state-led actions, etc.

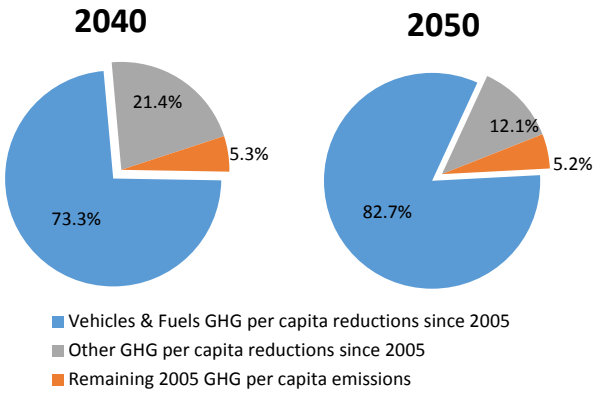
The hypothetical 2005 and 2050 results from the model runs are shown in the top two sections of Table 4. This includes the MPO population (households and university group quarters), as well as GHG emissions and vehicle miles travelled (VMT) for light duty vehicles (all travel by residents and local commercial vehicle distribution). In each year, the GHG per capita and GHG per mile are calculated by dividing emissions by population and VMT, respectively. The emission rates (g/mile) are compared to Table 3 values. The 2005 emissions rate is slightly lower but a reasonable match to the average metropolitan value after accounting for local vehicle mix variations (e.g., due to a lower share of light trucks or higher share of hybrid/electric vehicles than average metropolitan values). The estimated 2050 emission rate is below the allowed 90 g/mile. Thus, further justification is provided that the 2050 vehicles and fuels inputs reflect the region's investment in CNG infrastructure, which provides 6000 GGEs at 15% lower carbon intensity than diesel that fuel a portion of the region's light duty fuel needs, mostly commercial vehicle fleets. Additional GHG reductions from CNG use by the region's (heavy duty) public transit buses (tabulated elsewhere in the model), does not count in the light duty vehicle target rule.

After that, the 2005-2050 reductions are calculated and compared to the Target Rule values. This includes taking the ratio of the 2005 and 2050 GHG/cap and GHG/mile values, resulting in the colored cell values. Collectively these colored cells correspond to the pie slices of Figure 2, where the full pie represents the 2005 emissions per capita. In this example the region does not meet the 2050 target rule values of Table 3. The model-estimated 84.8% combined or 8.7% beyond vehicles and fuels do not meet the Rule's 88% GOAL or equivalent 30% TARGET (Table 3). However the CNG programs have contributed significantly to the region's emission reductions, and other non-vehicle & fuel policies, both local actions (e.g., transit service, bike diversion, ITS policies) and the region's endorsement of state-led policies (e.g., PAYD insurance, carbon tax, eco-driving programs) reduce daily VMT per capita from 25.7 to 24.0 accounting for the remaining GHG emission reductions.

Targets over Time

The state mandated GHG reductions for the transportation sector will be a challenge to meet and will require collaborative federal, state, and local efforts. However, continued progress in shifting to cleaner vehicles and fuels led by the federal and state governments will take the burden off of local agencies.

To emphasize that point, the charts below show the 2005 emissions per capita (full pie) and the reductions expected from vehicles and fuels (blue) under anticipated policies, along with reductions from "Other" actions (orange) beyond those affecting vehicle and fuels. A small slice of the original 2005 emissions remains (gray) in future years.



Looking over time, the emission reductions from vehicles & fuels (blue) grows, while reductions from "other policy actions" (orange) stays roughly the same. This highlights how, although the Metropolitan GHG reduction target values (Table 3) increase over time, this is due to a shrinking amount of emissions "beyond vehicle and fuel reductions" (orange plus gray), not the need to further push "Other" policies (orange). It is also important to note that the chart is in units of emissions per capita, and the effort required to maintain the "Other" policies given anticipated population growth is not insignificant.

Table 4. Example Target Rule Calculation

Step	Variable Definition	Units	Variable	MODEL					2050 non-Metro TARGET RULE
		2005							2050 Emission per mile
1	Population[1]	---	A	85,500					
1	LDV GHG[2]	MT/day	B	1,147					
1	LDV VMT[2]	miles/day	C	2,196,798					
1	LDV VMT/Cap[3]	miles/day	D	25.7					
1	LDV GHG/Population	MT/cap/yr	E	4.90					
1&4	LDV GHG/VMT	g/mile	F	522					
		2050							
1	Population[1]	---	G	163,700					
1	LDV GHG[2]	MT/day	H	334					
1	LDV VMT[2]	miles/day	I	3,928,800					
1	LDV VMT/Cap[3]	miles/day	J	24.0					
1	LDV GHG/Population	MT/cap/yr	K	0.74					
1&4	LDV GHG/VMT	g/mile	L	88				M	≥ 90 g/mile
		2005-2050 reduction							2005-2050 Emission per capita
			formula	ratio	%				
2&4	GHG/Cap ratio	---	N=(1-K/E)	0.152	84.8%	GOAL			≥ 88%
2		---	O = (1-N)		15.2%	Remaining emissions			
2	GHG/Mile ratio	---	P = (1-M/F)	0.172	82.8%	V&F Policies-Default[4]			
2	GHG/Mile ratio	---	Q = (1-L/F)-P	0.169	0.4%	V&F Policies-Local[4]			-or-
3		---	R = 1-(O+P+Q)		1.6%	Other Policies[6]			
3					100.0%				
4	Local GHG/Cap beyond default Vehicles & Fuels	---	S = (Q+$)/(O+Q+R)		11.8%	TARGET			≥ 30%

[1]Population includes persons in households and university group quarters

[2] LDV GHG & VMT include "household-based" light duty vehicle travel, from residents & locally-based commercial vehicles to all locations

[3] RSPM VMT is not comparable to VMT from regional travel demand models. For instance, household-based travel in RSPM differs from a travel demand model that captures all VMT within the MPO boundary. RSPM also captures different policy actions and uses a more aggregate representation of roadway capacity and congestion which avoids the network details of a travel demand model.

[4] Vehicle & Fuel Policies that reduce emission rates, includes "Default" using Rule's 2050 RATE, and added reductions due to "local" policies

[5] Policies beyond vehicles and fuels that reduce VMT per capita, including local and allowed state actions

Note: 1 Metric Ton = 1,000,000 grams of Co2e; 1 year = 365 days

LDV = Light Duty Vehicles (autos and light trucks less than 10,000 lbs)

GHG = Carbon Dioxide-equivalent (CO2e) emissions

If you picnic at Blue Lake or take your kids to the Oregon Zoo, enjoy symphonies at the Schnitz or auto shows at the convention center, put out your trash or drive your car – we've already crossed paths.

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