

November 17, 2023

Lynn Peterson, President
Metro
600 NE Grand Ave,
Portland, OR 97232

RE: Regional Transportation Plan fails to comply with state climate law and regulations

Dear President Peterson & Council Members:

This letter is to notify you that Metro's proposed 2023 Regional Transportation Plan does not comply with state climate law and regulations. In addition, Metro is in violation of its own adopted Climate Smart Strategy. This letter summarizes the reasons for this conclusion; additional analysis (with links to original sources) is contained in the attachments, which are an integral part of this letter.

State law provides that greenhouse gases in 2050 should be no more than 25 percent of greenhouse gases emitted in 1990 (ORS 468A.205). State regulations direct Metro to develop a plan to reduce greenhouse gases and submit it to the Land Conservation and Development Commission for approval (OAR 660-044-0060).

In addition, in 2014, Metro adopted its own Climate Smart Strategy. In that document Metro committed itself to steadily reducing greenhouse gases from transportation and regularly monitoring its progress in achieving such reductions. Metro pledged in that strategy and again, in its subsequent Regional Transportation Plan:

"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."

Metro's climate commitments are expected to be met chiefly by a combination of cleaner vehicles and less driving. Responsibility for cleaner vehicles is largely outside Metro's ambit, but

the region is responsible for planning the transportation system in a way that reduces vehicle miles traveled.

The Metro Regional Transportation Plan presents two different and completely contradictory estimates of future regional travel. The RTP's climate analysis (Appendix J), which is presented to purportedly establish compliance with state climate goals, contemplated regional driving of approximately 20 million vehicle miles per day (approximately a 1 percent change from current levels of driving). Appendix J asserts that this restrained level of driving (which represents a decline in per capita driving almost exactly offsetting expected population growth), coupled with cleaner vehicles will put the region on a path to achieve state climate goals.

But the transportation projections that Metro is using to size the regional transportation system and to make decisions about tens of billions of dollars in spending contemplated in the RTP makes a fundamentally different and completely inconsistent projection of future vehicle travel. That projection (detailed in RTP Appendix I), states that in 2045, the region will have approximately 25 million vehicle miles of travel per day.

In essence, the RTP assumes and plans for a 20 percent increase in vehicle miles traveled. This purported increase in vehicle travel becomes the technical rationale for massive investments in roadway capacity. The RTP asserts that based on this expected increase, these capacity increases are somehow needed to avoid future increases in congestion and decreases in vehicle speed on regional roadways.

It is logically and legally indefensible for Metro to use one set of books assuming essentially no increase in driving to claim that it complies with state climate requirements, and use a second set of books assuming a 20 percent increase in driving to justify spending billions of dollars on added roadway capacity. This 20 percent increase in driving means that we will have 20 percent more greenhouse gas emissions than claimed in Appendix J.

In addition, as Metro staff has acknowledged in its response to my comments on the RTP, the assumptions used by the state about the cleanliness of the future vehicle fleet are unrealistically optimistic.

Metro and the Oregon Department of Transportation have failed to track actual levels of greenhouse gas emissions from transportation in the Portland area. All of the objective, independent inventories of greenhouse gas emissions indicate that transportation greenhouse gases are increasing—by between 1.4 percent and 5 percent annually since 2014—not decreasing, as projected and assumed in the estimates used to demonstrate compliance with

state laws. The actual data on transportation greenhouse gas emissions show that the region's and the state's efforts are **failing**. And they are not merely somehow making progress at a slower rate than hoped; emissions are increasing when Metro and ODOT models claim they are decreasing.

Metro's adopted Climate Smart Strategy obligates Metro to monitor the effectiveness of its efforts and, should they be found wanting, to strengthen them. Metro has done neither of these things: Its RTP doesn't include actual data on the increase in transportation greenhouse gases since 2014. And because it doesn't acknowledge this failure, Metro has proposed no additional measures to put the region on a path to reverse this increase and achieve the even greater and faster reductions that are now required to achieve the adopted 2050 greenhouse gas reduction goal.

Metro uses the lower vehicle miles traveled estimates in Appendix J only for the narrow purpose of constructing a fictitious rationalization that it will achieve climate goals. Metro's real agenda is contained in the much higher levels of driving contemplated in the mileage estimates contained in Appendix I.

State law requires Metro to demonstrate, and the Land Conservation and Development Commission to acknowledge, that it is monitoring transportation greenhouse gas emissions, that it is reporting progress (or lack thereof) in meeting expected reduction targets, and to identify the reasons for any shortfalls, and corrective actions. Metro has failed to track its progress; transportation greenhouse gases are increasing even as Metro asserts it is "making progress" and consequently, Metro has failed to assess progress, identify the reasons for failure, or propose corrective actions. Unless and until Metro corrects these errors, the Land Conservation and Development Commission should find Metro's transportation plan out of compliance with state law.

While Metro's Climate Smart Strategy rhetorically acknowledges the climate crisis, and purports to commit the region to decisive action, the results of the past decade show we've not only made no progress, we're going in the wrong direction. Metro has squandered almost a decade at a time when the climate crisis has grown manifestly worse. We cannot afford to squander another moment, much less another decade, with plans that ignore this failure, and which worse, offer duplicitous projections to rationalize road capacity expansion that will plainly make climate pollution worse.

Cordially,

Joseph Cortright
Director, City Observatory

Attachments:

Lying about climate: A 5 million mile a day discrepancy (below)

Metro's Climate Denying Regional Transportation Plan
https://cityobservatory.org/rtp_climate_denial/

The Climate Fraud in Metro's Regional Transportation Plan
<https://cityobservatory.org/the-climate-fraud-in-metros-regional-transportation-plan/>

Doubling down on climate fraud in Metro's RTP
<https://cityobservatory.org/doubling-down-on-climate-fraud-in-metros-rtp/>

Metro's "Don't Look Up" Climate Policy
<https://cityobservatory.org/metros-dont-look-up-climate-policy/>

Metro's Failing Climate Strategy
<https://cityobservatory.org/metros-failing-climate-strategy/>

Lying about climate: A5 million mile a day discrepancy

Metro's Regional Transportation Plan (RTP) claims it will meet state and regional climate objectives by slashing vehicle travel more than 30 percent per person between now and 2045.

Meanwhile, its transportation plan actually calls for a decrease in average travel of less than 1 percent per person. Because population is expected to increase, so too will driving.

Rather than reducing driving, and associated greenhouse gas emissions, Metro's RTP calls for accommodating more than 5 million additional miles of driving a day—a 20 percent increase from current levels.

The RTP climate strategy asserts the Portland area will drive 20 million miles a day and meet our greenhouse gas reduction goals. But Metro's transportation modeling shows the RTP is planning for a system that will lead to 25 million miles per day of driving.

This disconnect between Metro's climate modeling, and the modeling its using to size the transportation system, and make investments is a violation of state climate rules.

The Portland region is a self-styled environmental leader. Oregon has a legislatively enacted goal to reduce greenhouse gases 75 percent from 1990 levels by 2050. Metro, the regional government, adopted a "Climate Smart Strategy" in 2014, calling for taking steps to achieve that goal by reducing driving. A new, federally required (and state regulated) "Regional Transportation Plan" is supposed to spell out how the region will manage its transportation system over the next couple of decades to stay on a path to achieve that goal.

Unfortunately, the Metro region is nowhere close to achieving that goal, is actually headed in the wrong direction, and the new Regional Transportation Plan will likely make things worse. As we previously documented at City Observatory, the RTP's climate analysis left out the inconvenient fact that Portland area transportation greenhouse gas emissions are actually increasing, rather than decreasing as the plan assumed—indicating that our efforts are actually failing. In addition, the climate policies in the plan give a pass to a ten-billion dollar plus program of freeway expansion that will lead to more driving and more pollution. That's bad enough.

But there's more: A close look at the technical analysis that is the foundation for the RTP shows that Metro has two completely different sets of "books" for assessing transportation. When it comes to showing compliance with state climate laws and regulation, Metro has produced a set of projections showing we'll hold total driving in the Portland area to its current level—in spite of increase population—by reducing per capita driving by almost a third. But when it comes to sizing the transportation system—and in particular—justifying investments in added highway capacity, Metro has a second set of books, that assume per capita driving doesn't change at all, and that as a result, we end up driving about 5 million miles more per day in the Portland area than assumed the climate analysis. These two estimates are completely contradictory, and they mean that the Regional Transportation Plan doesn't comply with state climate laws, and that if we actually followed through on our stated climate strategy of holding driving to its current level of about 20 million miles per day, we wouldn't need to spend any more on expanding highway capacity.

Under state law and regulations, Metro has an affirmative legal obligation to monitor and report its performance—something it simply hasn't done. At the state's land use regulator, the Land Conservation and Development Commission is required to review and approve their climate work and policy. LCDC should reject the Metro climate plan and RTP as out of compliance with these state regulations, and send Metro back to the drawing board to produce a climate plan that is consistent with professed climate goals and state law.

The key problem here is two sets of books: An ambitious climate plan that would dramatically reduce average driving (and comply with state regulations), and a second set of books that is a "driving as usual" projection, that's being used to fuel a highway spending spree. The difference is 5 million miles a day—and vastly more carbon pollution.

Ambitious climate rhetoric: We'll reduce per capita driving 31 per cent compared to 2020 levels Metro's current RTP purports to put the region on a path to reducing greenhouse gas emissions by making investments in the transportation system that reduce driving. And when it comes to its climate analysis, the RTP makes a bold claim that the region will cut driving by more than 30 percent from current levels. The Climate Analysis (Appendix J, page 9) makes this claim:

But that's the climate portion of the plan.

Reality: We're going to drive 20 percent more, and per capita driving will decline less than one percent

A separate portion of the report offers metro's "system performance measures" for judging the overall operation and success of the region's transportation system. Here, the RTP uses its transportation demand model to estimate how much we'll drive in the future under various scenarios. These are the numbers that are used to select projects, estimate traffic delays, and guide investments. And the picture here is very different. According to this modeling, per capita driving in the Oregon portion of the metropolitan area will decline by just 2 tenths of one percent from current levels. And these performance measures indicate that the RTP investments make almost no difference in reduced driving: the RTP "constrained" scenario, representing billions of dollars in spending, reduced driving by only one-tenth of a percent more from current levels than doing nothing. Either way, the Metro performance measures suggest almost no change in per capita driving, and as a result, total travel in the region will increase by more than 5 million miles per day--making it that much harder to reach the region's and the state's climate objectives.

These data are contained in Appendix I: Performance Evaluation Documentation

This duplicity is important, because Metro has concocted an almost entirely fictitious scenario, in which the state government imposes very high per mile fees on driving. Metro's climate analysis uses these assumptions to pretend per capita driving will decline sharply. But the rest of the RTP makes no such assumptions; it plans for a world where we won't charge drivers much more than they pay today, aside for some tolls, and that we'll invest in big capacity expansion projects, like the Interstate Bridge and the I-5 Rose Quarter freeway widening. In

reality, as Metro's performance measures report shows, the region has no intention or expectation of meeting state climate goals, and is going to continue building car infrastructure as if it were 1950, rather than to head off a devastating climate crisis in 2050.

As we pointed out, Metro uses its climate analysis, with its dubious assumptions, to assert that it doesn't need to worry about the polluting effects of spending billions of dollars expanding highways. It claims because we'll only drive 20 million miles a day, we'll meet state climate targets, and therefore there's no need to even examine how much widening roads will increase driving. But the agency's own transportation modeling--which it uses to justify these expenditures, and select investments--is planning for a world where we drive 25 million miles a day, with arguably 25 percent more pollution, no matter how "green" vehicles are in 2045.

Make no mistake, Metro planners are really counting on their 25 million mile a day forecast. They only include the 20 million mile projection as a fig leaf, to be able to assert that they'll meet climate objectives.

If Metro really believed its climate forecasts, and planned accordingly, it would create a plan that provided for no increase in total driving in the region above today's levels. But they clearly have no intention of planning for such an outcome. They—and the Oregon Department of Transportation are pushing forecasts claiming we'll drive vastly more miles and that congestion will only get worse, unless we do something—in this case, spend billions on expanded highways.

Having two completely inconsistent travel forecasts--really two sets of books--is effectively perpetrating a climate fraud.

Metro is failing to comply with state law showing it is making progress
Metro has had a climate plan for nearly a decade. It adopted its Climate Smart Strategy in 2014, and at the time, as an integral part of that plan, pledged to monitor progress--i.e. whether its efforts were leading to the needed reduction in greenhouse gases. Since then Land Conservation and Development Commission has adopted further rules that direct Metro to plan to achieve statewide climate goals, and again, periodically report on their progress.

OAR 660-044-0060

Monitoring

(1) Metro shall prepare a report monitoring progress in implementing the preferred scenario including status of performance measures and performance targets adopted as part of the preferred scenario as part of regular updates to the Regional Transportation Plan and preparation of Urban Growth Reports.

(2) Metro's report shall assess whether the region is making satisfactory progress in implementing the preferred scenario; identify reasons for lack of progress, and identify possible

corrective actions to make satisfactory progress. Metro may update and revise the preferred scenario as necessary to ensure that performance targets are being met.

(3) The commission shall review the report and shall either find Metro is making satisfactory progress or provide recommendations for corrective actions to be considered or implemented by Metro prior to or as part of the next update of the preferred scenario.

Metro's Regional Transportation Plan fails to demonstrate whether the region is making progress, and makes no effort to say that it is making "satisfactory progress." In fact, emissions inventories show that actual greenhouse gas emissions from transportation have increased by between 1.4 percent and 5 percent per year since 2014.

Metro's only response is kicking the can down the road--saying it will revisit this entire subject in its next Regional Transportation Plan (to be adopted in 2028). That fails to comply with OAR 660-044-0060, which requires the progress report to gauge progress through now

Instead of acknowledging the failure of current actions, and proposing stronger and more effective policies, Metro has simply chosen to embrace a new set of assumptions that we'll make even faster progress by the adoption or enforcement of as yet un-enacted policies in future years.

Metro acknowledges that it is wrong about current GHG trends, but isn't making any substantive changes to the current Regional Transportation Plan. Instead, it says it will use the updated as the basis of "future climate analysis." In its response to comments made on the RTP dated October 18, 2023, Metro staff says it will:

2. Update RTP climate assumptions in Chapter 7 and Appendix J to:

- a. Describe which state assumptions are required to be used in the RTP climate analysis and why.
- b. Document state assumptions in more detail, including a table describing key state assumptions (e.g., vehicle fleet turnover rate, share of SUV/light truck vs. passenger vehicles, share of electric vehicles), as well as current trends with respect to these assumptions and discussions of state policies, programs or other actions the state is taking to support the state assumptions used in the RTP climate analysis.
- c. Describe that the region will not meet its targets if the state assumptions used in the analysis are not met, along with the results of the RTP 23+AP scenario, which quantifies how much the region falls short of its targets if the Statewide Transportation Strategy (STS) assumptions are not included in the analysis.
- d. Describe current trends in GHG emissions, both in the region and state, and nationally, based on DARTE and other inventory sources.
- e. Use the updated assumptions as the basis of future climate analysis.

MTAC Recommendation to MPAC on Key Policy Topics, October 18, 2023
(Emphasis added)

These changes to the RTP do not put the document in compliance with OAR 660-044-0060: They do not include the required status of performance measures, they do not identify whether the region is making "satisfactory progress"—it isn't transportation greenhouse gases are increasing when the plan said they would be decreasing—and it doesn't explain why we're not making progress or identify actions that would be corrective. Instead, Metro has in effect, deferred all of these obligations until the next update of the RTP (scheduled for 2028). And, notably, Metro is not proposing to do anything to reconcile the conflicting assumptions about future vehicle travel in its environmental analysis (Appendix J), with the 25 percent increase in vehicle travel it says it is planning for in its transportation plan (Appendix I).

As a result of these failings, the Metro RTP isn't in compliance with OAR-044-0060, nor is it in compliance with Metro's own adopted Climate Smart Strategy (which similarly pledged to report progress in reducing emissions, and take additional steps as needed). As shown above, the RTP has two separate sets of books and actually contemplates a future where total vehicle miles traveled in the Portland area expands by 20 percent--completely inconsistent with achieving climate goals, and exactly the opposite of what Metro asserts in its claims that it is complying with state law.

Memo



Metro

600 NE Grand Ave.
Portland, OR 97232-2736

Date: November 27, 2023
To: Metro Councilors and COO Marissa Madrigal
From: Catherine Ciarlo, Director of Planning, Development and Research
Roger Alfred, Office of Metro Attorney
Subject: Response to Joe Cortright letter regarding RTP legal compliance

Background and summary

The Metro Council received a letter from Joe Cortright dated November 17 asserting that the 2023 Regional Transportation Plan (RTP) does not comply with state climate law or Metro's Climate Smart Strategy. As described below, the Office of Metro Attorney has reviewed the letter and concluded that the 2023 RTP is consistent with applicable climate laws.

Metro staff does share some of the broader policy concerns raised by Mr. Cortright related to certain state-created targeting assumptions that are integral to the modeling of future emission reductions. As we have communicated previously in Council work sessions and JPACT meetings, the 2023 RTP recommends that state agencies conduct a comprehensive review of state assumptions that are used to set the regional greenhouse gas (GHG) targets. In addition to this review, the RTP recommends a state-level update of GHG target rules and the Statewide Transportation Strategy rules as needed to reflect changing realities. Further, as described below, Metro staff are proposing several actions to improve our own climate analysis tools and capabilities moving forward. These include monitoring and reporting current state trends in GHG emissions, as well as working with regional partners to identify actions that help advance transportation electrification.

The RTP complies with state climate law

Mr. Cortright asserts that the RTP violates state law because it includes two different sets of inconsistent modeling results for estimates of future vehicle miles traveled (VMT) in 2045. However, the fact that Metro used two different models for projecting future VMT for different purposes does not mean that the RTP climate projections violate the law. To the contrary, Metro is expressly required by state law to rely on certain assumptions included in the State Transportation Strategy (STS) for purposes of its modeling to determine whether the state-created targets will be met.

The state-created GHG emission rates and other STS assumptions applied by Metro in the climate modeling include the same assumptions that were used by the state when it created the climate targets for the Metro region in 2017. The only way for Metro to obtain an accurate apples-to-apples comparison of whether the state targets can be met in 2045 is to apply the same inputs and assumptions in Metro's RTP climate modeling. This approach is explained in detail in Appendix J of the RTP and is expressly authorized by state climate rules.

Mr. Cortright points to a separate set of data in RTP Appendix I, where Metro provides a performance evaluation of the financially constrained project list using projected regional growth to the year 2045. That data is provided for the purpose of a broader transportation system analysis to comply with other state and federal reporting requirements, and the results are based on a different model that measures trips differently and does not include the same state-created emission and policy assumptions as the climate modeling in Appendix J. It is not surprising that different models based on different inputs will yield different results. Neither set of results is inherently better or more correct, they are just different projections of what will happen in 22 years, which is an inherently uncertain exercise.

Metro coordinated closely with the Oregon Department of Transportation (ODOT) and the Department of Land Conservation & Development (DLCD) on the climate modeling and state-defined technical assumptions used in the analysis, consistent with OAR 660-044-0030 and the state's target rule methodology as described in the Scenario Planning Guidelines Technical Appendix 1.1 published by ODOT and DLCD in August 2017. Both of those state agencies support the approach applied by Metro as being consistent with state law.

Shared policy concerns: Metro staff recommendations

As noted above, Metro technical staff share some of the policy concerns raised by Mr. Cortright and have included recommendations in the RTP decision package to address those concerns. These include:

- Metro is required by the state to include certain STS assumptions for fleet and technology in the climate analysis for the RTP, and those assumptions are reflected in the RTP climate analysis. Moving forward, we recommend state level review of some of these assumptions to ensure they provide the best platform for measuring progress toward GHG targets.
- 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. We recommend 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 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.
- Given these concerns about the RTP climate analysis (including the possibility that some of the STS state-led actions used in the 2023 RTP climate analysis may move more slowly than anticipated), the RTP adoption package recommends that state agencies conduct a comprehensive review of key state assumptions used to set the regional GHG targets, as described in OAR 660-044-0035 (Metropolitan Greenhouse Gas Reduction Targets Rules) and to update the STS and GHG target rules as needed.

Finally, in response to concerns raised by Mr. Cortright earlier this fall, Metro staff conducted a separate supplemental climate analysis to evaluate a scenario that more closely reflects today's vehicle fleet mix and age. This analysis is provided in the supplement to RTP Appendix J dated October 25, 2023, and it indicates that the Metro region will continue to meet state targets using the updated assumptions if the RTP and STS state-led actions are implemented.

Recommended actions to improve climate analysis tools and capabilities

The 2023 RTP package includes several recommendations to improve climate analysis tools and capabilities to inform future policy and investment decisions. Those actions are as follows:

- Metro will begin monitoring and reporting current trends in GHG emissions in the region and state based on the national Database of Road Transportation Emissions (DARTE)¹ and other inventory sources. Current state monitoring efforts are now published online at: <https://www.oregontransportationemissions.com>.
- In addition to improvements in monitoring and reporting, Metro will continue improving its analysis tools and capabilities to better inform policy and investment decisions that impact climate. This work will shape and inform the climate analysis that will be used for the next RTP update in 2028, which will include a review of the region's progress implementing the Climate Smart Strategy
- In the meantime, specific improvements to the 2023 RTP climate analysis and findings in Chapter 7 and Appendix J of the RTP include:
 - Documenting the supplemental climate analysis completed by Metro to reflect the 2023 vehicle fleet mix and current turnover rates.
 - Documenting state assumptions in more detail, including which assumptions are required to be used in the RTP climate analysis, and why. This includes key state assumptions (e.g., vehicle fleet turnover rate, share of SUV/light truck vs. passenger vehicles, share of electric vehicles), as well as current trends with respect to these assumptions.
- Metro will also 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.

¹ https://daac.ornl.gov/CMS/guides/CMS_DARTE_V2.html

Memo

Date: November 9, 2022

To: Metro Technical Advisory Committee (MTAC) and interested parties

From: Kim Ellis, RTP Project Manager

Subject: Climate Smart Strategy Update – Kick-off Discussion

PURPOSE

This memo provides background information on the Climate Smart Strategy and work ahead to review and update the strategy as part of the 2023 Regional Transportation Plan update.

The background information was discussed by the Transportation Policy Alternatives Committee (TPAC) in September. The Joint Policy Advisory Committee on Transportation (JPACT) and Metro Council will discuss this information at a joint workshop on November 10. The Metro Policy Advisory Committee (MPAC) will have an opportunity to review and discuss this information at their December or January meeting.

ACTION REQUESTED

MTAC discussion and input on these questions:

1. Do you have specific feedback on the assumptions identified in Table 1 of the background document?
2. Are there new or updated policies and additional carbon reduction strategies that are not currently included in the Climate Smart Strategy that should be reflected in the updated strategy?
3. What issues and policy questions are you interested in exploring as we update our strategy during this time of change and uncertainty?
4. What opportunities do you see for the region to move forward should our analysis show we need to do more to meet our VMT per capita reduction targets and climate goals?

NEXT STEPS

Feedback from MTAC will help identify what assumptions may need to be updated or revised to account for new information and changes to policies, strategies and then identifying which high-impact and medium-impact strategies that have the greatest potential to reduce GHG emissions should be focused on in the update to the Climate Smart Strategy.

A consultant team is being hired to support the greenhouse analysis work for the RTP update and the update to the Climate Smart Strategy. A schedule of upcoming discussions about updating the Climate Smart Strategy is pending completion of the procurement process.



2023 Regional Transportation Plan Update Climate Smart Strategy: Background on greenhouse gas emissions targets, policies, and analytical tools

Prepared for Metro Council, JPACT members and interested parties

The Portland region's climate targets

Climate change is the defining global challenge of the 21st century. And as the recent increase in climate-induced wildfires and extreme weather events has demonstrated, it is likely to have significant impacts on the Portland region.

In 2009, the Oregon Legislature set goals to reduce greenhouse gas (GHG) emissions 10 percent below 1990 levels by 2020 and at least 75 percent below 1990 levels by 2050.¹ More recently, Executive Order 20-04 set new emissions reduction goals that call for the State of Oregon to reduce its GHG emissions at least 45 percent below 1990 emissions levels by 2035 and at least 80 percent below 1990 levels by 2050.² These updated goals are consistent with the reductions that climate scientists now believe are necessary to avoid catastrophic climate change impacts.

The transportation sector is the largest contributor to greenhouse gas emissions in Oregon. It is therefore a key focus of the state's greenhouse gas reduction efforts. And the State, recognizing the role that regional transportation plans (RTPs) play in influencing transportation policies, projects, and outcomes, has relied on RTPs to help reduce transportation emission. Beginning in 2012, the State set GHG reduction targets for Oregon's metropolitan areas to meet, and has continued to update these targets since. For the 2023 RTP update, the Portland region's targets are:

- A 20 percent reduction in per capita greenhouse gas emissions by the year 2035
- A 25 percent reduction by 2040
- A 30 percent reduction by 2045
- A 35 percent reduction by 2050
- Targets for the years 2041-2049 steadily increase from 26 to 34 percent in order to maintain progress toward the 2050 target.³

It is important to note that **these targets focus on per capita reductions achieved by reducing light vehicle trips and travel which includes passenger vehicles (cars, pickup trucks and SUVs) and commercial trucks with a vehicle weight rating of 10,000 pounds or less.** Only certain kinds of reductions count toward these targets:

Regional targets are focused on reducing vehicle use, not on making fuels and vehicles cleaner and more efficient. Regional transportation plans have typically focused on providing sustainable travel options, coordinating transportation and land use, and other actions that allow people to drive less.

¹ Oregon Department of Environmental Quality, Oregon Greenhouse Gas Emissions, <https://www.oregon.gov/deq/air/programs/Pages/GHG-Oregon-Emissions.aspx>

² https://www.oregon.gov/gov/Documents/executive_orders/eo_20-04.pdf

³ 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

The State is the primary regulator of vehicles and fuels sold in Oregon. Oregon’s climate rules recognize this division of responsibilities, and require that RTPs primarily focus on reducing GHG emissions by reducing vehicle miles traveled (VMT) per person. Regional targets are designed to “fill the gap” between the State’s overall GHG reduction goals and the reductions that are expected to be achieved through State-level policies and actions identified in the [Statewide Transportation Strategy \(STS\)](#), which aim to advance Oregon’s transition to cleaner, low-carbon fuels and zero and low-carbon emissions vehicles. Metropolitan areas can only take credit for GHG reductions from making vehicles and fuels cleaner if they can demonstrate that they are taking actions that go above and beyond the STS. This means that in most cases, the GHG reduction targets above are functionally the same as VMT per capita reductions.

Regional targets only apply to emissions from light-duty passenger and commercial vehicles, and reductions in emissions from heavy-duty vehicles (e.g., freight trucks with a gross vehicle weight rating greater than 10,000 pounds) **do not count** toward these targets.

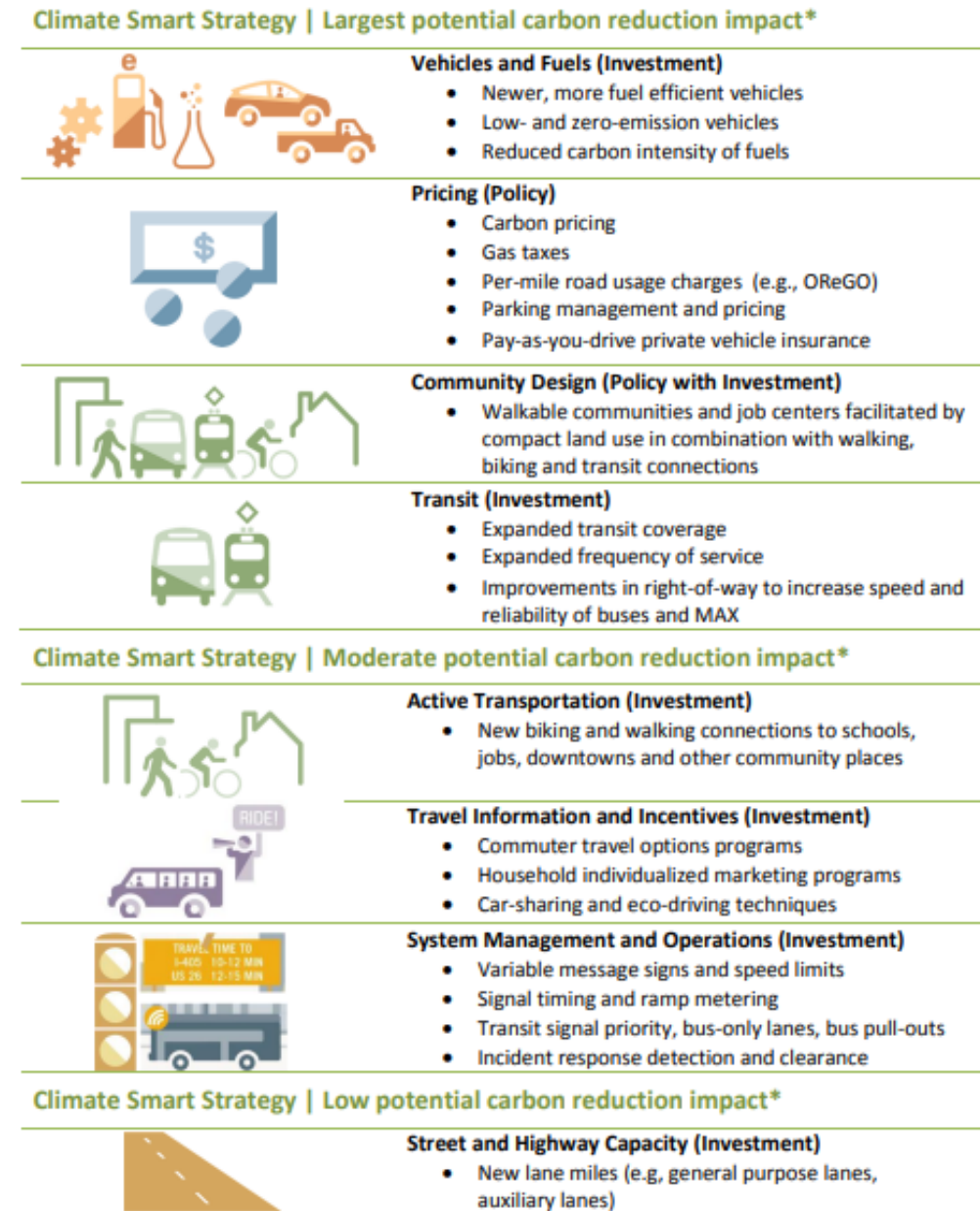
Population growth is accounted for in progress toward regional targets. All things being equal, a region with a higher population will produce more total greenhouse gas emissions than one with a lower population, because more people means more driving and therefore more emissions. To control for the influence of growth, and to focus instead on the influence of transportation policies and investments, the targets above apply to per capita GHG emissions, not total emissions.

The greater Portland region’s climate strategy

In 2014, the Joint Policy Advisory Committee on Transportation (JPACT) and the Metro Council adopted the Climate Smart Strategy⁴ with broad regional support from community, business and elected leaders. The Strategy, which was approved by the Land Conservation and Development Commission in 2015, was based on extensive stakeholder and public input, scenario planning and analysis. As part of the process, Metro conducted detailed modeling and analysis of various GHG scenarios and estimated the potential for a variety of strategies to reduce transportation-related GHG emissions, and identified the most effective strategies. These GHG reduction strategies are summarized below in Figure 1.

⁴ <https://www.oregonmetro.gov/climate-smart-strategy>

Figure 1: Climate Smart Strategy (Policies and Investments by potential GHG reduction impact)



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

The Climate Smart Strategy and related policies (see Appendix B) were adopted in the 2018 Regional Transportation Plan and will be reviewed and updated in 2023 to ensure ongoing compliance with Oregon’s GHG emissions reduction targets. The monitoring report that was included as part of the 2018 RTP concluded that the Portland region was making satisfactory progress implementing the Climate Smart Strategy, but was not able to directly compare the GHG emissions from the RTP to the state-mandated targets because different tools were used to set the targets than were used to analyze performance of the RTP (see the GHG forecasting tools section).

In order to help stakeholders gauge progress toward climate targets, the RTP also reported on the implementation of individual strategies and assumptions from the climate strategy. It found that the

RTP met or exceeded targets for expanding transit service, locating housing in compact communities, managing parking, and increasing bicycle travel. However, the RTP fell short of targets for reducing VMT per capita, building bicycle and pedestrian infrastructure, and tripling walk, bike and transit mode share.

The 2023 RTP update will include an update to the Climate Smart Strategy and supporting RTP policies and investments, as needed, to meet the region's state-mandated greenhouse gas emissions reduction targets. The update will consider how best to account for more recent changes to federal and state climate-related policies and updated regional congestion pricing-related policies, and whether the strategies and key assumptions underlying the region's Climate Smart Strategy are being implemented and continue to be realistic, including:

- **Federal climate rulemaking⁵** is underway that would require State departments of transportation (State DOTs) and metropolitan planning organizations (MPOs) to establish declining carbon dioxide (CO₂) targets for on-road motor vehicle emissions. As proposed, the draft rule does not mandate the level of reduction the targets should achieve. Rather, State DOTs and MPOs would have flexibility to set targets that are appropriate for their communities and given their respective climate policies and other policy priorities - so long as the targets would reduce emissions over time and align with the Biden Administration's target of net-zero emissions, economy-wide, by 2050.⁶ Comments are due by Oct. 13, 2022.
- **New Climate-Friendly and Equitable Communities land use and transportation rules** that support implementation of the Climate Smart Strategy. Adopted by the Land Conservation and Development Commission in July 2022, the new rules require cities and counties to designate walkable, compact mixed use areas⁷ that are served by transit and other sustainable transportation options, reform parking management, plan for high quality pedestrian, bicycle and transit infrastructure, prioritize and select projects meeting climate and equity outcomes and demonstrate that land use and transportation system plan updates reduce per capita vehicle miles traveled.
- State updates to the STS that are expected to account for **new policies and programs to support the transition to cleaner, low carbon vehicles and fuels**. Since 2018, the State has adopted new policies and programs to support clean vehicles and fuels in response to Executive Order 20-04.⁸ See Appendix A for an overview of these and other state policies and programs are under development.
- Updates to **congestion pricing policies** in the RTP. Research suggests that pricing can be very effective at reducing GHG emissions, and pricing is the only high-effectiveness strategy in Climate Smart Strategy that has not yet been implemented in the region.

⁵ <https://www.federalregister.gov/documents/2022/07/15/2022-14679/national-performance-management-measures-assessing-performance-of-the-national-highway-system>

⁶ Executive Order 13990 (<https://www.federalregister.gov/documents/2021/01/25/2021-01765/protecting-public-health-and-the-environment-and-restoring-science-to-tackle-the-climate-crisis>) and Executive Order 14008 (<https://www.energy.gov/sites/default/files/2021/02/f83/eo-14008-tackling-climate-crisis-home-abroad.pdf>)

⁷ For the Portland region, these areas are the 2040 Centers, including the Portland Central city and regional and town centers

⁸ https://www.oregon.gov/gov/Documents/executive_orders/eo_20-04.pdf

- The **impact of the COVID-19 pandemic on travel behavior and the transportation system** - in particular the significant loss of transit riders due to health concerns and the resulting cuts in service, which have been exacerbated by an ongoing shortage of transit drivers.

GHG forecasting tools

Since 2010, ODOT and Metro have been developing, testing, and refining tools to measure and forecast transportation-related GHG emissions. There are three main tools that have been used to develop GHG reduction targets and assess regions' progress toward these targets.

The regional travel model

The regional travel model has been the primary tool that Metro uses to evaluate the impact of transportation projects and policies. It is a complex model that simulates travel behavior based on surveys detailing individuals' tripmaking and on a detailed representation of the regional transportation system. Metro also uses a land use and economic model and various off-model tools (including MOVES, which is a tool developed by the EPA that is required in clean air analysis, and is used to convert travel model outputs into GHG emissions) in concert with the travel model when developing the RTP.⁹ The term "travel model" is used in this memorandum as a shorthand way of referring to this entire suite of tools.

The travel model will likely remain the primary tool for quantifying greenhouse gas reductions, as well as other performance measures, for the 2023 RTP. There are three reasons for this. First, it is a detailed and nuanced tool that takes into account the complex interrelationships between land use, trip cost, the availability of different travel options, congestion, socioeconomic characteristics, and other factors that determine how people travel in the region. Second, the travel model has been widely used to assess regional plans and projects, which makes it easier for stakeholders to interpret results. Third, federal regulations require the use of a travel model in developing an RTP.

That said, there are two important limitations to the regional travel model. First, it is a complex tool that is labor-intensive to program and run, so it is not the best tool for quickly assessing the relative effectiveness of different GHG reduction strategies or for conducting "what if" assessments that explore how different combinations of strategies could impact emissions. Second, results from the travel model are not directly comparable to those from VisionEval (see below), which is the tool that the State used to set regional GHG reduction targets – an issue that the State noted when reviewing GHG results from the 2018 RTP. As described in the following section, Metro has been developing and testing a regional-scale version of VisionEval to support the 2023 RTP update. One of the goals of this work is better understand how VisionEval works at the regional scale and improve our understanding of the differences in results between VisionEval and the regional travel model and to be able to estimate greenhouse gas emissions from the 2023 RTP and directly compare forecasted emissions and corresponding VMT per capita to the region's state-mandated targets.

VisionEval and GreenSTEP

VisionEval is a scenario planning tool that examines how people respond to changes in the transportation system based on aggregate inputs about the transportation system (e.g., factors like lane-miles and transit service), detailed assumptions about current and future travel options and costs, research on the impact of different changes on travel behavior, detailed demographic and socioeconomic data, and other information.

⁹ Modeling 101 Workshop, May 23, 2022. Information available: <https://www.oregonmetro.gov/modeling-services>

VisionEval is designed to allow users to evaluate large numbers of scenarios and explore how different combinations of future conditions might affect performance measures like VMT and GHG emissions. It is also the tool that the State uses to set regional greenhouse gas reduction targets (which it does by using VisionEval to assess progress toward state GHG reduction goals due to state-level clean vehicle and fuel strategies, determining the gap between the results of these strategies and the targets, and identifying the reductions in VMT per capita that may be needed to fill this gap). As such, **VisionEval is well-suited for assessing progress toward the GHG reduction target and estimating potential reductions from many of the additional strategies that may be needed to meet these targets.** In addition, **Metro may recommend using VisionEval to demonstrate compliance with GHG reduction targets if staff find that technical differences between VisionEval and the travel model make it challenging to compare results and targets that are based on two different tools.**

However, VisionEval is not as detailed of an analysis tool as the travel model. The model forecasts people's behavior based on the destinations that they typically travel to and on the specific travel time, options, and conditions between their origin and destination, whereas VisionEval looks at fleet changes and aggregate effects of policies on GHG and VMT.

GreenSTEP is a scenario planning tool, similar to VisionEval, that the State used to set regional GHG reduction targets prior to 2017. The State has since promoted VisionEval as a replacement for GreenSTEP in setting and assessing progress toward state and regional targets. GreenSTEP and VisionEval are broadly similar, but they use different inputs and calculations, so **GHG targets and results from one RTP cycle are not directly comparable to those from other cycles or development of the Climate Smart Strategy in 2014.**

Different tools for different uses

GHG analysis is complex, and must speak to a variety of audiences – including the public, decision-makers, state and federal regulators, and partner agency staff. As reinforced by the Climate Expert Panel convened by Metro in June 2022¹⁰, **there is no single best tool for the job, all of the available tools have their limitations, and the results are only as sound as the assumptions behind each tool. All of these tools are only useful insofar as they support Metro and its partner agencies in taking action to reduce carbon emissions and protect people from the impacts of climate change.**

Though VisionEval and the travel model have their differences, **they share many of the same strengths and limitations.** Both are generally well-suited to capture how land use, population change, roadway capacity, transit service, transportation costs, and travel time affect travel behavior. Both are capable of accounting in detail for how changes to fuels and vehicles affect GHG emissions. Both are also limited when it comes to analyzing induced demand, pedestrians' and bicyclists' behavior, or how people respond to travel demand management strategies (other than those that involve pricing). However, **the strengths of these tools generally align with the strategies that research suggests are most effective at producing significant long-term VMT reductions** (or avoiding further increases) – including implementing pricing, expanding and improving transit service, and limiting new roadway capacity.¹¹

¹⁰ <https://www.oregonmetro.gov/events/climate-and-transportation-expert-panel/2022-06-22>

¹¹For examples of research highlighting the impact of these strategies, see: Handy et al., State-Level Strategies for Reducing Vehicle Miles of Travel (2017); CDC, Strategies for Health-Oriented Transportation Projects and Policies: Reduce Vehicle Miles Traveled (VMT); Salon, The Effect of Land Use Policies and Infrastructure Investments on How Much we Drive (2015), Gately and Reardon, The Impacts of Land Use and Pricing in Reducing Vehicle Miles Traveled (2021).

VisionEval is better suited to evaluate and compare the relative effectiveness of different packages of GHG reduction strategies. It is also responsive to state climate policies. The travel model is better suited to conduct the final analysis of the RTP, and its use is required by federal regulations. Technically, the main question that Metro and its partner agencies face in using these two separate tools in the RTP update is how to compare and translate results between the two, so that the initial VisionEval analysis of GHG scenarios leads to a final RTP that meets GHG reduction targets.

Initial Climate Smart Strategy review: preliminary findings and considerations for the 2023 RTP update

In preparation for updating the 2023 RTP, Metro staff is creating a **Climate Smart Strategy (CSS) Scenario¹² in VisionEval** that represents the 2014 Climate Smart Strategy as currently adopted in the 2018 RTP, but with the updated growth forecast (households and jobs) adopted in 2020 for use in the 2023 RTP update. This scenario will be based on adopted policies and plans, including regional assumptions about implementation of VMT-reducing strategies in the 2018 RTP and State assumptions about Oregon’s transition to cleaner, low carbon fuels and more fuel-efficient vehicles from the 2013 Statewide Transportation Strategy.¹³

Table 1 summarizes how Metro staff is using the inputs in VisionEval to represent some of the key strategies¹⁴ adopted in the Climate Smart Strategy. **This is designed to help build understanding of how the current Climate Smart Strategy is represented in VisionEval.**

At the workshop, Metro staff will be asking for input on whether the assumptions underlying the region’s Climate Smart Strategy are realistic, how certain assumptions should be updated, and if new or updated policies and additional GHG reduction strategies that are not currently included in Climate Smart Strategy should be reflected in the updated strategy. Initial feedback from agency partners on these questions is provided in the packet.

Table 1 does not include any recommendations on how strategies should be updated, but it does include notes on current values and/or trends for many inputs. This information should be considered when updating Climate Smart Strategy assumptions as part of the 2023 RTP update. The table also distinguishes between regional assumptions that are set by Metro and its partner agencies through the RTP and assumptions that are set by the State.

As of November 2022, ODOT is in the process of updating the latter based on several new policies and programs described in Appendix A, and intends to provide these updated assumptions for use in the 2023 RTP update. **Though State assumptions are not set through the RTP process, they are included in this document to help improve understanding of key factors behind VMT and GHG results more thoroughly.**

¹² Though the assumptions used in creating this scenario mirror those used for the 2018 RTP as closely as possible, neither the assumptions nor the results are identical because of the differences between GreenStep, VisionEval and the regional travel model discussed in the previous section.

¹³ <https://www.oregon.gov/odot/Planning/Pages/STS.aspx>. In 2018, the Oregon Transportation Commission adopted an amendment to incorporate the STS as part of the Oregon Transportation Plan (<https://www.oregon.gov/odot/Planning/Pages/Plans.aspx>). The 2013 STS assumptions do not reflect recent updates to State clean vehicle and fuel policies (see Appendix A). As of August 2022, ODOT staff are working to develop VisionEval assumptions that reflect these updates.

¹⁴ VisionEval is a complex tool with hundreds of detailed inputs. Table 1 focuses only on inputs that reflect key strategies adopted in the CSS. Information on all VisionEval inputs can be found at <https://visioneval.org/docs/model-inputs.html>.

The Climate Smart Strategy was incorporated in the 2018 RTP in 2018, and meeting the region’s targets depends in large part upon implementing the policies and investments in the RTP. However, recent data suggests that some of the assumptions underlying the Climate Smart Strategy may need to be updated, and that these revisions may impact the region’s progress toward meeting its targets. Table 1 highlights some of the key assumptions in the Climate Smart Strategy that may need to be updated, and that could have a significant impact on how we meet our GHG targets.

Table 1: Key transportation assumptions in Climate Smart Strategy Scenario

Assumption	Climate Smart Strategy Scenario in VisionEval for 2035	Notes on recent¹⁵ data and trends
<i>Climate Smart Strategy Assumptions</i>		
Transit Service	Transit service grows roughly in proportion with the region’s population.	Between 2010 and 2019, transit service hours grew by 4%, roughly half the rate of population growth. ¹⁶ The region plans to increase transit service significantly, ¹⁷ but agencies have cut service during the COVID pandemic and that have continued due to challenges hiring drivers.
Employer-based Travel Options Programs	30% of workers receive regular travel options programming.	Based on data from the Regional Travel Options program, 5.5% of workers currently receive regular travel options programming.
Household-based Travel Options Programs	45% of households receive regular travel options programming.	Based on data from the Regional Travel Options program, less than 1% of households currently receive regular travel options programming.
Parking pricing and management	Consistent with the 2018 RTP, most of the region’s 2040 centers and many of its frequent transit corridors include managed parking, and parking is priced in central Portland and at selected other destinations throughout the region. ¹⁸	The new Climate-Friendly and Equitable Communities rules call for increasing the use of parking management and pricing in 2040 centers and within proximity of frequent transit service.
Pay-As-You-Drive (PAYD) Insurance	40% of the region uses PAYD insurance.	Some insurers offer PAYD insurance, but usage of PAYD insurance in Oregon is not increasing as envisioned in the STS. ¹⁹ The STS envisioned 20% of Oregon households had PAYD insurance by 2020 and almost 100% of households by 2035.
<i>Fleet and technology assumptions from the State at the time of adoption of the Metropolitan GHG Reduction Target Rule in 2011</i>		
Gas Prices	Gas prices are \$6.75 per gallon ²⁰	

¹⁵ As of April 2022.

¹⁶ TriMet, TriMet Service and Ridership Statistics, November 30, 2021. <https://trimet.org/about/pdf/trimetridership.pdf>.

¹⁷ Metro, Regional Transit Strategy, 2018 Regional Transportation Plan, December 6, 2018.

¹⁸ See the 2018 RTP, Figure 6.30, p. 6-44 and 2018 RTP Appendix M, p. 20 to p.25.

¹⁹ ODOT, STS Implementation Monitoring Report, p. 26. https://www.oregonmetro.gov/sites/default/files/2020/07/29/2018-RTP-Appendix_M-Regional-Analysis.pdf

²⁰ ODOT, STS Implementation Monitoring Report, p. 26. <https://www.oregon.gov/odot/Planning/Documents/STS-2018-Monitoring-Report.pdf>.

²⁰ This price is in 2010 dollars and approximates the STS Vision inputs and was provided by the State for use during development of the Climate Smart Strategy. This equates to \$9.17 per gallon in 2022 dollars.

Assumption	Climate Smart Strategy Scenario in VisionEval for 2035	Notes on recent ¹⁵ data and trends
Electricity Prices	Electricity prices are \$0.23 per kWh ²¹	
Commercial Fleet Age	The average lifetime of commercial vehicles is 7.6 years.	Commercial vehicle lifetimes currently average 14.2 years and are increasing. ²²
Fleet Electrification	24% of commercial light-duty trucks are hybrid or electric.	Currently, less than 1% of heavy-duty vehicles are hybrid or electric. One recent forecast ²³ estimates that 7% of the heavy-duty fleet will be hybrid/electric by 2030, rising to 49% in 2040. This does not account for state policies promoting clean heavy-duty vehicles.
Commercial Fleet Share	20% of light-duty commercial vehicles are trucks/SUVs and 80% are cars.	58% of light-duty commercial vehicles are trucks, and that percentage has been increasing. ²⁴ The STS Vision assumed 35% are trucks/SUVs and 65% are cars.
Household Fleet Share	20% of light-duty passenger vehicles are trucks/SUVs and 80% are cars.	80% of new U.S. vehicle sales are trucks, and that percentage has been increasing. ²⁵
Household Vehicle Fleet Age	The average lifetime of passenger cars is 7 years and 7.7 years for trucks/SUVs.	Passenger vehicle lifetimes currently average 11.9 years and are increasing. ²⁶

Potential strategies to produce additional VMT per capita and related GHG reductions

In support of the 2023 RTP update, Metro staff proposes to use VisionEval to conduct a preliminary analysis of VMT per capita and related GHG reductions under the 2018 RTP (as a next step), and will update regional technical and policy advisory committees and the Metro Council on the results at future meetings, including whether the updated RTP seems likely to meet its VMT per capita and related GHG reduction targets. Staff also proposes to evaluate the draft 2023 RTP project list using VisionEval as part of the system analysis conducted following the Call for Projects in Spring 2023.

Below are some of the strategies that are likely to produce significant additional reductions – focusing on the strategies identified in the Climate Smart Strategy (See Figure 1) with the greatest potential carbon reduction potential, as well as on strategies that are well-represented in the GHG analysis tools discussed above – if additional action is needed to meet the region’s targets.

²¹ This price is in 2010 dollars approximates the STS Vision inputs and was provided for use during development of the climate Smart Strategy. This equates to \$0.23 per kWh in 2022 dollars.

²² Brusseau, D., Aging Trucks Create More Service Opportunities, NTEA News, https://www.ntea.com/NTEA/Member_benefits/Industry_leading_news/NTEANewsarticles/Aging_trucks_create_more_service_opportunities.aspx?fbclid=IwAR3mkimdcKilEbdqvwYYSwODX5Hop5g6odQWuQdit9cJ37I30kwxgv209PU

²³ Ledna, C., et. al., Decarbonizing Medium- & Heavy-Duty On-Road Vehicles: Zero-Emission Vehicles Cost Analysis <https://www.nrel.gov/docs/fy22osti/82081.pdf>

²⁴ Bureau of Transportation Statistics, U.S. Automobile and Truck Fleets by Use, <https://www.bts.gov/content/us-automobile-and-truck-fleets-use-thousands>

²⁵ FRED Blog, Long-term trends in car and light truck sales, March 15, 2021.

<https://fredblog.stlouisfed.org/2021/03/long-term-trends-in-car-and-light-truck-sales/>

²⁶ Bureau of Transportation Statistics, Average Age of Automobiles and Trucks in Operation in the United States, <https://www.bts.gov/content/average-age-automobiles-and-trucks-operation-united-states>



Pricing: Multiple agencies, including ODOT, Metro and the City of Portland, are currently working on plans to price roadways in the Portland region in order to both manage demand and raise revenues for future transportation investments. The 2023 RTP update is anticipated to include updated policies and new projects that expand the region’s approach to pricing. **Pricing presents a major opportunity to reduce GHG emissions since pricing is the only high-impact strategy identified in Climate Smart that has not yet been implemented at scale.** The Regional Congestion Pricing Study analyzed a variety of potential approaches to pricing and found that all of them reduced VMT, ranging from a minor reduction to a 7.6 percent decrease.²⁷ This analysis focused on pricing’s potential to help manage travel demand, and does not account for additional VMT per capita and related GHG reductions that could result from reinvesting a share of the resulting revenues in other climate strategies such as those discussed below.



Increasing transit service: Increasing transit service has long been a focus of Metro and its partners’ efforts to implement the 2040 Growth Concept, expand travel options, improve air quality and reduce GHG emissions. This strategy also has significant potential benefits for equity and mobility. The 2018 RTP exceeded Climate Smart Strategy targets for increasing transit service, both in general and in the region’s housing and job centers. However, the COVID-19 pandemic reduced transit ridership and necessitated cuts to transit service that weren’t anticipated in the 2018 RTP. As a result, it may take additional funding to achieve the level of transit service – and corresponding per capita VMT and GHG reductions – envisioned in the 2018 RTP, and even more to increase transit-related GHG reductions beyond what was expected in 2018. Some resources may be available through pricing (though constitutional restrictions on how revenue raised from vehicles and fuels can be spent may limit how pricing revenues can be spent on transit); others may be available through the new funding programs created as part of the Bipartisan Infrastructure Law.



Expanding parking management and pricing: Managing and pricing parking can have a similar impact on VMT and GHG emissions as road pricing. In addition, parking pricing can also be applied in a more targeted fashion to destinations that are easy to reach by modes other than driving. Currently, very few places in the region have managed or priced parking, and in most cases the rules and fares that are in place are not designed to manage demand and encourage the use of transit and other modes instead of driving. The new Climate Friendly and Equitable Communities (CFEC) rules seek to change this by requiring the implementation of managed/priced parking in designated regional centers and station communities. The RTP is generally aligned with the CFEC rules, which calls for significantly expanding the use of managed parking in the region in 2040 centers and in areas near frequent transit service. However, the RTP currently anticipates a modest level of parking management in most communities that implement it. This means that there is an opportunity for local governments to implement parking management and pricing in a coordinated fashion that is guided by best practices in managing demand, and implement the new CFEC rules in a way that maximizes GHG reductions.

Plan and build compact and multimodal communities: Coordinating land use and transportation planning has been a core focus of Metro and its partners’ efforts for decades. In the context of the RTP, this has meant building a multimodal transportation system that connects the



²⁷ Metro, Regional Congestion Pricing Study, p. xiii and Appendix D.i.

<https://www.oregonmetro.gov/sites/default/files/2021/10/05/Regional%20Congestion%20Pricing%20Study%20-%20final%20report%20-%20Metro.pdf>

centers and communities identified in the 2040 Growth Concept.



Take additional action to accelerate the adoption of clean vehicles and fuels: Oregon’s climate regulations generally direct Metro, cities and counties to focus on reducing GHG emissions by reducing VMT per capita. They require Metro to assume that complementary State clean vehicle and fuel programs and policies will be implemented, and to use assumptions provided by the State that account for these programs and policies when calculating progress toward GHG reduction targets. However, the State also allows Metro to take credit for GHG reductions from clean vehicle and fuel strategies as long as they can demonstrate that these strategies are additive to State policies and programs.

Given how high interest in clean vehicles and fuels is in the Portland region – zero-emission vehicle (ZEV) ownership rates in each of the region’s three counties exceed those in any other Oregon county by 50% or more, and collectively Multnomah, Washington and Clackamas Counties account for three-fifths of the state’s registered ZEVs – there may be opportunities to implement unique and innovative programs. However, the State already assumes a high level of ZEV penetration in the Portland region, and agencies in the region have so far generally focused on greening their own fleets instead of increasing consumer usage of ZEVs. It will likely take detailed analysis and coordination between local, regional and State agencies to identify what, if any, additional actions that the RTP could take to significantly increase adoption of clean vehicles and fuels and that are not duplicative of State policies and programs.

As noted above, the recommendations above are focused on implementing strategies that are identified by the Climate Smart Strategy as having a high impact on GHG reductions. It may also be possible to increase GHG reductions from the medium-impact strategies shown in Figure 1 above.

Next steps

Metro staff recommend that Metro Council and regional policy and technical advisory committees first identify what assumptions may need to be updated or revised to account for new information and changes to policies, strategies and other assumptions since 2018 and then identifying which high-impact and medium-impact strategies that have the greatest potential to reduce GHG emissions should be focused on in the update the Climate Smart Strategy.

Next steps include:

- Engaging JPACT and the Metro Council in updating the Climate Smart Strategy at a joint workshop on November 10 to build a shared understanding of the Climate Smart Strategy and state requirements to reduce per capita VMT as the way to demonstrate meeting GHG emissions reduction targets. **At the workshop, Metro staff will be asking for input on whether the assumptions underlying the region’s Climate Smart Strategy are realistic, how certain assumptions should be updated, and if new or updated policies and additional GHG reduction strategies that are not currently included in Climate Smart Strategy should be reflected in the updated strategy.** Initial feedback from agency partners on these questions is provided in the packet in Appendix C.

- Working with a consultant team to support greenhouse gas analysis in the 2023 RTP update, including some of the tasks listed below:
 - Estimating likely VMT per capita and related GHG reductions under the 2018 RTP and 2023 RTP using VisionEval, to help assess whether the RTP is on track to meet its targets for 2040 and 2045.
 - Conducting a sensitivity analysis of the additional VMT per capita and related GHG reductions that could result from increasing implementation of certain carbon reduction strategies.
 - Mapping how household-based VMT per capita varies across the region, which will help identify communities with higher and lower levels of per person transportation-related GHG emissions, as well as support the implementation of the Climate-Friendly and Equitable Communities rules and the updated Regional Mobility Policy.

3.2.3 Climate leadership policies

Climate change may be 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. The planet is warming and we have less and less time to act. Documented effects include warmer temperatures and sea levels, shrinking glaciers, shifting rainfall patterns and changes to growing seasons and the distribution of plants and animals.

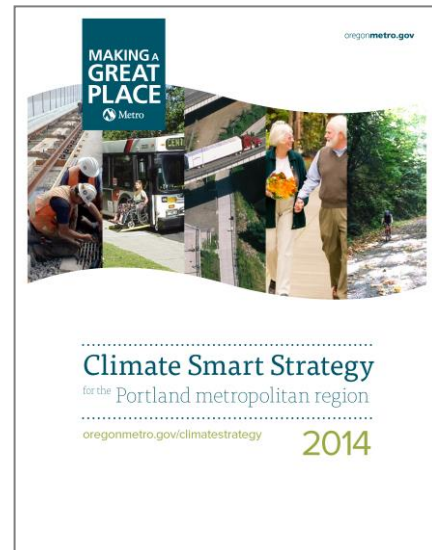
Warmer temperatures will affect the service life of transportation infrastructure, and the more severe storms that are predicted will increase the frequency of landslides and flooding. Consequent damage to roads and rail infrastructure will compromise system safety, disrupt mobility and hurt the region’s economic competitiveness and quality of life. Our ability to respond will have unprecedented impacts on our lives and our survival.

Transportation sources account for 34 percent of greenhouse gas emissions in Oregon, largely made up of carbon dioxide (CO₂). Since 2006, the state of Oregon has initiated a number of actions to respond including directing the greater Portland region to develop and implement a strategy for reducing greenhouse gas emissions from cars and small trucks.

3.2.3.1 Climate Smart Strategy (2014)

The Regional Transportation Plan is a key tool for the greater Portland region to implement the adopted Climate Smart Strategy and achieve greenhouse gas emissions reduction targets adopted by the Land Conservation and Development Commission in 2012 and 2017.

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 by 2035 to meet state targets. Adopted 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 2018 Regional Transportation Plan is a key tool for the greater Portland region to implement the adopted Climate Smart Strategy.

For more information, visit www.oregonmetro.gov/climatesmart

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 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.

3.2.3.2 Climate Smart Strategy policies

The Climate Smart Strategy is built around nine policies to demonstrate climate leadership by reducing greenhouse gas emissions from cars and small trucks while making our transportation system safe, reliable, healthy and affordable. The policies listed below complement other RTP policies related to transit, biking and walking, use of technology and system and demand management strategies.

Climate Smart Policies

- Policy 1** Implement adopted local and regional land use plans.
- Policy 2** Make transit convenient, frequent, accessible and affordable.
- Policy 3** Make biking and walking safe and convenient.
- Policy 4** Make streets and highways safe, reliable and connected.
- Policy 5** Use technology to actively manage the transportation system and ensure that new and emerging technology affecting the region's transportation system supports shared trips and other Climate Smart Strategy policies and strategies.
- Policy 6** Provide information and incentives to expand the use of travel options.
- Policy 7** Make efficient use of vehicle parking spaces through parking management and reducing the amount of land dedicated to parking
- Policy 8** Support Oregon's transition to cleaner fuels and more fuel-efficient vehicles in recognition of the external impacts of carbon and other vehicle emissions.
- Policy 9** Secure adequate funding for transportation investments that support the RTP climate leadership goal and objectives.

3.2.3.3 Climate Smart Strategy toolbox of potential actions

The responsibility of implementation of these policies and 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 a comprehensive toolbox of more than 200 specific actions that can be taken by the state of Oregon,

Metro, cities, counties, transit providers and others to support implementation. These supporting actions are summarized in the *Toolbox of Possible Actions (2015-2020)* adopted as part of the Climate Smart Strategy. The actions support implementation of adopted local and regional plans and, if taken, will reduce greenhouse gas emissions and minimize the region's contribution to climate change in ways that support community and economic development goals. The Climate Smart Strategy's *Toolbox of Possible Actions* was developed with the recognition that existing city and county plans for creating great communities are the foundation for reaching the state target and that some tools and actions may work better in some locations than others. As such, the toolbox does not mandate adoption of any particular policy or action. Instead, it emphasizes the need for many diverse partners to work together to begin implementation of the strategy while retaining the flexibility and discretion to pursue the actions most appropriate to local needs and conditions.

Local, state and regional partners are encouraged to review the toolbox and identify actions they have already taken and any new actions they are willing to consider or commit to in the future. Updates to local comprehensive plans and development regulations, transit agency plans, port district plans and regional growth management and transportation plans present ongoing opportunities to consider implementing the actions recommended in locally tailored ways.

3.2.3.4 Climate Smart Strategy monitoring

The Climate Smart Strategy also contained 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. If an assessment finds 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.

Appendix J reports on implementation progress since 2014, and found the 2018 Regional Transportation Plan makes satisfactory progress towards implementing the Climate Smart Strategy and, if fully funded and implemented, can reasonably be expected to meet the state-mandated targets for reducing per capita greenhouse gas emissions from passenger cars and small trucks (light-duty vehicles) for 2035 and 2040.

The analysis also found that more investment, actions and resources will be needed to ensure the region achieves the mandated greenhouse gas emissions reductions defined in OAR



Appendix J reports on implementation progress since 2014. The analysis found the 2018 RTP makes satisfactory progress towards implementing the Climate Smart Strategy, but more investment, actions and resources are needed to ensure the region achieves mandated greenhouse gas emissions reductions.

660-044-0060. In particular, additional funding and prioritization of Climate Smart Strategy investments and policies that substantially reduce greenhouse gas emissions will be needed.

3.2.3.5 Transportation preparedness and resilience

The topic of preparedness and resilience has broad implications across all sectors of the economy and communities throughout the region. Natural disaster can happen anytime, affecting multiple jurisdictions simultaneously. The region needs to be prepared to respond quickly, collaboratively and equitably, and the transportation system needs to be prepared to withstand these events and to provide needed transport for fuel, essential supplies and medical transport. Advance planning for post-disaster recovery is also critical to ensure that communities and the region recover and rebuild important physical structures, infrastructure and services, including transportation – it can make communities and the region stronger, healthier, safer and more equitable.

What are the risks we face?

Climate change, natural disasters, such as earthquakes, urban wildfires and hazardous incidents, and extreme weather events present significant and growing risks to the safety, reliability, effectiveness and sustainability of the region’s transportation infrastructure and services. Flooding, extreme heat, wildfires and severe storm events endanger the long-term investments that federal, state, and local governments have made in transportation infrastructure. Changes in climate have intensified the magnitude, duration and frequency of these events for many regions in the United States, a trend that is projected to continue. There is much work going on locally, regionally, statewide and across the country to address these risks.

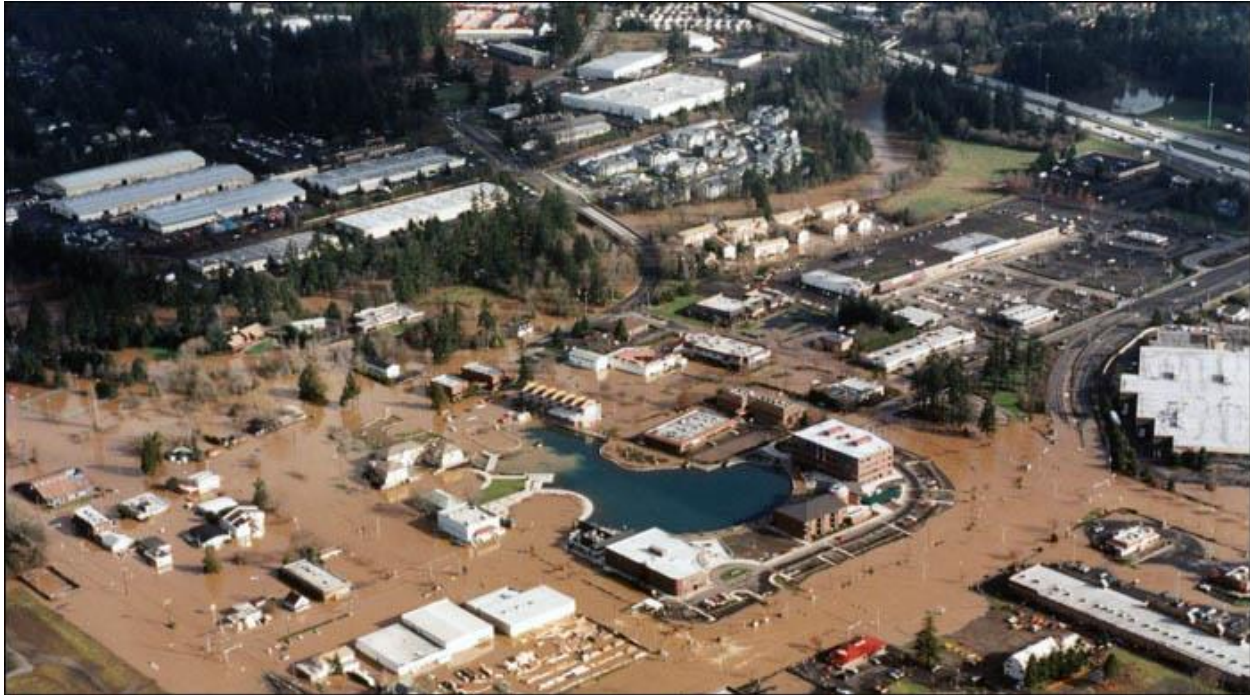
Regional collaboration and disaster preparedness

The Regional Disaster Preparedness Organization (RDPO) is a partnership of government agencies, non-governmental organizations, and private-sector stakeholders in the Portland metropolitan area collaborating to increase the region’s resilience to disasters. RDPO’s efforts span across Clackamas, Columbia, Multnomah, and Washington counties in Oregon and Clark County in Washington.

According to the 2013 Oregon Resilience Plan, Oregon’s buildings and lifelines (transportation, energy, telecommunications, and water/ wastewater systems) would be damaged so severely that it would take three months to a year to restore full service in areas such as the Portland region. More recently, a 2018 report from the Oregon Department of Geology and Mineral Industries (DOGAMI) on the Portland region describes significant casualties, economic losses and disruption in the event of a large magnitude Cascadia subduction zone earthquake.



The Regional Disaster Preparedness Organization (RDPO) is a partnership of government agencies, non-governmental organizations, and private-sector stakeholders in the Portland metropolitan area collaborating to increase the region’s resilience to disasters. For more information, visit www.rdpo.net.



While transportation infrastructure is designed to handle a broad range of impacts based on historic climate patterns, more planning and preparation for climate change, earthquakes and other natural disasters and extreme weather events is critical to protecting the integrity of the transportation system and improving resilience for future hazards.

Potential opportunities for future regional collaboration in support of transportation preparedness and resilience include:

- Partner with the RDPO to update the region’s designated Emergency Transportation Routes (ETRs) for the five-county area, which were last updated in 2006. These routes are designated to facilitate all-hazards emergency response activities, including those of medical, fire, law enforcement and disaster debris removal in the immediate aftermath of an earthquake or other major event. The project will use data from the DOGAMI study to apply a seismic lens to determine whether the routes have a high likelihood of being damaged or cut-off during an earthquake and determine whether other routes may be better suited to prioritize as ETRs as a result. Some considerations for emergency recovery will also be incorporated into the updated ETR criteria and recommendations for future work. See Chapter 8 (Section 8.2.3.10) for more information.
- Consider climate and other natural hazard-related risks during transportation planning, project development, design and management processes.
- Conduct a vulnerability assessment for the region, documenting climate and other natural hazard-related risks to the region’s transportation system and vulnerable populations, and potential investments, strategies and actions that the region can implement to reduce the vulnerability of the existing transportation system and proactively increase the transportation system’s resiliency.

- Optimize operations and maintenance practices that can help lessen impacts on transportation from extreme weather events and natural disasters. Examples include more frequent cleaning of storm drains, improved plans for weather emergencies, closures and rerouting, traveler information systems, debris removal, early warning systems, damage repairs and performance monitoring.
- Integrate green infrastructure into the transportation network when practicable to avoid, minimize and mitigate negative environmental impacts of climate change, natural disasters and extreme weather events.
- Protection and avoidance of natural areas and high value natural resource sites, especially the urban tree canopy and other green infrastructure, in slowing growth in carbon emissions from paved streets, parking lots and carbon sequestration and addressing the impacts of climate change and extreme weather events, such as urban heat island effects and increased flooding.
- Avoidance of transportation-related development in hazard areas such as steep slopes and floodplains that provide landscape resiliency and which are also likely to increase in hazard potential as the impacts of climate change increase.

Appendix B: New State clean vehicle and fuel strategies since 2018

Since 2018, the State has adopted new policies and programs to support clean vehicles and fuels in response to Executive Order 20-04.¹ The [Every Mile Counts](#) Program and its coordinated STS Multi-Agency Implementation Work Plan are focused on reducing greenhouse gas emissions and implementing the STS.

Recent actions include the formation of climate offices within ODOT and ODEQ and the statewide CFEC rulemaking by the LCDC and the Department of Land Conservation and Development (DLCD). In addition, several Oregon vehicles and fuels legislative actions and Environmental Quality Commission (EQC) rules are expected to be in place by the end of 2022 that will help greatly advance the STS goals to "clean up every mile" and associated air quality impacts:

1. Clean Car Standards Program (ZEV1) (EQC adopted in 2005)
2. Clean Fuels Program (CFP1) ([HB2186](#), 2009)
3. Clean Electricity Standard ([HB2021](#), 2021)
4. Advanced Clean Truck Rules (ACT) (EQC adopted in November 2021)
5. Climate Protection Program (CPP) (EQC adopted in December 2021)
6. Clean Fuels Program Expansion (CFP2) (EQC expected adoption in 2022)
7. Clean Car Standards Program Expansion (ZEV2) (EQC expected to initiate rulemaking mid-2022)

The first three are expected to achieve by 2026 a roughly 10 percent reduction in state GHG emissions. The Climate Protection Program is an overarching policy that will restrict sales of fossil fuel sales in the state across multiple sectors increasingly each year starting in 2022. The latter programs are critical to implementing that policy to ease the transition to a low carbon future for all vehicle groups. Some credit trading is allowed prior to 2030, which makes it hard to predict exact forecasts in the near term. The ZEV programs when fully implemented should roughly conform to the goals set out in [SB1044](#).

¹ https://www.oregon.gov/gov/Documents/executive_orders/eo_20-04.pdf



2023 Regional Transportation Plan Update

Climate Smart Strategy Update

Jurisdictional Partner Comments

October 2022

092722 Clackamas County Staff Comments on Climate Smart Strategies

1. Do you have specific feedback on the assumptions identified in Table 1 of the staff memo:

Transit Service – Use updated information from TriMet on assumptions on return of service. Document.

Employer Based Travel Options Programs – why are only 5.5% of workers receiving regular travel options programming? Why would we assume that it is more? How does this change with increased work from home options?

Household Based Travel Options Programs – The assumptions on this should change because they are dramatically different that they are today. The Climate Smart Plan should be clear on what specific actions / programs are needed to change the “trend” to the “assumption.”

Parking and Pricing Management – No recommended changes to the assumptions.

Pay As You Drive Insurance – The assumption should be reduced since PAYD insurance is not being used as was envisioned.

No Comment on - **Gas Prices; Electricity Prices; Commercial Fleet Age; Fleet Electrification; Commercial Fleet Share; Household Fleet Share**

Household Vehicle Age – Since vehicles are so expensive, it seems that 7 years is too low of a number.

2. Are there new or updated policies and additional carbon reduction strategies that are not currently included in the Climate Smart Strategy that should be reflected in the updated strategy?

Pricing – Can both Roadway Pricing, as being implemented by ODOT and Road User Charge Fee / VMT Fee across the region be “tested” for their impact on reducing VMT?

Increased Transit Service – How can Climate Smart discuss not just “more transit service” but type and where? What are the actions that need to be taken to get people to use the transit service?

Expanding Parking Management and Pricing – The assumptions for this do not need to be changed. The CFEC rules that limit mandated parking may create more demand for parking (since there is less available parking), which then will result in a greater need to manage the demand through pricing.

Plan and Build Multimodal Communities – There is a need to take actions to create jobs closer to where people live so that it will be easier for people to use multimodal options (which are better for shorter trips)

Take additional action to accelerate the adoption of clean vehicles and fuels – Create a high tax for environmental damage on internal combustion engine vehicles

3. What issues and policy questions are you interested in exploring as we update our strategy during this time of change and uncertainty?

1. Better understanding of how the ODOT Roadway Pricing will reduce VMT verses a VMT Fee/Road User Charge in the Metro area. Build the understanding of the laying of Roadway Pricing and its effectiveness on reducing VMT.
2. How the Climate Strategy could be influenced by taxes and incentives, instead of voluntary adoption of the strategies. Often the most successful strategies for bringing about real change

092722 Clackamas County Staff Comments on Climate Smart Strategies

are those based on taxes and incentives. Driving and greenhouse gas emissions is currently incentivized in many ways. For example, increasing the cost of greenhouse gas emissions and providing a very large incentive for driving zero or low emitting vehicles.

3. Land use –The current land use pattern is one of the most significant drivers of greenhouse gas emissions because our land use pattern relies upon driving far distances to get to jobs and services and limiting reduces walking and biking because facilities do not exist and the distances may be too far. The CFEC rules to parking minimums are a potential good start.
 - a. How can land use codes incentivize high density residential uses within ½ mile of fixed route transit or employment locations? Lower parking standard, higher allowable residential densities?
 - b. How can we quantify the benefit of implementing the new CFEC rules, such as the requirement to have capacity for EV charging.
4. Using VisionEval to assess different approaches to GHG reductions sounds like a good idea.
5. How can different vehicle registration fees, such as a very large vehicle registration fee on internal combustion vehicles, and no vehicle registration fee for no emission vehicles, influence the Climate Smart Strategies?
6. Impact of a VMT+EMISSIONS Charge – Assessing a VMT charge for internal combustion engines vehicles for the basis of cost of road improvements/maintenance/enforcement AND a very large greenhouse gas emissions charge. Low emission vehicles could be charged a fee bases on the cost of road improvements/maintenance/enforcement, and receive a large credit for the greenhouse gases that are not emitted.

4. **What opportunities do you see for the region to move forward should our analysis show we need to do more** to meet our VMT per capita reduction targets and climate goals?

While local land use changes to development codes are almost entirely under local control – that is the place to start, there also needs to be a better understanding of how to incentive builder/developers so places are built to their planned densities.

Depending on the outcomes of the analysis, local governments could consider adopting higher vehicle registration fees.

5. **Other comments or suggestions you would like to share?**

While the Climate Smart Strategies are all reasonable actions, Table 1 demonstrates that more needs to be done to achieve the various goals. What tools are needed to achieve effective change before it is too late? Incentives are needed for the implementation of measures that reduce greenhouse gas emissions and disincentives (carbon tax?) for existing approaches that result in production of greenhouse gases.

It would be helpful to know if the changes to the Transportation Planning Rule related the Climate Friendly and Equitable Communities will make an impact on the regions potential of achieving the goals set forth in the Climate Smart Strategies.

PBOT Comments to Kim on 9/12 RTP CSS presentation questions

September 26, 2022

PBOT Comments on Climate Smart Scenario memo from 9/14 TPAC-MTAC Workshop

Overall

We're concerned with the slow pace of Climate Smart Strategy (CSS) work, especially since so much of the work creating a revised Reference Case has already been done and could begin to be validated with TPAC. Failing to share an updated Reference Case undermines our ability to understand the magnitude of the VMT Gap in a timely manner and thus impedes discussion of scenario development reflective of the policies, programs and projects the RTP will need to prioritize to eliminate the gap. We are increasingly concerned that TPAC, MPAC, Metro Council, and JPACT will have inadequate time for the challenging conversations around road and parking pricing, parking reform, and TDM implementation that are likely necessary to close the VMT/capita gap and ensure compliance with 660-44-0020 requirements.

To help us and the other regional partners and their policymakers understand how and when these important issues will be discussed and our ability to iteratively deliberate and decide on key emergent questions and additional evaluation, please share at your earliest possible convenience with TPAC a specific process and schedule for discussion of:

- Assumption changes and a revised Reference Case
- VMT/capita Gap and any other assumptions (e.g., fuel and electricity prices and STS implementation, or lack thereof, especially around fleet transition and state pricing)
- Scenario development
- Scenario results discussion
- Metro's plan to use "best available science" to evaluate induced demand (i.e., what beyond-the-model tools will Metro use to address the induced demand weaknesses in the RTDM?)
- Use of scenario results in project evaluation

Assumptions in Table 1

We do not believe the transit service levels, PAYD insurance, and employee and household travel options participation rates are realistic given trends to date and should be revised to create a new draft Reference Case for TPAC review as soon as possible. Much of the work needed to support revising the assumptions has already been done by Metro staff, as provided the packet produced for the Expert Panel in June.

In addition, gas and electricity price, commercial fleet age, fleet electrification, commercial fleet share, household fleet share, and household vehicle age assumptions should be updated for the 2023 RTP to reflect more realistic number based on the best available data. For example, gas prices assumed by the STS and CSS for 2022 are more than double current gas prices, and the share of light duty passenger vehicles that are SUV's is four times the STS/CSS assumption. Recognizing that the state has some responsibility for updating these assumptions, the region should also be engaging with the state agencies to ensure any updated assumptions are reasonable.

It will also be essential to be updating and strengthening assumptions around the demand management roadway pricing and parking management mechanisms being deployed in the region and reflected in the

PBOT Comments to Kim on 9/12 RTP CSS presentation questions

September 26, 2022

RTP, given what the RCPS and other analyses from around the nation and industry have demonstrated (including our previous work on VisionEval) is likely needed to meet ambitious VMT/capita reduction targets.

We have questions about this language on pdf p. 160 in the September 14 TPAC packet:

“In support of the 2023 RTP update, Metro staff proposes to use VisionEval to conduct a preliminary analysis of VMT per capita and related GHG reductions under the 2018 RTP (as a next step), and will update TPAC and MTAC on the results at a future meeting, including whether the updated RTP seems likely to meet its VMT per capita and related GHG reduction targets.”

We would like to confirm that this is referring to the development of a new Reference Case? The “Climate Smart Proxy” is based on dramatically outdated assumptions; it’s critical that Metro share the evaluation based on a Reference Case using updated assumptions for each of the items in Table 1. Otherwise, the results are likely to be misleading. Also, conducting this “preliminary analysis” as soon as possible is highly desirable to give the region a sense of the VMT gap needing to be closed by the RTP to inform our other RTP workplan elements during the remainder of the update.

We also have concerns that VisionEval may not be the right tool to evaluate a project list, given its insensitivity to induced demand and VE’s inability to show changes in bicycle and pedestrian mode share outputs. Rather, it is likely better suited for use in framing up key policy and program approaches needed to be applied in conjunction with projects that will generate a higher utilization of multimodal infrastructure investments and help manage demand for low and no occupancy automobile trips.

New or Updated Policies

The 2023 RTP will need updated policies to reflect CFEC requirements, including a focus on VMT reduction and new parking reforms. Stronger road pricing, parking pricing, parking management, and mixed-use development requirements may be needed to put us on track to achieve targets, especially by 2030 which is when the scientific community is pointing to the need for significant reductions to avoid the most catastrophic outcomes from climate change.

The current language of the climate policies is not outcome oriented. We recommend revising the policies to focus on outcomes rather than process. Please see our comments on page 164 of the 9/14/22 TPAC packet, attached to the email.

Additional Carbon Reduction Strategies

As noted, the primary missing strategy in CSS is pricing, including demand management tolling, a regional and/or local Road User Charge to manage demand in the region above the gas tax replacement RUC, and parking pricing in centers and corridors across the region.

VE: VMT/Capita and GHG/capita actual figures >



Kim Ellis

to me, Eliot, Tom, Matt ▾

Fri, Jul 5, 6:43AM (3 days ago)



Good morning,

My apologies, I have been out of the office this week. The table below summarizes 2005 and 2045 values for population, VMT per capita per day and GHG emissions per capita per day by scenario.

Year	2023 RTP + STS	2023 RTP + AP	Target 1 & Target 2	2023 RTP + STS + current fleet
<i>Population</i>				
2005	1,347,761	1,347,761	1,347,761	1,347,761
2045	2,000,758	2,000,758	2,000,758	2,000,758
<i>VMT/capita/day</i>				
2005	16.5	16.5	16.5	16.5
2045	10.7	12.3	11.5	9.9
<i>GHG/capita/day</i>				
2005	9.5	9.5	9.5	9.5
2045	1.1	2.8	6.6	1.2

I have requested further documentation from our consultant regarding the STS PAYD rate/mile guidance from ODOT and will respond to that information request early next week when I am back in the office.

Thank you,

Kim

Kim Ellis, AICP (she/her)

Metro Planning, Development and Research

600 NE Grand Avenue, Portland OR 97232

www.oregonmetro.gov | Kim.ellis@oregonmetro.gov | 503-797-1617 (voicemail messages are delivered to my email)



TINA KOTEK
GOVERNOR

March 11, 2024

Julie Brown, Chair
Oregon Transportation Commission
355 Capitol Street NE, MS 11
Salem, OR 97301

Lee Beyer, Vice Chair
Oregon Transportation Commission
355 Capitol Street NE, MS 11
Salem, OR 97301

Chair Brown and Vice Chair Beyer,

Thank you for all your work to evaluate congestion pricing and project-based tolling in the Portland Metro Region. I appreciate your willingness to lean into difficult conversations, ask hard questions, and reevaluate our course of action when the time arises. Now is one of those times.

The state's path towards implementing tolling in the Portland metro area is uncertain, at best. After years of work, the challenges of implementing the Regional Mobility Pricing Project (RMPP) have grown larger than the anticipated benefits. Therefore, I believe it is time to bring the agency's work on the RMPP to an end and delay additional expenditures for implementation of tolling on I-205 to the future when the legislature can further evaluate and provide clearer direction on tolling. Taking this action today will allow the state to focus its limited resources on high priority needs and provide an opportunity for meaningful legislative conversations about alternative revenue sources in the 2025 legislative session.

Any delay to building tolling infrastructure in Oregon must not impact the collection of toll revenues for the Interstate Bridge Replacement project (IBR). ODOT and the Commission shall work with our partners in Washington to develop a transition plan to utilize the Washington State Department of Transportation's tolling infrastructure for IBR to keep this important project on track.

In 2023, at the urging of local jurisdictions and elected officials, I asked you to delay toll collection until 2026 so that ODOT could develop an updated finance plan for the Urban Mobility Strategy and a comprehensive report on the agency's work on equity impacts of tolling and traffic mitigation. A primary goal of the finance plan was to document the costs of the I-5 Rose Quarter Improvement and the I-205 Improvements projects and daylight the extent to which tolling revenues were assumed in their financing. The finance plan made clear that rising project costs and uncertainty around future toll revenues meant that the state did not have all the funding needed to proceed with the full strategy as originally envisioned. The finance plan also included costs associated with advancing the RMPP and the tolling program overall.

The purpose of the equity and mitigation report was to comprehensively document what steps had and had not been taken and to respond to ongoing concerns raised by Portland metro area legislators, local elected officials, and the public about traffic diversion and revenue sharing. The report was transparent, comprehensive, and reflected the state's commitment to extensive community engagement over many years. The report also highlighted that a toll program which keeps toll rates low enough for working families and raises enough funding for major projects would fail to meet expectations for local project funding and revenue sharing.

254 STATE CAPITOL, SALEM OR 97301-4047 (503) 378-3111 FAX (503) 378-8970

WWW.GOVERNOR.OREGON.GOV

Chair Brown and Vice Chair Beyer, Oregon Transportation Commission
March 11, 2024
Page 2

Our state has a dire need to diversify and grow transportation resources. As you know, ODOT faces catastrophic funding challenges which must be tackled head on in the 2025 legislative session. I support the OTC and the legislature's Joint Committee on Transportation's ongoing work to address the state's transportation needs and look forward to working in partnership with you to secure stable and reliable funding.

The decision to stop the work on the RMPP, and pause development of Oregon's toll collection program, is not one I come to lightly. I fully appreciate that canceling and delaying alternative funding tools will only make our challenges greater in the near term, but I am confident that a more robust conversation on funding options will yield greater understanding and direction for our future moving forward.

Thank you for your time and attention to this important matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Tina Kotek". The signature is fluid and cursive, with the first name "Tina" being more prominent than the last name "Kotek".

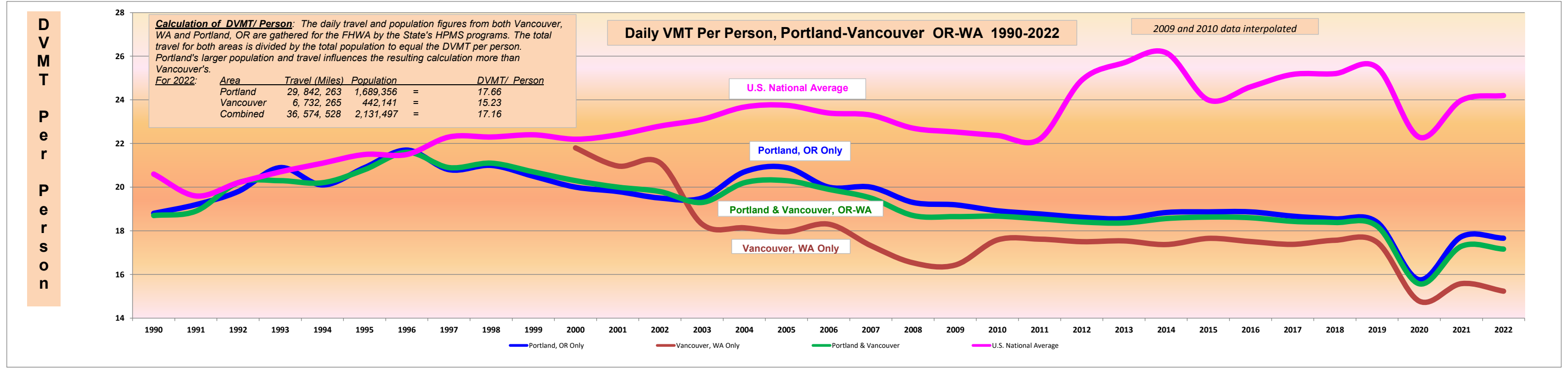
Governor Tina Kotek

cc: Oregon Department of Transportation Director Kris Strickler

Daily Vehicle Miles of Travel (DVMT) Per Person - 1990 To 2022

Portland, OR; Vancouver, WA; and Portland-Vancouver OR-WA Combined, Plus The U.S. National Average Data

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Portland, OR Only	18.8	19.2	19.8	20.9	20.1	20.9	21.7	20.8	21	20.5	20	19.8	19.5	19.5	20.7	20.9	20	20	19.3	19.19	18.92	18.77	18.62092	18.56	18.84	18.87	18.87	18.67	18.55	18.4	15.76	17.73	17.66
Vancouver, WA Only											21.8	20.97	21.12	18.3	18.134	17.96	18.305	17.32	16.53	16.43	17.58	17.62	17.50157	17.54	17.37	17.65	17.51	17.38	17.57	17.48	14.78	15.58	15.23
Portland & Vancouver	18.7	18.9	20.2	20.3	20.2	20.8	21.6	20.9	21.1	20.7	20.3	20	19.8	19.3	20.2	20.3	19.9	19.5	18.7	18.65	18.67	18.55	18.4065	18.36	18.56	18.63	18.6	18.43	18.38	18.22	15.57	17.29	17.16
U.S. National Average	20.6	19.6	20.2	20.7	21.1	21.5	21.5	22.3	22.3	22.4	22.2	22.4	22.8	23.10777	23.67397	23.75064	23.4	23.3	22.7	22.53	22.37	22.2	24.9	25.7	26.16143	24	24.6	25.17	25.2	25.49	22.29	23.98	24.2



Please Note: The sample geographic areas for VMT are based on the 'Census Defined Urban Areas' and change every 10 years, as the census data changes. These 'Census Defined Urban Areas' differ from the city boundaries. It is important to note that there is a time lag between when the census data was collected and the implementation of the new 'Census Defined Urban Area or Boundary'. In the above graph, the implementation of the 1990 Census boundary does not appear until 1993 for Portland, OR only (noted by the uptick in the curve in 1993). The use of the new 2000 Census Boundary did not occur until 2004, for Portland, OR only; note a similar increase upward in the graph in 2004. However, the data shown above for 2010 is based on the 2010 Census population and the updated Defined Urban Area or Boundary. The 2011-2020 figures likewise use the updated 2010 Census information and were adjusted for population changes in 2011-2020. 2021-2022 is based on the 2020 Census population.

2009-2022 Data Sources: The data for Portland, OR was received from the ODOT, Oregon Highway Performance Monitoring System (HPMS) office in Salem, Oregon. The information for Vancouver, WA was received from the Washington State DOT, HPMS office in Olympia, Washington. These data were the official state's submittals to the Federal Highway Administration's (FHWA) Office in Washington, D.C. The 2010-2020 data are based on the 2010 Census and updates. 2021-2022 is based on the 2020 Census.

1990-2008 Urban Areas & National Average Data Sources: The data is from information published by the U.S. Federal Highway Administration (FHWA) in Washington, D.C. The DVMT/ Person can be located in the FHWA's publication 'Highway Statistics': 4.4.5 Urbanized Area Summaries, Section 4.4.5.2, Selected Characteristics, Table HM-72. The website for the 'Highway Statistics' series is located at: <http://www.fhwa.dot.gov/policyinformation/statistics.cfm> The 2008 data is located at: <http://www.fhwa.dot.gov/policyinformation/statistics/2008/hm72.cfm> The 2008 and earlier National Average of DVMT/ Person, are calculated by dividing the 'Total DVMT' for all Federal-Aid Urban Areas, by total 'Estimated Population' as it appears on Sheet 9 of Table HM-72, which lists all the Federal-Aid Urbanized Areas in the U.S.

2009-2022 Urban Areas & National Average Data Sources: Figures were not published for 2009 by the FHWA. 2010 urban area data was published in Table HM-71, at: <http://www.fhwa.dot.gov/policyinformation/statistics/2010/hm71.cfm>. However, the data was based on the year 2000 population, it was not adjusted for 2010, and not useful in calculations. The FHWA did publish Table HM-71 in February 2013, with updated 2011 urban area data, located: <http://www.fhwa.dot.gov/policyinformation/statistics/2011/hm71.cfm>. The population and travel agree with information received from Oregon's and Washington's HPMS offices. In order to show a continuous graph line for 2009-10, the 2008 National DVMT/person information was averaged with the 2011 data. The 2011 national figure is the average for all 498 urbanized areas listed in the Table HM-71. 2012 urban area data was published in Table HM-71, at: <http://www.fhwa.dot.gov/policyinformation/statistics/2012/hm71.cfm>. However, since the data was based on the year 2000 population (i.e., identical issue with FHWA 2010 data), it was not included in these DVMT calculations. 2013 urban area data was published in Table HM-72, at: <https://www.fhwa.dot.gov/policyinformation/statistics/2013/hm72.cfm>. 2014 urban area data was published in Table HM-72, at: <https://www.fhwa.dot.gov/policyinformation/statistics/2014/hm72.cfm>. 2015 urban area data was published in Table HM-72, at: <https://www.fhwa.dot.gov/policyinformation/statistics/2015/hm72.cfm>. 2016 urban area data was published in Table HM-72, at: <https://www.fhwa.dot.gov/policyinformation/statistics/2016/hm72.cfm>. 2017 urban area data was published in Table HM-72, at: <https://www.fhwa.dot.gov/policyinformation/statistics/2017/hm72.cfm>. 2018 urban area data was published in Table HM-72, at: <https://www.fhwa.dot.gov/policyinformation/statistics/2018/hm72.cfm>. 2019 urban area data was published in Table HM-72, at: <https://www.fhwa.dot.gov/policyinformation/statistics/2019/hm72.cfm>. 2020 urban area data was published in Table HM-72, at: <https://www.fhwa.dot.gov/policyinformation/statistics/2020/hm72.cfm>. 2021 urban area data was published in Table HM-72, at: <https://www.fhwa.dot.gov/policyinformation/statistics/2021/hm72.cfm>. 2022 urban area data was published in Table HM-72, at: <https://www.fhwa.dot.gov/policyinformation/statistics/2022/hm72.cfm>.

"A **Federal-Aid Urbanized Area** is an area with 50,000 or more persons that, at a minimum, encompasses the land area delineated as the urbanized area by the Bureau of the Census." (from Sheet 8, in Table HM-71, as noted above). Portland-Vancouver, OR-WA is a Federal-Aid Urbanized Area (UZA-27). The geographic area for each component (the Oregon and Washington portions of the Portland-Vancouver data set) are uniquely defined by the FHWA.

February 2024, Contact - Alicia Wood, Research Center, Metro Regional Government, Portland, OR: alicia.wood@oregonmetro.gov



APPENDIX J

2018 Regional Transportation Plan

Climate Smart Strategy implementation and monitoring

December 6, 2018

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 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 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**](http://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.

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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 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 appendix 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 2018 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 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.

As part of the process, Metro, in partnership with the Oregon Department of Transportation, 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.



The 2018 Regional Transportation Plan is a key tool for the greater Portland region to implement the adopted Climate Smart Strategy.

For more information, visit
<http://www.oregonmetro.gov/climatesmart>

Strategies Evaluated and Findings

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 Since 2014

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. An overview of Metro implementation activities follows.

Metro implementation actions taken since adoption of Climate Smart Strategy

- Expanded Community Planning and Development Grant program criteria and eligibility to include Climate Smart policies and actions in local plans (2015)
- Advocated for increased funding for transit operations, transportation investment, transition to cleaner, low-carbon fuels and more fuel-efficient vehicles, cap-and-invest program and other Climate Smart Strategy actions in legislative agendas (2015-ongoing)
- Expanded Regional Travel Options Grant Program criteria and emphasis on climate smart investments and actions for FY 15-17 and FY 17-19 grant cycles (2015-17)
- Increased funding for effective Climate Smart investments, including optimizing built road capacity, bike and pedestrian safety retrofits, and new MAX and enhanced transit service through 2019-21 regional flexible fund allocation process (April 2017)
- 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)
- Initiated activities to support regional efforts to secure needed funding to build planned transportation investments needed to serve our growing and changing region (2018)
- 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)

CLIMATE SMART STRATEGY MONITORING

The Climate Smart Strategy and the more recent update to the Regional Transportation Plan 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 2018 Regional Transportation Plan addresses most aspects of transportation-related data reporting required under Oregon Revised Statutes (ORS) 197.301(i) (metropolitan service district performance measures) and Climate Smart Strategy monitoring required under Oregon Administrative Rules (OAR) 660-044-0060. The 2018 Urban Growth Report reports data required under ORS 197.296 and addresses most aspects of land use-related data required under ORS 197.301, including ORS 197.301(a) through (g). Metro delivers biennial reports to the Department of Land Conservation and Development (DLCD) that address ORS 197.301(h) and (i).

Climate Smart Strategy performance measures, monitoring targets and analysis tools

The Climate Smart Strategy performance measures and targets adopted for monitoring implementation were drawn from 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 evaluate the Climate Smart Strategy and outputs from the evaluation of the adopted strategy using a metropolitan version of ODOT's GreenSTEP software package (now called VisionEval).

The Climate Smart Strategy performance measures and monitoring targets were adopted with an acknowledgement that they will be reviewed during development of the 2018 Regional Transportation Plan to address new information, such as federal transportation performance-based planning rulemaking. At the time of adoption, Metro also anticipated transitioning from using ODOT's GreenSTEP software tool (VisionEval) to the Environmental Protection Agency's MOVES model for forecasting on-road mobile source greenhouse gas emissions in the region. This transition was anticipated because Metro maintains and implements MOVES to conduct federally-required air quality and other on-road vehicle emissions analysis, and does not have the expertise nor the resources necessary to maintain and implement VisionEval on an on-going basis. Further, significant methodological differences in how VisionEval and MOVES estimate on-road vehicle emissions do not allow for direct comparison of forecasted on-road vehicle emissions results.

More detailed information about the fleet and technology assumptions used in the 2018 RTP on-road vehicle emissions analysis and a comparative assessment of VisionEval and MOVES emissions estimation methodologies is provided in **Table 1** of this appendix.

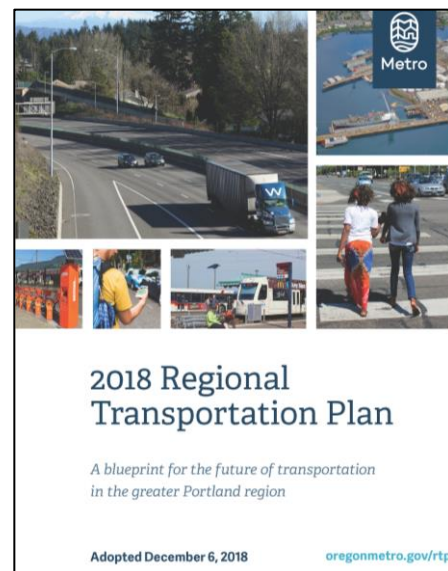
2018 Regional Transportation Plan

As required by the Land Conservation and Development Commission, the Climate Smart Strategy includes a set of performance monitoring targets for tracking progress through periodic updates to the Regional Transportation Plan (now every five years). The performance monitoring targets are not policy targets, but instead reflect a combination of the planning assumptions used to evaluate the 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 were reviewed before being incorporated in **Table 2** of this appendix. Table 2 documents progress implementing the strategy since 2014, using observed data sources to the extent possible for the 2015 Base Year, and expected progress that would be achieved if planned projects included in the 2018 Regional Transportation Plan financially constrained list are fully implemented by 2040.

Key findings from the 2018 Regional Transportation Plan

The 2018 Regional Transportation Plan makes satisfactory progress towards implementing the Climate Smart Strategy and, if fully funded and implemented, 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 2035 and 2040.



For more information, visit
<http://www.oregonmetro.gov/rtp>

Key findings include:

1. The RTP exceeds most Climate Smart Strategy performance monitoring targets as shown in Table 2.

- By 2040, the plan is expected to **exceed the target for transit service hours** resulting from significantly expanded coverage and frequency of transit service throughout the region.
- By 2040, the plan is expected to **exceed the target for households living in walkable mixed-use areas.**
- By 2040, the plan is expected to **exceed the target for new housing built through infill and redevelopment** in the urban growth boundary.
- By 2040, the plan is expected to **exceed the target for trips made biking** each day and **makes progress toward the target for trips made walking** each day.
- By 2040, the plan is expected to **exceed the target for miles of biking each day** per capita and **make progress toward the target for miles walking each day per capita.**
- By 2040, the plan is expected to **exceed the target for work trips occurring in areas with actively managed parking** and **makes progress toward the target for non-work trips.**

2. The RTP makes progress toward the Climate Smart Strategy performance monitoring targets, but is not expected to meet regional policy targets for vehicle miles of travel, mode share and completion of the active transportation network by 2040, as shown in Chapter 7 of the plan.

- By 2040, the plan is expected to **achieve a 4 percent reduction in daily vehicle miles traveled (VMT)** per person, making progress toward the 10 percent per capita VMT reduction target in the RTP.
- By 2040, the plan is expected to **complete 69 percent of the planned regional sidewalk network and 63 percent of the planned on-street regional bikeway network.** Significant gaps will remain within 2040 centers and on arterial roadways in the region.
- By 2040, **all designated 2040 regional centers** are expected to experience relatively large increases in biking, walking, transit and shared ride mode share, and **meet or exceed their respective mode share targets.**
- By 2040, **the plan is not expected to achieve RTP policy targets to triple biking, walking and transit mode share region-wide.** However, the City of Portland is expected to experience a relatively large increase in biking, walking and transit mode share for travel within the City of Portland, increasing from 26 percent to 32 percent between 2015 to 2040.

Other parts of the region are expected to experience more modest increases in biking, walking and transit mode share. East Multnomah County (outside the city of Portland) biking, walking and transit mode share is expected to grow from 13.6 percent in 2015 to 15.1 percent in 2040. Urban Clackamas County biking, walking and transit mode share is expected to grow from 12 percent in 2015 to nearly 14 percent in 2040. Urban Washington County biking, walking and transit mode share is expected to grow from 11 percent in 2015 to 13 percent in 2040.

3. The RTP supports state goals to reduce greenhouse gas emissions from all sources and is expected to meet state-mandated targets for reducing per capita greenhouse gas emissions from cars and small trucks for 2035 and 2040.

- By 2040, the plan, together with advancements in fleet and technology, is expected to **reduce total annual greenhouse gas emissions from all on-road vehicles by 19 percent** (compared to 2015 levels) and **annual per capita greenhouse gas emissions from all on-road vehicles by 40 percent** (compared to 2015 levels).
- By 2040, the plan, together with advancements in fleet and technology, is expected to **reduce total annual greenhouse gas emissions from passenger cars and passenger trucks by 27 percent** (compared to 2015 levels) and **reduce annual per capita greenhouse gas emissions from passenger cars and passenger trucks by 46 percent** (compared to 2015 levels).

The above findings are all described in Chapter 7 of the 2018 RTP. Due to differences in emissions analysis tools, the 2018 RTP greenhouse gas emissions estimates are not directly comparable to the state-mandated greenhouse gas emissions reduction targets that were set using VisionEval. However, the findings above demonstrate the region is making satisfactory progress implementing the Climate Smart Strategy. The findings also demonstrate that more investment, actions and resources will be needed to ensure the region achieves the mandated greenhouse gas emissions reductions defined in OAR 660-044-0060. In particular, additional funding and prioritization of Climate Smart Strategy investments and policies that substantially reduce greenhouse gas emissions will be needed.

Overview of Fleet and Technology Assumptions Used in 2018 Regional Transportation Plan Emissions Analysis

This section provides an overview of the fleet and technology assumptions used in the 2018 RTP on-road vehicle emissions analysis. The emissions reported are for vehicle travel occurring within the federally-designated metropolitan planning area boundary (MPA) regardless of where trips begin or end. The on-road vehicle emissions estimates published in association with the 2018 RTP update were produced within a software framework that combines the regional transportation model with EPA's MOVES model, version MOVES2014a. A newer version of MOVES (MOVES2014b) has since been released, but it should be noted that the improvements incorporated into this update pertain almost exclusively to estimates of non-road emissions and are, therefore, not relevant to this analysis.

Metro's current implementation of MOVES was developed for air quality conformity purposes in accordance with all pertinent EPA guidance included in the document, "Using MOVES to Prepare Emission Inventories in State Implementation Plans and Transportation Conformity: Technical Guidance for MOVES2010, 2010a and 2010b" (April 2012). The sections below describe several key assumptions regarding the regional on-road vehicle fleet and its emissions characteristics.

Fleet composition

The MOVES input files representing the makeup and age of the fleet (Source Type Population, Age Type Distribution) were developed using:

1. passenger car and light truck registration data from an Oregon Department of Motor Vehicles fleet database provided by Oregon Department of Environmental Quality; and
2. a MOVES run at the national scale to develop estimates for non-passenger vehicles.

These are assumed to be constant over time.

Fuels

The MOVES input files representing the fuels in use in the region (Fuel Formulation, Fuel Supply) were provided by Oregon DEQ and account for the Oregon Clean Fuels Program.

Fuel economy

The assumed average fuel economy of the fleet is based on federal regulations in place at the time of release of the current version of MOVES, July 2014.¹ Most notable among these are:

- Tier 3 emission standards that phase in beginning in 2017 for cars, light-duty trucks, medium-duty passenger vehicles, and some heavy-duty trucks, and Tier 3 fuel standards that require lower sulfur gasoline beginning in 2017.
- Heavy-duty engine and vehicle greenhouse gas regulations that phase in during model years 2014-2018.
- The second phase of light-duty vehicle greenhouse gas regulations that phase in for model years 2017-2025 cars and light trucks.

While no additional fuel economy improvements are assumed beyond model year 2025, the average fuel economy of the fleet is assumed to increase continually due to anticipated fleet turnover.

Metro will monitor future changes to federal greenhouse gas regulations and Corporate Average Fuel Economy (CAFE) standards in collaboration with DLCD, DOE, DEQ and ODOT to identify and recommend any necessary adjustments for future analysis.

Inspection/maintenance programs

Metro's emissions estimates account for the presence of vehicles in the region subject to Oregon and Washington's inspection/maintenance programs as well as non-inspected vehicles.

Hybrid/electric vehicles

Metro's emissions estimates do not account for the presence of hybrid, electric, or hybrid electric vehicles in the region. No reliable base year data were available at the time to inform development of fleet composition inputs and, with respect to future year estimates, EPA conformity-related guidance does not allow for assumed increases in market penetration of vehicles powered by "alternate fuels" absent specific regulatory requirements.

Metro will work with DLCD, DOE, DEQ and ODOT to better account for these vehicles in future analysis consistent with [Oregon's Electric Vehicle Strategy](#) and [Executive Order No. 17-21](#), signed by Governor Brown on November 6, 2017.²

California LEV/ZEV standards

Metro's emissions estimates account for Oregon's adoption of the California low emission vehicle (LEV) standards and zero emission vehicle (ZEV) program.³

The latest zero emission regulations apply to new cars and light-duty trucks and will significantly

¹ Information derived from "EPA Releases MOVES2014 Mobile Source Emissions Model, Questions and Answers," July 2014.

² Information about the strategy can be found at: www.goelectric.oregon.gov/our-strategy

³ Information about Oregon's Low Emission Vehicles Regulations can be found at: www.oregon.gov/deq/aq/programs/Pages/ORLEV.aspx

increase the number of emission-free vehicles delivered to Oregon beginning with the 2018 model year. It is difficult to predict how many zero emission vehicles the rules will bring to Oregon. At the same time Oregon's Environmental Quality Commission adopted the zero emission vehicle rules, the commission also adopted California's Low Emission Vehicle III regulations. These rules mirror regulations adopted nationwide by the U.S. Environmental Protection Agency. Both state and federal rules require the greenhouse gas emissions of new light-duty vehicles to average an equivalent of 54.5 miles per gallon by 2025.

Metro will monitor future changes to these standards in collaboration with DLCD, DOE, DEQ and ODOT to identify and recommend any necessary adjustments for future analysis.

Comparative Evaluation of VisionEval and MOVES Emissions Estimation Methodologies

The greenhouse gas emissions targets were set for the Portland metropolitan region using ODOT's VisionEval (previously called GreenSTEP or RSPM) software tool. Given that methodological differences exist between VisionEval and Metro's approach that combines the regional transportation model (RTM) with MOVES (henceforth referred to as "RTM + MOVES"), it is important to compare and contrast key assumptions and inputs.

At the most fundamental level, VisionEval and RTM + MOVES operate at different analytical scales and have different core sensitivities. The level of analysis at which VisionEval is situated can be described as strategic, wherein certain input data and behavioral responses are handled in a relatively generalized fashion in order to facilitate analysis of a wide range of potential policies and scenarios within reasonable setup and run times. VisionEval is intended primarily for assessment of aspirational policies, as well as exploration of potential effects of major shifts in travel preferences and behavior, that would be needed to reach statewide greenhouse gas emissions reduction goals (i.e. "what would it take?").

VisionEval relies on a combination of national data sources, such as the National Household Travel Survey and U.S. Census data and peer-reviewed research in establishing its central logic and assumptions regarding household travel choices. It represents regional transportation system performance by way of aggregate metrics rather than network-level simulations. VisionEval estimates potential effects of a number of policy mechanisms and emerging technologies, including transportation demand management and individualized marketing programs, eco-driving initiatives and participation, car sharing, pay-as-you-drive insurance and system management and operations strategies that can reduce system delays, such as ramp metering, incident response, variable speed limits and traffic signal optimization.

In contrast, RTM + MOVES operates at a more targeted scale and is intended primarily for analysis of proposed transportation projects at the regional and corridor levels. The regional transportation model includes auto, transit, freight and bicycle networks that explicitly represent travel conditions based on specified packages of projects as well as policies related to parking charges, transit fares, and land use characteristics. The model uses a robust regional household travel survey, last completed in 2011 in partnership with ODOT and other Oregon metropolitan planning organizations, as the basis for its representations of traveler preferences and sensitivities.

In accordance with established national best practice on appropriate use of models of this type, a fundamental assumption in RTM + MOVES is that attitudes influencing travel decision-making remain constant over time. Further, without observed data as scientific evidence, it is not considered appropriate to estimate effects of previously nonexistent policies, programs, or travel modes in the regional transportation model. As a result, RTM+MOVES does not currently account for the types of policies, programs and technological advances discussed previously that were assumed in VisionEval when setting the region's greenhouse gas emission reduction targets for 2035 and 2040.

MOVES, for its part, is configured for use in conformity determinations in the current RTM + MOVES framework, resulting in a series of fleet and technology assumptions that are collectively somewhat conservative when compared to VisionEval. The fleet mix and vehicle age distributions do not change over time, hybrid and/or electric vehicles are not currently accounted for and assumptions regarding average fuel economy are limited to standards and policies set forth in existing federal and state legislation.

Table 1 outlines key inputs to, and fundamental definitional differences between, the VisionEval and RTM + MOVES tool sets where the analysis of greenhouse gas emissions reduction strategies is concerned.

Table 1. Comparison of Key Greenhouse Gas Emissions Estimation Assumptions and Inputs

	Year	VisionEval / RSPM	Regional Transportation Model + MOVES	
Model version(s)		RSPM v3.0	Kate v2.0 (transportation model), MOVES2014a	
Vehicle activity captured		VMT from households that live within the MPA boundary regardless of where driving occurs	All VMT occurring within the MPA boundary regardless of where trips begin and end	
GHG emissions captured		Fuel production, including EV/PHEV electricity generation, and vehicle operation (“well to wheel”)	Vehicle operation (“tank to wheel”)	
Vehicles analyzed		Light-duty- vehicles only	Passenger vehicles, light-duty trucks and freight trucks	
Fleet mix			Passenger vehicles	All vehicles
	2010	54.5% passenger car 45.5% light truck	58.0% passenger car	49.3% passenger car
	2015	-	42.0% passenger truck	47.6% light truck
	2027	-		3.1% freight truck
	2035	70% passenger car 30% light truck	(assumed to be constant over time)	(assumed to be constant over time)
2040	-			
Average vehicle age (age distributions available upon request)	2010	10.5 years light-duty vehicle	9.5 years passenger car	
	2015	-	9.7 years passenger truck	
	2027	-		
	2035	8.4 years light-duty vehicle	(assumed to be constant over time)	
	2040	-		
Fuel mix VisionEval: 2035 shares unavailable but are assumed to reflect a 10% reduction in carbon intensity from 2015 and a 4.4% share of electric and plug-in hybrid electric vehicles	2010	88% gas, 2.2% diesel, 9.8% ethanol	-	
	2015	-	97.7% gas, 0.7% diesel, 1.6% E-85	
	2027	-	91.3% gas, 1.1% diesel, 7.6% E-85	
	2035	-	-	
	2040	-	86.9% gas, 1.5% diesel, 11.6% E-85	

	Year	VisionEval / RSPM	Regional Transportation Model + MOVES	
Average fuel economy (miles/gallon)			Passenger vehicles	All vehicles
	2010	21.8	-	-
	2015	-	20.9	18.3
	2027	-	28.3	23.7
	2035	54.0	-	-
	2040	-	35.9	28.4
MOVES: internal combustion engines only VisionEval: internal combustion, electric and hybrid engines				
Fuel carbon intensity	2010	90.4	71.82 gas, 73.98 diesel, 71.09 E-85	
	2015	-	(baseline national average; values specific to local fuels and modeled years unavailable)	
	2027	-		
	2035	72.3		
	2040	-		
MOVES: grams CO ₂ /Mj VisionEval: grams CO ₂ Equivalent/Mj				
Average GHG emissions rate (grams CO ₂ Equivalent/mile)			Passenger vehicles	All vehicles
	2010	504	-	-
	2015	-	419	487
	2027	-	303	368
	2035	168	-	-
	2040	-	234	303
Rates are fleet-wide composites				

Source: ODOT and Metro

Recommendations for future performance 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.

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 2. Climate Smart Strategy Implementation and Performance Monitoring

This table documents expected progress implementing the Climate Smart Strategy, using observed data sources to the extent possible for the RTP 2015 Base Year, and expected progress that would be achieved by 2040 if planned projects included in the 2018 RTP financially constrained list are fully implemented together with anticipated improvements in fleet and technology. Fleet and technology assumptions used in the analysis are described in the previous section.

	Climate Smart Strategy Baseline (2010)	Climate Smart Strategy Monitoring Target (2035)	2018 RTP Base year (2015)	2018 RTP Constrained (2040)	2018 RTP Strategic (2040)
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 ¹	26%	37%	41%	47%	48%
b. New residential units built through infill and redevelopment in the UGB	58%	65%	76%	78%	78%
c. New residential units built on vacant land in the UGB	42%	35%	24%	22%	22%
d. Acres of urban reserves	Not applicable	12,000	Not applicable	4,739	4,739
e. Daily vehicle miles per capita ²	19	17	13	12.4	12.3
2. Make transit convenient, frequent, accessible and affordable					
a. Daily transit service revenue hours (excluding C-TRAN service hours)	4,900	9,400	5,700	9,500	11,700
b. Share of households within 1/4-mile all day frequent transit service ³	30%	37%	48%	65%	71%
c. Share of low-income households within 1/4-mile all day frequent transit service ³	39%	49%	59%	74%	79%
d. Share of employment within 1/4-mile all day frequent transit service ³	41%	52%	58%	76%	82%
3. Make biking and walking safe and convenient					
a(1). Daily trips made walking	505,000	768,000	461,000	650,000	647,000
a(2). Daily trips made biking	179,000	280,000	232,000	348,000	344,000
b(1). Per capita biking miles per week	2.1	3.4	3.5	4.2	4.2
b(2). Per capita pedestrian miles per week	1.3	1.8	1.4	1.4	1.4
c(1 and 2). See 4a(2) and 4a(3) below	See 4a(2) and 4a(3) below				
d(1). New miles of bikeways ⁴	623 existing miles	421	760 existing miles	243	320
d(2). New miles of sidewalks (on at least one side of street) ⁴	5072 existing miles	Data not available	5072 existing miles	360	500
d(3). New miles of regional trails ⁴	229 existing miles	140	250 existing miles	174	253
4. Make streets and highways safe, reliable					
a(1). Fatal and severe injury crashes - motor vehicles ⁵	398	199	406	No forecast data	No forecast data
a(2). Fatal and severe injuries - pedestrians ⁵	63	32	78	No forecast data	No forecast data
a(3). Fatal and severe injuries - bicyclists ⁵	35	17	35	No forecast data	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	No forecast data
c. Share of freeway lanes blocking crashes cleared within 90 minutes	Data not available	100%	Data not available	No forecast data	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	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	No forecast data
6. Provide information and incentives to expand the use of travel options					
a. Share of households participating in individual marketing	9%	45%	9%	No forecast data	No forecast data
b. Share of workforce participating in commuter programs	20%	30%	20%	No forecast data	No forecast data

	Climate Smart Strategy Baseline (2010)	Climate Smart Strategy Monitoring Target (2035)	2018 RTP Base year (2015)	2018 RTP Constrained (2040)	2018 RTP Strategic (2040)
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%	25%	32%	32%
a(2). Share of nonwork trips occurring in areas with actively managed parking	8%	30%	7%	23%	23%
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%	Data not available	Not evaluated	Not evaluated
a(2). Share of registered light trucks that are electric or plug-in-hybrid electric	1%	2%	Data not available	Not evaluated	Not evaluated
b. Share of households using pay-as-you-go insurance	1%	40%	Data not available	Not evaluated	Not evaluated
9. Secure adequate funding for transportation investments					
a. Address local, regional, and state transportation funding gap	Not evaluated		Regional funding discussions are under way		
10. Demonstrate leadership on climate change					
a. Region-wide annual tons per capita greenhouse gas emissions (MTCO _{2e}) from all on-road vehicles within the metropolitan planning area boundary	Not evaluated		3.28	1.95	1.94
b. Region-wide annual tons per capita greenhouse gas emissions (MTCO _{2e}) from passenger vehicles within the metropolitan planning area boundary ⁶	Not evaluated		2.61	1.40	1.39

Table Notes

- 1 Climate Smart Strategy values are derived from ODOT's GreenSTEP model (VisionEval).
- 2 Direct comparisons between Climate Smart Strategy values and 2018 RTP values should not be made because different analytic tools have been used to derive these values. Climate Smart Strategy values are derived from ODOT's GreenSTEP model (VisionEval); 2018 RTP values are derived from Metro's regional travel model.
- 3 2018 RTP values reflect households within 1/4-mile bus, 1/3-mile streetcar, and 1/2-mile light rail.
- 4 Climate Smart target reflects number of miles of new bikeways and trails for projects identified as 'active transportation' projects in the 2014 RTP. RTP 2040 Constrained and Strategic miles of new bikeways, sidewalks and trails reflect all miles of bikeways, sidewalks and trails from any investment category that includes these elements, and irrespective if the project helps complete the regional active transportation network.
- 5 Climate Smart Strategy target reflects the 50% reduction target adopted in 2014 RTP. The 2018 RTP includes a target of zero fatal and severe injury crashes by 2035. The region does not currently have a safety predictive model to forecast this information, but will track progress toward the target through periodic RTP updates as required by federal transportation performance management requirements. Data shown for 2018 RTP Base Year (2015) reflects the annual average number of fatal and severe injury crashes reported by the Oregon Department of Transportation for the years 2011-2015.
- 6 Direct comparisons between Climate Smart Strategy values and 2018 RTP values should not be made because different analytic tools. Climate Smart Strategy values are derived from ODOT's GreenSTEP model (VisionEval) and include passenger cars, passenger trucks and light commercial vehicles; 2018 RTP values are derived from Metro's regional travel demand model and EPA-approved MOVES2014a model and include passenger cars and passenger trucks.

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Oregon Statewide Transportation Strategy

A 2050 Vision for Greenhouse Gas Emission Reduction

2018 Monitoring Report



Oregon Department of Transportation

April 19, 2018

2018 Monitoring Report**Statewide Transportation Strategy: A 2050 Vision for Greenhouse Gas Emissions Reduction**

The purpose of this document is to report on the Oregon Department of Transportation's (ODOTs) progress implementing the Statewide Transportation Strategy (STS) since 2013. In the past five years, ODOT and others in the state have contributed to helping move Oregon in the direction of the STS vision. ODOTs continued commitment to sustainability and the environment is demonstrated through implementation actions that support the STS vision today and into the future.

More work is needed if the vision is to be fully realized, including contributions by the Oregon Legislature, other state agencies, counties and cities, the private sector, and the people who live, work, and/or play in Oregon.

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1.0 Introduction

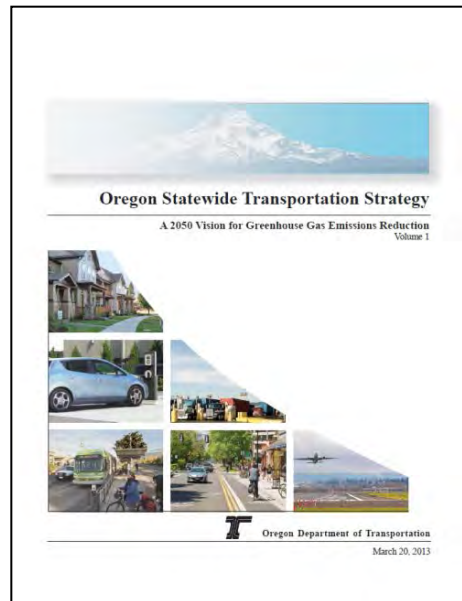
The *Oregon Statewide Transportation Strategy: A 2050 Vision for Greenhouse Gas Emissions Reduction* (STS) was initiated out of legislative direction to examine ways that the transportation sector can reduce greenhouse gas (GHG) emissions and help achieve Oregon’s GHG reduction goals. The document includes a mix of transportation technology, operations, and mode choice options that, along with land use elements and pricing strategies, can result in substantially fewer emissions from the transportation sector. Successful implementation of the STS requires actions at the national, state, local, and personal level across industry and government. In recognition of the Oregon Department of Transportation’s (ODOTs) role in achieving the reductions, the agency created a Short-Term Implementation Plan in 2014. The five-year Short-Term Implementation Plan addressed seven different focus areas ranging from transportation planning to intelligent transportation systems.

This report addresses the ODOT led actions contained in the Short-Term Implementation Plan, describes additional efforts by the agency, and provides a summary of progress towards achieving the overall STS vision.

2.0 Background

2.1 Oregon Statewide Transportation Strategy

In 2010, the Oregon Legislature passed Senate Bill 1059 (Chapter 85, Oregon Laws 2010, Special Session), directing the Oregon Transportation Commission to develop a statewide transportation strategy to aid in achieving Oregon’s GHG emissions reduction goals.¹ In accordance, the *Oregon Statewide Transportation Strategy: A 2050 Vision for Greenhouse Gas Emissions Reduction* was completed in 2012.² The process leading up to the STS was unique. It was the first statewide planning effort targeting a single goal (GHG emission reduction) and spanning the authority of multiple state agencies. No other state had fully engaged in such an effort. Stakeholder opinions varied from adamant support of the effort to fundamental disbelief in climate change and the need to reduce GHG emissions.



The first step in the development of the STS was the formation of stakeholder groups to guide the process. The Commission Chair at the time, Gail Achterman, took on the leadership role of the STS Policy

¹ 2015 ORS 468A.205. Oregon Legislature. Accessed February 2018. <https://www.oregonlaws.org/ors/468A.205>

² *Oregon Statewide Transportation Strategy: A 2050 Vision for Greenhouse Gas Emissions Reduction*. Oregon Department of Transportation. Accessed February 2018.

https://www.oregon.gov/ODOT/Planning/Documents/Oregon_Statewide_Transportation_Strategy.pdf

Advisory Committee. Other members included commissioners from the Environmental Quality Commission, other state agencies, high-level elected officials, advocates and more. Technical groups were also formed to vet assumptions and work analysis details. Technical members included ODOT staff and staff from other state agencies, as well as representatives from Metropolitan Planning Organizations (MPOs), counties, cities, universities, and advocacy organizations.

These groups helped to determine the scope and focus of the STS. Several assumptions had to be made, including how to define “transportation sector.” The transportation sector was defined as including the movement of people and goods on all modes (e.g. car, truck, rail, air). Within the transportation sector, the groups chose to examine strategies including: advancements in engines and fuels, other technology, operational improvements, options for biking, walking, public transportation and other modes, as well as how land use patterns can impact travel, and options for pricing the transportation system.

Each strategy was examined to determine its GHG reduction potential. This was done using a scenario planning process. In scenario planning, different future scenarios are compared to business as usual - i.e. changes in policies and investments are compared to a continuation of what we are doing today. Impacts were quantified by using the GreenStep (Greenhouse gas Strategic Transportation Energy Planning) model, which has been adopted nationally. The tool also accounted for external factors that influence travel such as population, gas prices, and income.³

The stakeholder groups guiding the process recognized the need to understand impacts to other outcomes beyond GHG emissions, such as health and equity. For example, changes to household costs was one of the primary outcomes the stakeholder groups looked to in assessing how hard to push on certain strategies, such as pricing. A majority of the 2.5 year STS development process was spent on modeling and analysis. Extensive research was conducted and the technical groups spent hours debating and agreeing on inputs. The policy groups then vetted the political and practical plausibility of the assumptions. Through the cooperative analysis process it became clear that no single solution was the answer, and that a multi-faceted and aggressive approach was needed from all sectors to reduce transportation related emissions.

The analysis process included broad assumptions for things like the proportion of electric vehicles in the fleet by 2050. The document was formed around these assumptions, where actions were identified that were thought to help achieve those levels. Six categories of strategies and 133 elements were identified and included in the STS. The categories included:

- **Vehicle and Engine Technology Advancements** – Strategies in this category increase the operating efficiency of multiple transportation modes through a transition to more fuel-efficient

³ *GreenSTEP & RSPM Model Version 3.5 Technical Documentation*. Oregon Department of Transportation. Accessed February, 2018. <https://www.oregon.gov/ODOT/Planning/Documents/GreenSTEP-RSPM-Documentation.pdf>

vehicles, improvements in engine technologies, and other technological advancements. Example elements include Zero Emission Vehicle (ZEV) programs, electric vehicle charging infrastructure, and fleet turnover to a greater share of electric or low carbon fuel vehicles. Many of the elements in this category require legislative action, are under the authority of the Department of Environmental Quality and Oregon Department of Energy, or are reliant on market forces to drive change.

- **Fuel Technology Advancements** – This category contains improvements in vehicle efficiency and reductions in the carbon intensity of fuels and electricity used to power vehicles. Strategies in this category increase the operating efficiency of transportation modes through transitions to fuels that produce fewer GHG emissions or have lower lifecycle carbon intensity. Example elements include Clean Fuels Standards, and transitioning to low carbon renewable fuels. Many of the elements in this category require federal programs, legislative action, are under the authority of the Department of Environmental Quality and Oregon Department of Energy, or are reliant on market forces to drive change.
- **Systems and Operations Performance** – Strategies in this category address intelligent transportation systems, air traffic operational improvements and other innovative approaches to improving the flow of traffic, reducing delay on transportation systems, and providing travelers with information that helps them drive more fuel efficiently or avoid significant delays. Strategies in this category improve the efficiency of the transportation system and operations through technology, infrastructure investment, and operations management. Example elements include in-car displays that notify the driver of their fuel efficiency as they travel, providing real time information on crashes and delays, promoting vehicle-to-vehicle communications, and supporting autonomous vehicles. Many of these elements are under the authority of the private sector, ODOT, local jurisdictions, and Oregon Department of Aviation, or are reliant on market forces to drive change.
- **Transportation Options** – This category contains strategies for providing infrastructure and options for public transportation, bicycle, and pedestrian travel, enhancing transportation demand management programs, shifting to more efficient modes of goods movement, and providing alternatives to certain air passenger trips. This category encourages a shift to transportation modes that produce fewer emissions and provide for the more efficient movement of people and goods. Example elements include providing park-and-ride facilities, promoting ride-matching services, adding biking and walking infrastructure, enhancing passenger rail services, and a significant growth in public transportation service. Many of these elements are under the authority of ODOT, local jurisdictions, transit agencies, and Oregon Department of Aviation, or are reliant on market forces to drive change.
- **Efficient Land Use** – Strategies in this category focus on infill and mixed-use development in urban areas to reduce demand for vehicle travel, expand non-auto travel mode choices for

Oregonians, and enhance the effectiveness of public transportation and other modal options. This category promotes more efficient movement throughout the transportation system by supporting compact growth and development. This type of development pattern reduces the distances that people and goods must travel, and provides more opportunities for people to use zero or low energy transportation modes. Example elements include supporting mixed-use development, limited expansion of urban growth boundaries, and development of urban consolidation centers for freight. Many of these elements are under the authority of Oregon Department of Land Conservation and Development and local jurisdictions, or are reliant on the market forces of housing costs, generational preferences, or job locations to drive change.

- **Pricing Funding and Markets** – This category addresses the true costs of using the transportation system and pricing mechanisms for incentivizing less travel or travel on more energy efficient modes. A “user pays true cost” approach ensures that less efficient modes are responsible for the true cost of their impacts to the transportation system and environment. Strategies in this category support a transition to more sustainable funding sources to maintain and operate the transportation system, pay for environmental costs and provide market incentives for developing and implementing efficient ways to reduce emissions. Example elements include transitioning to a user or mileage based fee, adding a carbon fee, promoting pay-as-you-drive insurance programs, and diversification of Oregon’s economy. Many of the elements in this category require legislative action.

Together, the strategies contained in the STS aid the state in achieving its GHG emission reduction goal. The state goal is to reduce overall emissions by 75 percent below 1990 levels by 2050. This goal is somewhat ambiguous, as it is unclear if the goal is meant to be per capita or total, and there are no sector-specific breakdowns. Reports by the Oregon Global Warming Commission indicate that the transportation sector accounts for 35 percent of total emissions in Oregon.⁴ The STS advisory groups chose not to divide emission reductions by population or by sector. The STS vision achieves a 60 percent total reduction by 2050, which equates to around 80 percent per capita (Figure 1).

⁴ *Biennial Report to the Legislature*. Oregon Global Warming Commission. Accessed February, 2018. <https://static1.squarespace.com/static/59c554e0f09ca40655ea6eb0/t/59dd4984a8b2b090a38f07a1/1507674513035/2017-OGWC-Legislative-Report.pdf>

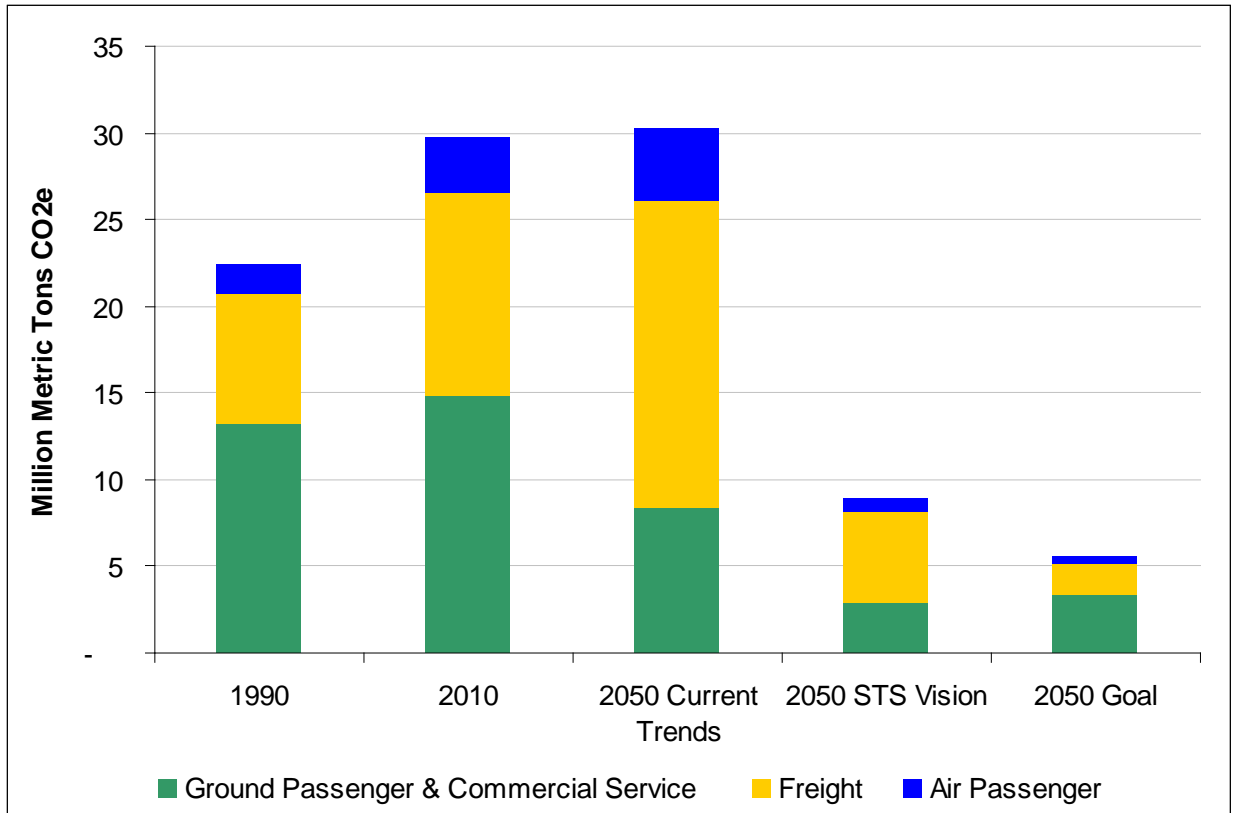


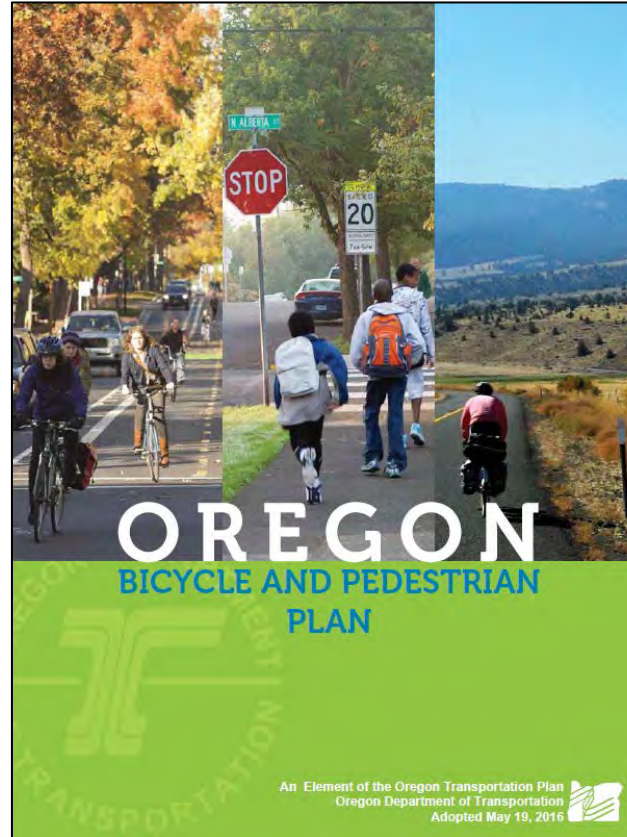
Figure 1: Projected Statewide Transportation Sector GHG Emissions (STS 2013)

To realize the full reduction potential of the STS, all of the strategies contained in the document would need to be implemented. The diverse strategies range from advancements in vehicles and fuels, to the siting of industrial land. Such a broad view of transportation means that the STS identified opportunities far beyond ODOT, to the purview of other agencies like the Department of Environmental Quality, and Department of Land Conservation and Development. Implementation requires commitments by these and other state agencies, local jurisdictions, the private sector and individuals, in addition to ODOT.

In part because strategies in the STS fall under multiple authorities, the Oregon Transportation Commission chose not to adopt the STS document outright, instead accepting the final product. The document represents a strategy, not a plan, of ways to reduce transportation-related emissions across sectors. If adopted as a statewide plan, the STS would take on a regulatory role. The document was not intended to be directive or regulatory, but rather to chart a broad path forward with a number of policy choices and options to achieve the vision. The STS went through a full planning process, including a formal public review period. That rigor was placed on the process so that the STS could stand on its own as a Strategy, and influence decisions across sectors.

The majority of, if not all, strategies under the authority of the ODOT have been adopted through other statewide plans. The STS implements the Sustainability Goal of the *Oregon Transportation Plan* and its strategies have been directly incorporated into or expounded upon in other statewide plans like the recently adopted *Oregon Transportation Options Plan* (2015) and *Oregon Bicycle and Pedestrian Plan* (2016).

Even though the STS has been incorporated into other plans, the document itself still serves a roadmap for reducing overall transportation sector emissions. It received national acclaim, winning the AASHTO Presidents Award for Planning in 2013.⁵ Locally, it spurred development of an ODOT Short-Term Implementation Plan, and was the basis for similar planning efforts in Portland Metro and elsewhere in the state. Its impacts are both direct and indirect, the results of which are described in this document.



2.2 ODOT STS Short Term Implementation Plan

In 2014, ODOT created a STS Short-Term Implementation Plan⁶ that identified action items for the agency to implement over a five-year period to help move Oregon towards achieving the STS vision. The plan identified new, enhanced, or reprioritized efforts that ODOT deemed as important to its mission and to moving in the direction of the STS vision. While the impetus for these action items varies (e.g. improving safety, encouraging transit, increasing fuel efficiency), all of these programs align with the STS. Extensive internal and external outreach was done in the creation of the implementation plan.

Seven implementation programs were identified, which include:

- **Electric Vehicles and Low Emission Fuels**

Actions under this category were identified that support transition to electric vehicles and low emission fuels. Actions included communication materials around electric vehicle charging stations and data sharing with state agencies like Department of Environmental Quality.

⁵ Winners of 2013 President's Transportation Awards. AASHTO Journal. Accessed February, 2018. <https://news.transportation.org/Pages/102513PresidentsAwards.aspx>

⁶ *Statewide Transportation Strategy Short-Term Implementation Plan*. Oregon Department of Transportation. Accessed February 2018. <https://www.oregon.gov/ODOT/Planning/Documents/STS-Short-Term-Implementation-Plan.pdf>

- Eco-Driving**

This program focused on a low cost approach to reducing GHG emissions by providing information to citizens on how to drive more fuel efficiently. Eco-Driving focused on the development of education materials and deployment through partnerships.
- Road User Charge Economic Analysis**

This work item focused on the economic impact of pricing strategies, specifically road-usage fees. At the time the STS was developed, there was much debate over the economic impact of GHG reduction efforts.
- Scenario Planning and Strategic Assessment**

The intent of this program was to partner with MPOs to engage in long range scenario planning efforts that explore local actions for reducing GHG emissions.
- Intelligent Transportation Systems (ITS)**

One of ODOT's biggest potential contributions to reducing emissions in the short term is through operational improvements to reduce congestion and increase fuel efficiency. This program focused on technology to smooth traffic flow, reduce crashes, and provide traveler information about road conditions, travel times, and options.
- Transportation Planning and Project Selection**

Part of the original commitment to STS implementation included adding strategies from the STS into statewide plans and expanding on the STS direction. ODOT also identified the need to explore how investment programs can support STS implementation.
- Stakeholder Coordination**

Since several of the strategies outlined in the STS fall outside of ODOT's purview, this action was identified to assure continued coordination with other state agencies, and other entities working on activities aligning with the STS vision.

The ODOT Short-Term Implementation Plan was shared with the Oregon Transportation Commission in February 2014, prior to it being finalized. At that time a commitment was made to come back to the Commission and report on implementation activities sometime in 2018.

3.0 ODOT Implementation Efforts

In the four years since the STS Short-Term Implementation Plan was developed, ODOT has actively worked to implement the seven focus areas. In addition, other initiatives have been undertaken by ODOT that align with the STS and help to realize its vision. The nature of these efforts and specific activities are described below. Information on the amount of GHG emission reduction cannot be

precisely tracked for each activity but was evaluated for each strategy category in the STS (e.g. transportation options) and is described later in this document. Below is a narrative account of actions that support STS implementation.

3.1 Putting the STS Short-Term Implementation Plan into Action

The STS Short-Term Implementation Plan committed ODOT to pursuing activities within its authority to implement the Statewide Transportation Strategy. It was intended to cover a five-year period roughly spanning 2014-2019. The actions originally specified have evolved slightly over time to take advantage of unforeseen opportunities and changing priorities and practices. The seven focus areas have, however, remained the same. A highlight of accomplishments is listed under each of the focus areas below.

Electric Vehicles and Low Emission Fuels

Over the past four years ODOT has worked on several efforts that support cleaner vehicles and fuels, including:

- **West Coast Electric Highway**

In 2014, ODOT completed the installation of the West Coast Electric Highway, a network of 44 DC fast charging stations along the I-5 and U.S. 101 corridors, as well as several east-west routes from the coast to central Oregon. These stations, completed with federal grant funding, are part of a larger multi-state effort to enable long-range electric vehicle travel from British Columbia to Baja California. As of 2017, the 44 Oregon stations have dispensed more than 870 megawatt hours of charging, powering more than 3 million miles of all-electric driving in the state. ODOT is partnering with utilities providers, automakers, and charging providers to investigate new opportunities to increase access to electric vehicle charging stations and increase range confidence for electric vehicle drivers in the state.

- **Multi State ZEV Action Plan**

ODOT is continuing to participate in the Multi-State ZEV (Zero Emission Vehicle) Task Force, a bicoastal group of policy makers working to implement the California Zero Emission Vehicle program. This group serves as a forum for its eight member states to coordinate electrification efforts, exchange best practices and lessons learned, and engage with automakers, utilities, and other stakeholders to collaborate on developing strategies to support the



growing market for electric vehicles. ODOT also participates in the Pacific Coast Collaborative, along with Washington, California, and a number of cities and counties in west coast states to establish fleet targets for electric vehicles. Lastly, ODOT works directly with its other state agencies such as the Department of Environmental Quality and Department of Administrative Services, as well as with public-private partnerships like Drive Oregon, to coordinate electric vehicle activities.

- **Low Emission Fuels**

In support of low emission fuel infrastructure, ODOT funded the creation of two CNG (compressed natural gas) fueling stations in the state: one in Wilsonville and one in the Rogue Valley area. Funding for these projects was allocated by the Oregon Transportation Commission from the Congestion Mitigation and Air Quality (CMAQ) program. The CMAQ program also supports retrofitting diesel engines to be cleaner, through funding provided to the Department of Environmental Quality. In addition, ODOT works with the Department of Environmental Quality to provide technical data and support for the Clean Fuels Program.

Related to these specific actions, ODOT has worked to integrate information on electric vehicle charging infrastructure into maps and publications available to the public. The agency has also been engaged in several legislative conversations around these topics and continues to seek public-private partnerships. In addition, ODOT participated in Travel Oregon's Electric Byways project that developed travel itinerary to a variety of destinations throughout the state using the network of electric vehicle charging stations.

EcoDriving

In 2015, ODOT initiated the EcoDriving program to educate individuals about a method of driving which improves fuel economy and reduces emissions. Materials developed also cited the co-benefits of EcoDriving, including: reduced vehicle wear and tear, improved safety of all road users, and user cost savings. ODOT created a Toolbox that enables local jurisdictions and individuals to create customized community-based education on EcoDriving practices. ODOT has successfully partnered with local jurisdiction fleets (Washington County and Hillsboro) to implement the EcoDriving program and funded research with Portland State University and the Transportation Research and Education Center to evaluate the effectiveness of the program and make adjustments as needed. ODOT has partnered with Oregon Department of Environmental Quality, Oregon Department of Energy, and Columbia-Willamette Clean Cities Coalition to identify strategic opportunities to implement EcoDriving technology and practices with private-sector companies.

Road User Charge Economic Analysis

ODOT contracted with Oregon State University to conduct economic analysis of a road user charge. The report was completed in 2016 and included information helpful to understanding the economic impacts of various road user charge alternatives across the state, including in urban and rural areas, as compared to the impact of the fuel tax. Information has been used to inform OReGo and potential fee structures for road user charges.

Although the Short-Term Implementation Plan was focused solely on economic analysis, the OReGO program goes a step beyond work envisioned and significantly advances strategies identified in the STS.

- **OReGO**

Drawing on the success of several pilot projects resulting from the policy development work of the Road User Fee Task Force, the state passed Senate Bill 810 in July 2013 establishing the nation's first mileage-based revenue program for light-duty vehicles (passenger vehicles). The program, branded OReGO, successfully launched on July 1, 2015. Enrolled volunteers pay 1.5 cents per mile driven and are credited 34 cents per gallon for the state fuels tax paid on gallons used to drive taxable miles. ODOT uses private sector partners to administer the program. They provide account management services, devices and options to volunteers. ODOT oversees these functions. As the OReGO Program continues, it is evaluating other technologies that could be used to report mileage and fuel consumption. If these technologies are accurate and secure, they will be deployed into OReGO. This will provide more options to OReGO participants and allow the market to innovate and grow.

Road user fees in Oregon continue to be explored through OReGO and other mechanisms, including increased taxes and fees and value pricing concepts. These are discussed later in the document.

Scenario Planning and Strategic Assessment

Similar to ODOT's requirement to develop a Statewide Transportation Strategy, Portland Metro and Central Lane MPOs were charged by the Oregon Legislature to conduct scenario planning and agree on a preferred scenario for reducing transportation sector GHG emissions. The 2009 Jobs and Transportation Act required the Department of Land Conservation and Development (DLCD) and ODOT to provide technical and financial support. ODOT honored this commitment by fully funding Central Lane MPOs effort, providing substantial funding to Portland Metro, and staff time to both efforts to answer technical questions.

Portland Metro was required to go a step further than Central Lane MPO, and implement their preferred scenario. Metro's resulting scenario plan, *Climate Smart Strategy*, was completed in 2014 and is now being implemented through the area's Regional Transportation Plan and other local plans. The strategy itself and subsequent implementation go a long way in supporting the STS vision. Portland Metro provided ODOT with an update on their implementation progress, which is included as Appendix A.



Central Lane MPO completed their scenario planning effort in 2015. Since that time ODOT has helped to support the City of Eugene evaluate GHG emissions as part of their Climate Recovery Ordinance and the agency is engaged in conversations with the MPO on using ODOTs scenario planning analysis tools to inform their upcoming Regional Transportation Plan update.

Other MPOs were later encouraged, but not required to conduct scenario planning. The STS Short-Term Implementation Plan identifies continued support for interested MPOs to engage in these efforts, including technical support and negotiated financial assistance. ODOT has made presentations describing strategic assessments and offering support to each MPO, multiple times. The following MPO volunteered to engage in a strategic assessment:

- **Corvallis Area MPO (CAMPO)**

CAMPO was the first MPO to engage in a strategic assessment. They developed long range approaches for substantially reducing transportation related emissions. ODOT paid for MPO staff time, conducted the modeling and analysis, and worked with DLCD and the MPO in gathering data and sharing results. This effort was used to inform the area’s Regional Transportation Plan update on the impacts of policies changes to environmental, equity, sustainability, and mobility outcomes. The CAMPO Strategic Assessment report was awarded the FHWA 2015 Environmental Excellence Award.

- **Rogue Valley MPO (RVMPO)**

The Rogue Valley MPO was the second and only other MPO to volunteer for a Strategic Assessment. In 2016 the MPO conducted a review of their existing plans and policies and identified potential approaches for reducing transportation-related emissions. In addition to emissions, the RVMPO work focused on household travel costs, congestion reduction, and alternative modes. The results of this effort were used to inform the development of the area’s Regional Transportation Plan update, as well as other local planning projects.

Based on these experiences and those with Metro and Central Lane, ODOT and DLCD have updated the scenario planning guidance document to align with best practices and lessons learned.

Additionally, in 2017 DLCD engaged in a process to update the Land Conservation and Development Commission MPO GHG reduction targets. These were originally set in 2011 and were a requirement in the same Legislation that triggered development of the STS. Both in the original target setting and in the recent update, ODOT provided much of the technical analysis and support for these efforts. The agency also participated on the advisory committee.

In addition to supporting MPOs volunteering to take on this work, ODOT has led development of modeling and analysis methods and tools to support scenario planning. ODOT authored and evolved the statewide GreenSTEP model to the Regional Strategic Planning Model (RSPM) specifically for use at the regional scale. ODOT has continued to add to the new tool to address the analysis interests of

communities and expand upon the outcomes measured. New, complementary tools have been paired with RSPM to better integrate land use considerations and other inputs. With significant national interest in this work, ODOT sought financial support from others to develop the tools, including support from FHWA and many other states. The effort focuses on a comprehensive tool set for scenario planning based on Oregon’s GreenSTEP and RSPM. The now termed “VisionEval” set of tools and associated pooled fund, will allow state DOTs and local jurisdictions across the nation to explicitly evaluate transportation policy choices against GHG emissions and other important outcomes.

Similar to the proliferation of the scenario planning analysis tools developed by ODOT, significant community interest has been expressed for “place types” a new land use classification system developed by ODOT and DLCD originally to support MPO strategic assessments. Place Types allow stakeholders and planners to envision their community landscape in ways that increase local engagement while facilitating translation to modeling and analysis inputs. The outgrowth of this work goes far beyond STS implementation to improving planning practices across Oregon and the nation.

Intelligent Transportation Systems

Intelligent Transportation Systems (ITS) utilize technology to optimize the system. ODOT deploys several types of ITS technology such as: variable messaging to travelers, speed smoothing techniques like adaptive speed limits and ramp metering, and more.



Some of the more impactful ITS planning or deployment efforts for reducing GHG emission have been focused where traffic congestion is most severe, in the Portland metropolitan area. Efforts include:

- **Corridor Bottleneck Operations Study (CBOS) and ITS Operational Improvements in Portland**
ODOT Region 1 conducted a study that looked at ITS operational improvements for addressing bottlenecks. These areas consist of stop-and-go traffic that results in increased emissions, as well as safety issues and congestion. A number of freeway safety improvements were identified, several of which have been addressed or are planned, and some that will be addressed with funding from the 2017 Oregon Legislature through HB 2017.
- **Oregon 217 RealTime**
The Oregon 217 RealTime variable message signs are a good example of an ODOT project that helps to implement the STS and reduce emissions. The effort demonstrates a significant reduction in crashes and crash severity as well as improvements in travel time reliability, all of which impact emissions. Prior to RealTime sign installation, Oregon 217 experienced heavy traffic congestion during peak commute periods due to high traffic density and crashes. To address these issues ODOT installed RealTime travel information signs in 2014. Throughout the project area, total crashes were reduced by 21 percent, severe crashes were reduced by 60 percent, and rear-end collisions were reduced by 18 percent, while travel times remained the same or slightly improved. These improvements are even more notable given the overall increase in vehicle travel in the corridor during the same period. The program will build on the successful implementation of the Oregon 217 RealTime project with targeted deployments on other major corridors including I-5, I-84, I-205 and U.S. 26. Portions of the proposed systems on I-84 and U.S. 26 have been funded and programmed for construction.

Statewide traveler information is another key ITS strategy that helps with emission reduction. People can plan their trips on more efficient modes, be aware of and avoid reoccurring or intermittent delay, and more. ODOTs primary traveler information tool is TripCheck:

- **TripCheck**
The TripCheck website provides comprehensive information about roadway conditions and closures, alternative transportation options, and travel services. Many enhancements have been made to the website since the development of the STS in 2013. Today people can plan trips with TripCheck across more than 40 public transportation services using their internet connected device. ODOT's TripCheck system had over 32 million visits in 2015, an average of 2.6 million visits a month. TripCheck now includes crowd-sourced traffic reports and delay information and also has been reformatted to support smart phones and tablets. TripCheck places the most current transportation system information in travelers' hands so they can "know before they go" and make more informed travel choices.

Transportation Planning and Project Selection

Several of the strategies in the STS have been incorporated into or expanded upon in ODOT's statewide transportation plans. Key plans include:

- **Oregon Transportation Options Plan**

ODOT developed and the Oregon Transportation Commission adopted the first in the nation statewide Transportation Options (TO) Plan in 2015. The Plan identifies strategies and investments designed to spread travel demand across the system and to less carbon intensive modes. There is a write-up in the document on the linkages between the TO Plan and the STS, and several of the strategies in the STS are adopted into or elaborated much more deeply in this plan. The plan has resulted in a statewide program and implementation efforts that are described later in this document.

- **Oregon Bicycle and Pedestrian Plan**

In 2016 the Oregon Bicycle and Pedestrian Plan was adopted. Biking and walking were recognized in the STS as opportunities to shift to zero emission modes. The plan includes all biking and walking strategies called for in the STS and goes into much greater details about the planning, investment, construction, and maintenance work needed to support a robust biking and walking system. One of the performance measures in the Bicycle and Pedestrian Plan directly relates to the metric in the STS, which is increased utilization of these modes for short trips.

- **Other Adopted Plans**

The Oregon Rail Plan and Transportation Safety Action Plans also have furthered concepts identified in the STS. The Oregon Public Transportation Plan is currently being developed and like the Bicycle and Pedestrian Plan, expounds on all related strategies in the STS. The plan targets an interconnected, efficient and effective public transportation system.

The draft Oregon Public Transportation Plan and adopted Transportation Options Plan have included GreenSTEP analysis – the tool used to develop the STS. Each of these and other updated policy plans have incorporated or expanded elements of the Statewide Transportation Strategy.

For project selection, many of the investment programs reviewed or identified by the Oregon Transportation Commission in the Statewide Transportation Improvement Program (STIP) align with the direction of the STS. In the most recent STIP allocations (2021-2024) the OTC increased funding to transportation options, directed strategic investments for biking and walking, and continued support for operational investments. In addition, continued funding going to maintenance and safety also contribute to GHG emission reduction by helping to reduce crashes and therefore intermittent delay and idling.

Other funding programs, such as CMAQ directly invest in efforts that reduce emissions and support cleaner air. In 2017, the Oregon Transportation Commission reset the direction of the CMAQ program

and narrowed the list of eligible projects. The list was narrowed based on the direction of statewide plans as well as the STS directly. The CMAQ program quantifies the impacts of specific investments against criteria pollutants and any project funded must show positive impacts. Performance measures for the program have been proposed and are expected to be adopted into the Oregon Highway Plan in May 2018. These will help assure continued alignment with the STS and marked progress in reducing emissions and improving air quality.

In addition, the STS can be seen influencing efforts leading up to the landmark transportation funding package in 2017. Although the STS was not at the center of the 2017 Keep Oregon Moving Act, it was explicitly called out as a further justification for funding in the Oregon Transportation Commission Investment Strategy.

- **Oregon Transportation Commission – 2017 Strategic Investment Strategy**

To help lay the groundwork for the 2017 Keep Oregon Moving Act, ODOT and the Oregon Transportation Commission produced a Strategic Investment Strategy in early 2017. The document identified needs for the transportation system and included investment options. The Investment Strategy explicitly mentions the STS and some of the key funding areas, like public transportation. The OTC Investment Strategy was the basis for many of the legislative conversations and helped to lead a significant increase in funding for public transportation – a key strategy in the STS.

Several of the funding focus areas in the Bill support the STS and are described briefly below.

- **2017 Keep Oregon Moving Act (HB 2017)**

The 2017 Oregon Legislature, through HB 2017, established several significant funding sources that support key actions in the STS, including additional dedicated funding for biking and walking and incentive programs for electric vehicles. Most significant to the STS, a new funding source for public transportation was identified. An employee payroll tax is expected to generate around \$100 million per year in additional revenue for public transportation. As the STS calls for a tripling or more of transit service in many areas, these additional funds are a significant step forward.

ODOT continues to identify investments that support STS implementation and work with the legislature on supportive policies and funding.

Stakeholder Coordination

The last of the STS Short-Term Implementation Plan focus areas was directed at assuring continued collaboration. Many of the implementation activities described above demonstrate follow-through in this item by the partnerships formed with other state agencies and stakeholders. To facilitate stakeholder coordination, ODOT monitors and provides information on initiatives that align with the STS to ensure external and internal coordination to improve efficiencies, remove redundancies, and identify leveraging opportunities, as appropriate.

3.2 Other ODOT Efforts that Support the STS

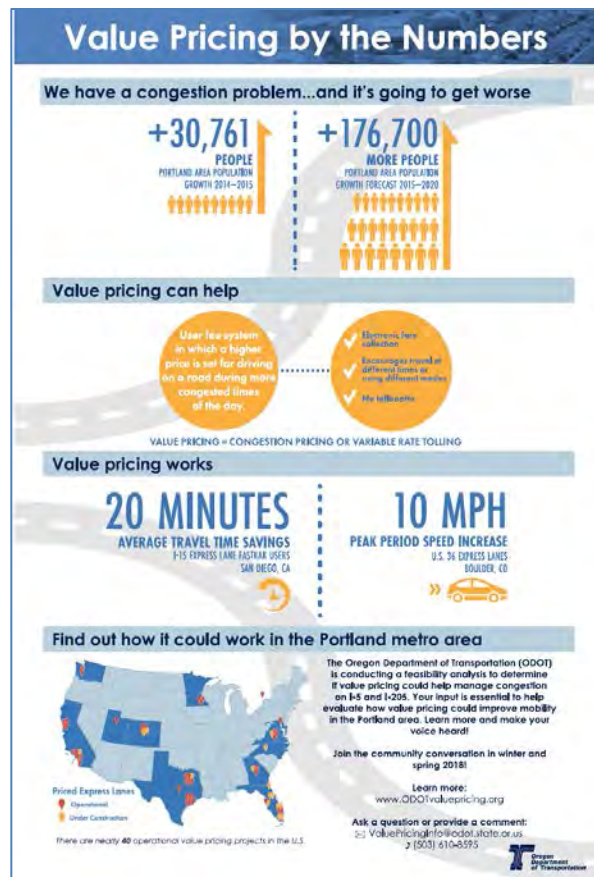
Beyond the seven focus areas in the STS Short Term Implementation Plan, ODOT has engaged in other initiatives or work efforts that support the STS vision. Within ODOT’s authority, the following efforts highlight, but do not exhaustively describe, work that contributes to reduced GHG emissions:

- **Oregon Sustainable Transportation Initiative**

The Oregon Sustainable Transportation Initiative (OSTI) is the umbrella program which the STS, scenario planning, and GHG target rulemaking fall under. It is a partnership between ODOT and DLCD, with support from the Department of Environmental Quality and Department of Energy. The program started in 2010 following legislation directing a number of work efforts for ODOT and DLCD aimed at reducing transportation-related GHG emissions. Since that time, the program has continued. In addition to work efforts mentioned earlier, two major guidance documents that support local jurisdictions have been updated. The Scenario Planning Guidelines was one of those documents. The other is the GHG Toolkit. The Toolkit includes strategies and actions for reducing emissions at the local level. In the past several years ODOT and DLCD have added strategy reports and case studies that describe how a jurisdiction might go about implementing strategies, like parking pricing, that reduce GHG emissions.

- **Value Pricing**

ODOT is exploring ways to apply value pricing to parts of Interstate 5 and Interstate 205 to help reduce congestion. The Portland Area Value Pricing Feasibility Study is based on direction from the 2017 Keep Oregon Moving Act and will determine what types of value pricing may be successfully applied and what the impacts of options will be. ODOT is working with local government officials, stakeholders, and the public to ensure that the voice of those who may be impacted is heard. A Policy Advisory Committee comprised of elected officials, business leaders, environmental justice organizations, transit providers, and active transportation advocates, among others, has been established to provide a recommendation on value pricing to the Oregon Transportation Commission by mid-2018. A recommendation will then be forwarded to FHWA by the end of 2018.



- **Transportation Options Program**

In 2015, the Oregon Transportation Commission adopted the Oregon Transportation Options Plan. Since that time ODOT has launched a statewide transportation options program. Activities include an inventory and assessment of park and ride facilities, programs supporting veterans and transportation disadvantaged individuals get to work and critical services, safety education for children traveling to school, working with major employers on flexible work schedules and telecommuting to reduce peak hour trips, and much more. These types of efforts were recognized in the STS and specific strategies identified are being implemented. In addition to agency efforts, ODOT works with transportation options providers across the state to deliver these services, and provides funding to jurisdictions to conduct innovative efforts that directly implement the Oregon Transportation Options Plan.

- **Bicycle and Pedestrian Program**

In 2016, the Oregon Transportation Commission adopted the Oregon Bicycle and Pedestrian Plan. Since that time the program has focused on several implementation activities that also support the STS. ODOT is engaged in inventorying the biking and walking system to identify critical gaps. Aligned with changes in the way biking and walking investments are funded at ODOT, the agency can now start to pinpoint and strategically invest in filling system gaps. This will help to work towards a complete network which can provide greater opportunities for more people to bike and walk, as called for in the STS.

- **Public Transportation Program**

Providing expanded and improved public transportation services is a key component of achieving the STS vision. ODOT has made numerous investments in tools and guidance to help expand and improve transit services across the state. This includes transit service planning software licensing for all transit providers in Oregon, development of an open source tool for analyzing the statewide fixed route transit network, passenger survey templates for transit providers to utilize, and the development of a Transit Development Plan guidebook. ODOT has also made advances in data collection methods and technologies to improve traveler information and support real time trip planning for transit users. The 2017 Keep Oregon Moving Act established a new dedicated source of funding for expanding public transportation service in Oregon. This new source called the Statewide Transportation Improvement Fund will be used for expanding transit services and supporting investments, and includes resources for the purchase of electric or alternative fuel buses.

- **Passenger Rail Program**

The Amtrak Cascades service is a state-supported intercity passenger rail service funded by the states of Oregon and Washington. It connects 18 cities along the I-5 corridor between Eugene, Oregon and Vancouver, British Columbia. The additional cities connected in Oregon are Albany, Salem, Oregon City, and Portland. With the Amtrak Cascades service Oregon strives to create an efficient, safe and cost-effective alternative to highway and air travel, support future growth

and operate an efficient, high-quality intercity passenger rail service that helps minimize the need for state subsidies, be sensitive to community and environmental impacts, and business costs, and integrate with local roadway, transit, bicycle and pedestrian transportation networks. The Oregon Amtrak Cascades schedule was adjusted in mid-December of 2017 to provide a more user-friendly morning service south from Portland. When Washington adds two more Portland-Seattle round trips, Oregon's southbound morning train will become a Portland connection for the first train of the day arriving from Seattle. The service started using eight new Charger locomotives in 2017 that meet EPA Tier 4 emission standards that replaced seven older Amtrak units.

- **Freight Program**

ODOT investments in roadways not only seek to reduce congestion and delay for people but also for trucks. Improving these conditions can help reduce truck engine idling and fuel consumption, which are critical aspects of reducing emissions from the freight sector. ITS and operational improvements, discussed earlier in the report, have helped to reduce stops and starts on several Oregon roadways. In addition, ODOT undertook a study to identify Oregon's most congested roadways and bottlenecks for trucks. The Oregon Freight Highway Bottleneck Project used a variety of key measurable indicators to identify and prioritize locations on Oregon's highway network that were experiencing significant freight truck delay, unreliability and increased transportation costs. Solutions are being identified for these areas, and some projects have received funding as a result of this work. In addition, in ODOT's more regulatory capacity of weighing trucks, efforts have been sustained to reduce truck idling. The Green Light truck preclearance system uses a combination of high speed weigh-in-motion scales, transponders, and computer systems to weigh participating trucks at highway speeds, reducing truck delay and engine idling at weigh-in stations. In addition to efficiencies for freight movement on roadways, ODOT has a role in supporting freight efficiencies for other modes through the *Connect Oregon* funding program. In the past five years *Connect Oregon* has supported the creation of intermodal freight facilities, allowing easier and more efficient transfer of goods between truck and rail. Also, many projects have supported efficiency in the rail system, allowing more goods to travel by this less carbon-intensive mode.



4.0 Progress towards the Overall STS Vision

4.1 Overview

The STS includes actions under the authority of ODOT, other state agencies, local jurisdictions, and the private sector. In assessing overall progress towards the STS vision the same modeling and analysis process used to develop the STS was followed. Inputs were gathered from other state agencies, local jurisdictions, within the agency, and through research that provides an updated view of today's progress relative to the STS vision in both the short and long term.

Analysis shows that many actions called for in the STS are moving in the right direction. However, overall progress is diminished by external factors. In 2012, when the majority of work on the STS was completed, fuel prices were at an all-time high. In the six years since prices have dropped and according to national sources are forecasted to stay low. In addition Oregonians have held onto their vehicles longer than originally anticipated and have not transitioned to newer more fuel efficient or low/no emission vehicles. The result is more internal combustion engines in the fleet that get fewer miles per gallon than was anticipated in the STS. Additionally, Oregon's population continues strong growth and incomes have recovered from the recession. As a result, lower gas prices coupled with higher incomes and post-recession increases in driving means that vehicle miles traveled (VMT) have increased in Oregon. Since the STS looks at total emission reduction and not per capita, more people and a stronger economy means more emissions.

The chart below (Figure 2) shows an estimate of GHG emissions projected from current plans and trends, compared to the STS vision. The chart shows an uptick in emissions following the recession and projected reductions in the long term. In the long term it is assumed that vehicles get more efficient, which helps to bring the curve down. While the overall trend line is moving in the right direction, it falls short of the levels called for in the STS vision. That vision can still be achieved through aggressive vehicles and fuels policies. In the short term, programs like Clean Fuels, public transportation funding from the 2017 Keep Oregon Moving Act, improved systems operations, and other efforts individually mark progress and help Oregon to reduce emissions.

On a per capita basis, GHG reductions are closer to the STS vision, although they are not fully in line.

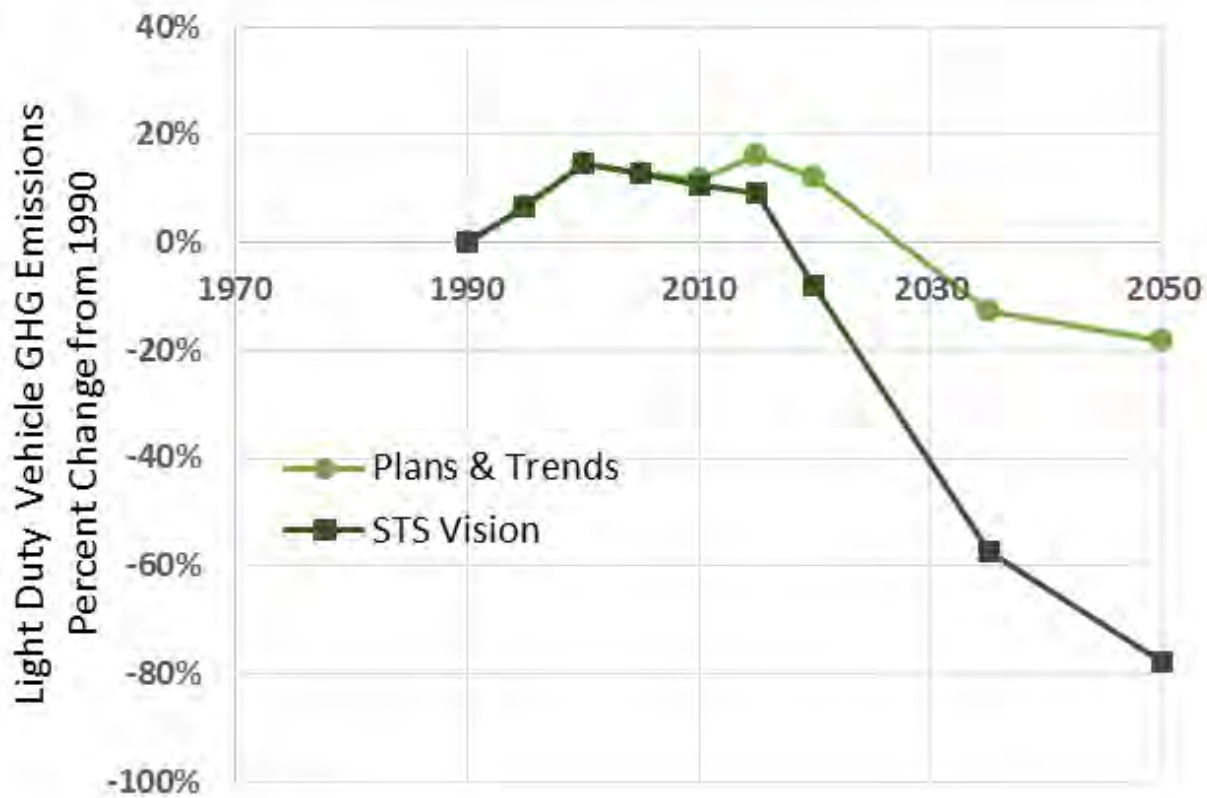


Figure 2: Projected Total GHG emissions of current plans and trends compared to the STS vision.

4.2 Analysis and Results

The STS identified promising approaches for reducing GHG emissions from the transportation sector. The 60 percent total GHG emission reduction below 1990 levels envisioned in the STS by 2050 is an estimate of GHG emissions projected to be reduced as a result of changes to vehicles and fuels, operational improvements, and increased use of cleaner modes. Going back to measure what has actually resulted from the STS is challenging. There is no way to directly measure air quality improvements from specific actions, nor is it possible to directly attribute emissions from transportation. Estimates are used to determine relative shares and contributions.

For the STS monitoring work, inputs from 2012 were updated to current conditions. ODOT staff worked closely with staff from the Oregon Department of Environmental Quality and Department of Energy to develop model inputs that best represent the current trends of today and the anticipated future. The business as usual view was updated from the trends at the time the STS was developed to better represent where we are heading now. These updates were then compared to the STS vision to determine if current actions are moving towards or away from the vision. The monitoring work not only

looked at the directionality of progress, but how well progress is tracking with the original STS trajectories and the types of actions identified in the “what it would take” sections of the STS document. This analysis was conducted for each of the six categories of strategies in the STS and is described below.

Figure 3 illustrates the relative impact of the different STS strategies on reducing emissions. It is intended to show the importance of certain strategies over time. For example, because vehicle and fuels are not as clean in the near term, robust system operations strategies are needed to help smooth traffic and reduce emissions from idling cars. In the long term, vehicle technology advancements have the greatest impact towards achieving the STS vision.

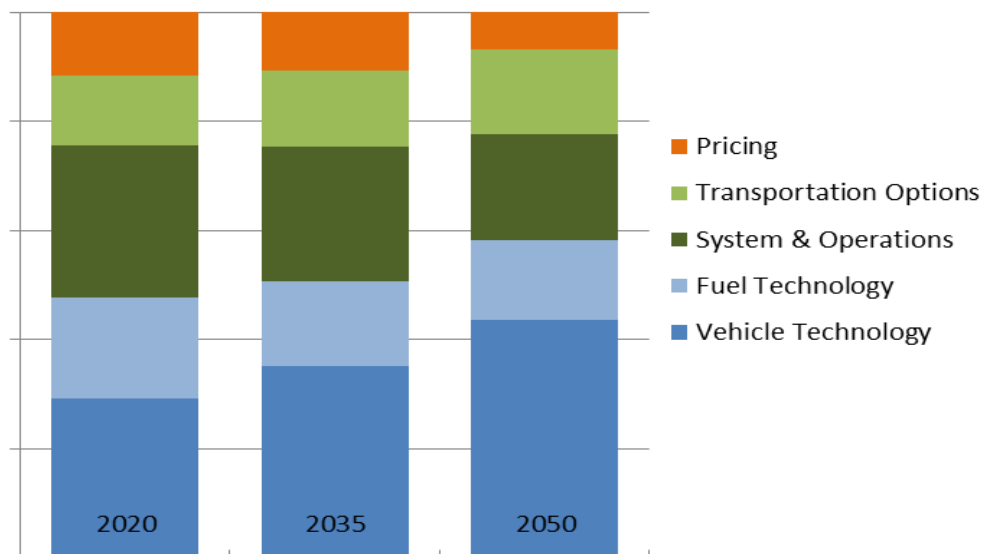


Figure 3: Relative Impact of STS Strategies on Emissions Reductions

As the chart also illustrates, all types of strategies are needed in the short, medium, and long term. Even if a trajectory is off in one category it can be compensated for in another. Further, even if the overall trajectory is off in the short-term, gains can be made in the mid and long term to get back on track with the STS vision.

Focusing on the near term, many of the activities being pursued today move in the direction of the STS vision. Some strategy categories meet the STS vision while others fall short. The narrative description provides information on the directionality of trends in the short term (2020) and long term (2050). Tables are included which show progress in the short term. Progress is marked as:

- on track with or exceeding the STS vision;
- ◐ moving in the direction of the STS vision;
- little to no progress towards the STS vision; or
- ⊘ moving away from the STS vision / trending in a negative direction.

- Vehicle and Engine Technology Advancements**

Passenger automobiles and commercial ground vehicles will continue to be an important mode on the transportation system, and as such advancements to vehicle and engine technology are important to achieve the STS vision. Despite implementation efforts that support cleaner vehicles, effectiveness of these actions is most heavily reliant on consumer behavior. Market forces such as lower fuel prices and higher costs for alternative fuel vehicles has resulted in fewer people changing out their high emission vehicles for lower emission vehicles. The average vehicle age on Oregon roadways is 12 years old. Thus, contrary to what was anticipated in the STS, few people have transitioned to higher MPG cars or alternative fuel vehicles. Similarly, the share of light trucks and SUV’s has not decreased as expected and continues to be a very popular market segment for automobile consumers in Oregon. A summary of these results in the near term (progress through 2020) is shown in the Table 1 below.

Table 1: Summary of Vehicle Technology Advancements Progress Relative to STS in 2020

Vehicle Mix	○
Fuel Efficiency (MPG)	◐
Battery Range	●
SUV/Light truck share	🇺🇸
Vehicle Age	🇺🇸


Despite solid advancements in the battery range of electric vehicles and other efforts, overall results in this category show it is not making a lot of progress in the direction of the STS vision. Especially in the long term, the STS envisions that most new vehicles sold in Oregon are low to no emissions, whereas today that percentage is fairly low.



- Fuel Technology Advancements**

The use of cleaner fuels and reducing the carbon intensity of fuels has the potential to greatly reduce GHG emissions from the transportation sector. The STS calls for transition to vehicles powered by compressed natural gas (CNG), liquefied natural gas (LNG), biofuels, or electricity. Similar to vehicle and engine technology, current market conditions have slowed turnover to low/no emission vehicles. The Clean Fuels Program provides benefit through reduced emissions and contributes towards achieving the STS vision, however the STS vision assumed a continuous and more aggressive Clean Fuels Program in the future. The carbon intensity of fuels, and especially electricity has improved. The STS anticipated the public transportation bus feet would transition more to electric or CNG/LNG, but only a few fleets have; although several indicate they plan to move to low-no emission fuels in the future. A summary of these results in the near term (progress through 2020) is shown in the Table 2 on the following page.

Table 2: Summary of Fuel Technology Advancements Progress Relative to STS in 2020

Fuel Carbon Intensity	
Electric Carbon Intensity	
Bus Fuels	

While these and other programs have led to cleaner fuels and technology and moved in the direction, not enough progress has been made to come close to the STS vision in the long term.

- Systems and Operations Performance**






ITS technologies such as variable speed limits, advanced signal timing, and incident management techniques are important components to keep the transportation system operating in reliable manner to help increase efficiency. These activities, in addition to traveler information systems have helped to increase the efficiency of the transportation system and short term progress is moving in the right direction and close in many respects. While there has been targeted deployment, the STS vision assumes very aggressive and widespread utilization of ITS with near full penetration across the transportation system in the long term.

Increased systems operations and performance is also measured by how fuel efficiently people drive. ODOTs EcoDrive efforts have helped but have been mainly targeted at fleets, not the general public. Private sector improvements, such as real time feedback in vehicles and gamification of fuel efficiency, help to target the general public. Because vehicles have not turned over as quickly, there are fewer cars on the road with this technology than was hoped to make a difference. Thus short term progress is relatively stagnant.

In addition to operational strategies, parking management was included in this category. Often when people have to pay to park they choose to carpool, take public transportation, bike or walk, as opposed to paying a fee to drive and leave a vehicle. Paid parking coverage in urban areas is on target and exceeds the STS trajectory in the short term; however prices are lower

than those projected and are less than anticipated in the STS. A summary of these results in the near term (progress through 2020) is shown in the Table 3 below.

Table 3: Summary of Systems and Operations Performance Progress Relative to STS in 2020

Intelligent Transportation Systems	
Managed Road Growth	
Parking Coverage	
Parking Price	
Fuel Efficient Driving	

- **Transportation Options**



Transportation options programs and investments in biking, walking, and public transportation support individuals in choosing lower emitting modes of travel. The provision of comprehensive and frequent transit systems in metropolitan areas across the state is a critical strategy in the STS. The funding provided for public transportation through the 2017 Keep Oregon Moving Act will provide much benefit through expanded and improved transit service. Progress moves in the direction of the STS and is nearly on track in the short term. However, as population grows and operational costs rise, service levels will fall far short of the 4-6 times growth beyond population as called for in the STS by 2050.

Biking and walking progress is measured by changes in use, especially short trips. Biking and walking mode shares have increased for these distances and are expected to catch up to the STS vision in the long term given trends of continued and targeted investments.

Demand management programs, through raising awareness about transportation options and travel choices, affect travel efficiency and emissions by influencing the mode choice and the amount of trips individuals make on the system. Employer-based and household-based transportation demand management programs are being implemented broadly, showing progress above and beyond the STS vision. A summary of these results in the near term (progress through 2020) is shown in the Table 4 below.

Table 4: Summary of Transportation Options Progress Relative to STS in 2020

Transit Service	
Bike	
Carshare	
Demand Management Programs	

The provision of Transportation Options programs are on track in the near term, including planned car share programs and transportation demand management programs.

- **Efficient Land Use**

Strategies in this category promote more efficient movement throughout the transportation system by supporting compact growth and development. The configuration of land uses and transportation systems in Oregon has sought to support reduced trip lengths and vehicle miles traveled.

Data shows that the proportion of households living in proximity to expanded transportation options and shorter trip lengths has increased.

Overall land use growth is on track with that of the STS vision, growth still occurs but is controlled through limited urban growth boundary expansion. A summary of these results in the near term (progress through 2020) is shown in the Table 5 below.

Table 5: Summary of Efficient Land Use Progress Relative to STS in 2020





Urban Growth Boundary Expansion	
Mixed Use Areas	

Additional information was provided by the Department of Land Conservation and Development in support of these findings and is included in Appendix B.

- Pricing, Funding, and Markets**

Successful implementation of the STS relies on adequate funding and user pricing systems to maintain and improve system performance, provide transportation options, and enhance operations. Recent influxes of transportation funding through increased fees help to provide some of the revenue needed to support the STS. However, long-term operations and maintenance costs, and inflation continue the need to increase revenue for transportation. Efforts around user fees and value pricing start to get at pricing strategies in the STS. The document however projected these programs to be widespread in the mid-term. Although there is progress in pricing, funding, and markets, it is minimal compared to the STS vision. An important component of the STS vision is for transportation system users to pay the full cost of travel. Although the Keep Oregon Moving Act includes provisions to raise user fees on the system, it does not fully cover the cost of wear and tear on the system and other social and environmental impacts of driving (noise, energy security, health). A summary of these results in the near term (progress through 2020) is shown in the Table 6 below.

Table 6: Summary of Pricing, Funding, and Markets Progress Relative to STS in 2020

More Sustainable Funding Source	
Congestion Fee (Portland area)	
PAYD Insurance	
True Cost Pricing (Social and Physical Costs)	

With current efforts and our newer plans, Oregon is on track to reduce GHG emissions by 15-20 percent below 1990 levels by 2050, which falls far short of the STS vision. External factors including more people in the state, more travel, and less fuel-efficient vehicles slows our overall progress. Without addressing these challenges changing this trajectory will be difficult.



5.0 Conclusion

ODOT is doing everything the agency committed to in its Short-Term Implementation Plan. In addition, the agency has taken on more to aid achieving the STS vision. For ODOT's part, the agency has been aggressive with the actions under its authority. It is possible that more work can be done to achieve the vision, but not without trade-offs towards other important investments, like maintaining Oregon's roads and bridges. Within the budget and programs ODOT has, the agency has put a lot of work towards the operational, modal, and technological improvements that help move the STS forward. The agency plans to continue these investments and activities, taking advantage of new opportunities and being supportive of other actions that move the needle towards the STS vision.

While Oregon is on the right track, more work, innovation, and investments are needed to realize the state GHG reduction goals. Policymakers would need to determine what else could be done. Targeted work efforts and continued partnerships and collaboration are essential. The responsibility does not solely rest with ODOT, other agencies, local jurisdictions and more need to do their part, and support from the legislature is needed.

Appendix A:
Portland Metro Report of Implementation of the Climate
Smart Strategy



IMPLEMENTING THE CLIMATE SMART STRATEGY



The 2018 Regional Transportation Plan is a key tool for the greater Portland region to implement the adopted Climate Smart Strategy and achieve a new 2040 greenhouse gas emissions reduction target adopted by the Land Conservation and Development Commission in 2017.

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 by 2035 to meet state targets. Adopted 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.

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 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 Climate Smart Strategy is built around ten policies to help the region reduce greenhouse gas emissions from cars and small trucks while making our transportation system safe, reliable, healthy and affordable.

Climate Smart Strategy

1. Implement adopted local and regional land use plans
2. Make transit convenient, frequent, accessible and affordable
3. Make biking and walking safe and convenient
4. Make streets and highways safe, reliable and connected
5. Use technology to actively manage the transportation system
6. Provide information and incentives to expand the use of travel options
7. Make efficient use of vehicle parking and land dedicated to parking
8. Support Oregon's transition to cleaner fuels and more fuel-efficient vehicles
9. Secure adequate funding for transportation investments
10. Demonstrate leadership on reducing greenhouse gas emissions



The strategy also identified actions that can be taken by the state, Metro, cities, counties and others to support implementation and performance targets to enable the region to monitor progress. The responsibility of implementation does not rest solely with Metro. Continued partnerships, collaboration and increased funding from all levels of government will be essential.

A list of Metro implementation activities and accomplishments follows. Additional performance monitoring will be reported as the 2018 Regional Transportation Plan is finalized for adoption in Fall 2018.

Find out more information about the 2018 Regional Transportation Plan at oregonmetro.gov/rtp.



2014 CLIMATE SMART STRATEGY IMPLEMENTATION

REPORT ON 2015-2018 METRO ACTIONS AND NEXT STEPS

Adopted in December 2014 with broad support, the Climate Smart Strategy is a set of policies, strategies and near-term actions to guide how the greater Portland region will integrate reducing greenhouse gas emissions with ongoing efforts to create the future we want for our region. The Land Conservation and Development Commission approved the region’s strategy in May 2015. Find out more information about the 2014 Climate Smart Strategy at oregonmetro.gov/climatesmart.

A list of Metro implementation activities and accomplishments follows.

<p>Policies</p>	<p><u>Completed</u></p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Adopt Climate Smart Strategy policies in Regional Framework Plan (Dec. '14) <p><u>Under way through 2018 Regional Transportation Plan update</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Adopt Climate Smart Strategy policies in 2018 Regional Transportation Plan
<p>Toolbox of possible actions (2015-2020)</p>	<p><u>Completed</u></p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Provide briefings to regional, statewide and national audiences (ongoing) <input checked="" type="checkbox"/> Expand Community Planning and Development Grant program criteria and eligibility to include climate smart policies and actions in local plans (2015) <input checked="" type="checkbox"/> Advocate for increased funding for transportation, transition to cleaner, low carbon fuels and more fuel-efficient vehicles, Cap-and-Invest program, and other Climate Smart Strategy actions in Metro legislative agendas (2015-ongoing) <input checked="" type="checkbox"/> Expand Regional Travel Options Grant Program criteria and emphasis on climate smart investments and actions for FY 15-17 and 17-19 grant cycles (2015-17) <input checked="" type="checkbox"/> Increase funding for effective climate smart investments, including optimizing built road capacity, bike and pedestrian safety retrofits, and new MAX and enhanced transit service through 2019-21 regional flexible fund allocation process (April '17) <input checked="" type="checkbox"/> Advocate for significantly increased transit operations funding in the region to accelerate Climate Smart Strategy implementation (Aug. '17) <p><u>Under way</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Continue JPACT finance subcommittee and other regional funding discussions <input type="checkbox"/> Adopt updated Regional Travel Options (RTO) Strategy that further advances Climate Smart Strategy investments and related activities, including trip reduction services for commuters, vanpools and carpools, Safe Routes to Schools, tools to connect people to demand-responsive transit options, and biking and walking counts <p><u>Under way through 2018 Regional Transportation Plan update</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Adopt Regional Transit Strategy that defines a bold vision for transit in the region <input type="checkbox"/> Adopt the Regional Transportation Safety Strategy with a Vision Zero framework and target to eliminate fatal crashes and improve safety for all modes <input type="checkbox"/> Update best practices in street design and complete streets to improve safety for all
<p>Performance monitoring</p>	<p><u>Completed</u></p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Adopt performance measures in Regional Framework Plan (Dec. '14) <p><u>Under way through 2018 Regional Transportation Plan update</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Evaluate greenhouse gas emissions using EPA’s “MOVES” emissions model <input type="checkbox"/> Review and adopt Climate Smart Strategy measures and targets in plan as part of addressing final federal performance-based planning requirements and amendments to the Metropolitan Greenhouse Gas Reduction Targets Rule (OAR 660-44) <input type="checkbox"/> Report performance of 2018 Regional Transportation Plan and next steps for Climate Smart Strategy implementation in final plan

Appendix B:
Department of Land Conservation and Development
Report on STS Implementation Progress

G3- Compact, Mixed-Use Development

Goal – To promote compact, mixed-use development to reduce travel distances, facilitate use of zero- or low-energy modes (e.g., bicycling and walking) and transit, and enhance transportation options.

Trajectory

- **2010** - On average, approximately 20 percent of Oregon urban households are living in compact, mixed-use neighborhoods.
- **2020** - Over 20 percent of urban households live in compact mixed-use neighborhoods.
- **2035** - Approximately 30 percent of urban households live in compact mixed-use neighborhoods.
- **2050** - Over 30 percent of urban households in Oregon live in compact mixed-use neighborhoods.

Methodology

Data used in the analysis consisted of [Oregon Place Types](#) for MPOs by TAZ. The percent of population for each mixed, mixed-high, and Transit Oriented Development TAZ were summed across each metropolitan area.

Findings

- **2010** - On average, approximately 25 percent of Oregon urban households are living in compact, mixed-use neighborhoods.
- **Future Years** – On average, approximately 28 percent of Oregon urban households are living in compact, mixed-use neighborhoods.⁷

The findings show that Oregon is meeting the goals for compact mixed use neighborhoods in 2010 and 2020, and indicate that meeting the 2035 and 2050 goals is feasible. The future year numbers are conservative estimates due to limitations in the future year Design and Transit built form attributes, these levels were kept at the 2010 value which may be limiting the Mixed Use/TOD.

When looking at the individual metropolitan area results, a bulk of the progress comes from the Portland Metro area. There are significant opportunities to improve on this measure for other metropolitan areas that don't show much movement from the base year and have low numbers overall.

Actions\Opportunities

Many features of the land use planning system contribute to the success of this measure, UGBs, efficiency measures, and the Transportation Planning Rule for example. Opportunities for

⁷ Due to the differing planning horizons available at the time of this report, future years include a mix of 2035, 2040, and 2042.

increasing the development of compact mixed use neighborhoods outside of regulatory strategies include incentives for infill development, reduced parking requirements, and ensuring that zoning codes allow for mixed use development. There are two ways for local governments to increase compact mixed use neighborhoods, one is to include zoning provisions that allow or require it, the other is to redevelop existing areas with infill and mixed land uses.

G4- Urban Growth Boundaries (UGB)

Goal – To encourage communities to accommodate most expected population growth within existing Urban Growth Boundaries (UGB) through infill and redevelopment.

Trajectory

On average, the area within metropolitan area urban growth boundaries expands at about 15% of the rate of metropolitan area population growth.

Methodology

Data used in the analysis consisted of Urban Growth Boundaries GIS layers for metropolitan areas, and annual population estimates for Oregon MPOs, (Center for Population Research and Census, Portland State University) for 1990, 2000, 2010, and 2015. As Corvallis and Bend MPOs were designated after the 2000 Census, and Albany and Grants Pass MPOs were designated after the 2010 Census, the rate of change for these MPOs was captured from 2000 and 2010 respectively. For all other metropolitan areas, the rate of change was calculated from 1990 to 2015.

Findings

On average, the area within metropolitan area urban growth boundaries has expanded at about 17% of the rate of metropolitan area population growth from 1990 to 2015.

The findings show that Oregon is not meeting the goal for this measure, but doing so is feasible. Due to the nature of UGB expansions in order to maintain a 20 year supply of land, this measure will produce uneven results over time. For instance, over the five year period that the Grants Pass MPO was included in the measure, the City of Grants Pass adopted a UGB amendment that captured surrounding rural residential lands, and didn't take in much if any resource lands. This can lead to skewed results in any given reporting period.

Actions\ Opportunities

There are several components of Oregon's land use planning system that contribute towards meeting this goal, such as land use efficiency measures, priority of land scheme, and the Transportation Growth Management program. Success in meeting this goal is closely tied to the previous goal of developing compact mixed use neighborhoods, as the more compact our cities develop, the less they need to rely on UGB growth expansions to accommodate population growth.

Opportunities for making more progress towards this goal include working with cities to encourage infill development, updating plans and codes to ensure that new development occurs in a compact form, and reducing barriers to developing multi-family and mixed-use buildings



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AGENDA ITEM 4
SEPTEMBER 24-25, 2020-LCDC MEETING
ATTACHMENT D



Metropolitan Greenhouse Gas Reductions Target Rules Review

STAFF RECOMMENDATION

September, 2020

Summary

This memo provides a review of the Metropolitan Greenhouse Gas Reductions Target Rules as required in OAR 660-044-0035. The review is intended to aid the Land Conservation and Development Commission (LCDC or commission) to evaluate whether revisions to the targets established in Division 44 are warranted.

Staff recommends that the commission accept the Target Rules Review and not charge the rulemaking advisory committee to develop amendments to the reduction targets set in OAR 660-044-0020 and 660-044-0025.

Background

House Bill 2001, adopted by the 2009 legislature, and Senate Bill 1059 adopted by the 2010 legislature, directed the commission to adopt greenhouse gas emission reduction targets to guide the state's metropolitan areas as they conduct land use and transportation scenario planning. The commission adopted the Metropolitan Greenhouse Gas Reduction Target Rules (Target Rules) in [OAR Chapter 660, Division 44](#) that establish greenhouse gas reduction targets, define methods for estimating greenhouse gas emissions, and establish requirements for scenario planning in 2011 and amended them in 2017. The targets are:

- For emissions for household travel in metropolitan areas (emissions from passenger cars, light trucks);
- Set at level needed to put the state on path to meeting its 75% emission reduction goal from 1990 levels by 2050;
- Adopted for the years 2040 – 2050; and
- For reductions above and beyond expected reductions in addition to expected improvements in vehicle technology, fuels and vehicles.

In developing and adopting the rules, the commission committed to review the targets at four year intervals to reflect new information and the results of various planning efforts to reduce greenhouse gas pollution. The rule directs the commission to conduct the next review by June 21, 2021.

The criteria for review and evaluation of the greenhouse gas reduction targets in OAR 660-044-0020 and 660-044-0025 are established in [OAR 660-044-0035](#) and include a range of factors. Many of the review criteria coincide with the scoping work the department conducted in response to Executive Order 20-04 and the *Every Mile Counts* program that apply to other parts of the Target Rules, however this rule review applies only to the numerical reduction targets.

Department Analysis

The commission adopted the initial greenhouse gas reduction targets in 2011 before the Statewide Transportation Strategy (STS) was completed in 2013. At that time, staff and a rulemaking advisory committee developed reasonable assumptions about the future vehicle fleet, fuels, and technology to set the greenhouse gas reduction targets.

In 2015 the commission approved the Target Rules Review report, identifying two key factors that indicated that changes to the Target Rules were warranted:

1. Metropolitan areas are updating long-range plans to accommodate growth beyond 2035. If targets and scenario planning are to be useful and relevant to these plans, then updated targets for 2040 will be needed; and,
2. There is new information about vehicle technology, fleet and fuels that could lead to adjustments in metropolitan area targets.

In 2017, the commission accepted the [recommendations from the Advisory Committee on Metropolitan Greenhouse Gas Targets](#) to extend the target beyond 2035 and included a schedule of targets from 2040-2050 and based the reduction targets on the future fleet, fuel, and technology assumptions in the STS Vision. Basing the reduction targets on the STS Vision of future fleet, fuel, and technology assumptions integrates the targets with the STS and eliminates the need for the commission to adopt technical assumptions about the targets. Since the targets are based on the metropolitan share of greenhouse gas emission reductions in the STS Vision, staff finds that a review of the reduction targets and assumptions of the metropolitan share of future greenhouse gas emission rates should be done as a part of a larger coordinated effort.

Given the updates to the target setting methodology adopted in 2017, staff does not recommend amendments to the reduction targets at this time. Although the assumptions in the targets are constantly evolving (e.g., assumptions on future fuel prices, income growth) which make the targets always a bit dated, the existing targets remain reasonable. Staff recommend that instead, the rulemaking advisory committee focus on a process that exercises the existing targets in local and regional planning processes, before tackling further technical review.

Staff provides a review of four factors in [OAR 660-044-0035 \(2\)](#) that intersect with the work the department is engaged in with regard to Executive Order 20-04, *Every Mile Counts*, and *Climate Friendly and Equitable Communities* rulemaking:

(a) Results of land use and transportation scenario planning conducted within metropolitan planning areas to reduce greenhouse gas emissions from light vehicles;

(b) New or revised federal and state laws or programs established to reduce greenhouse gas emissions from light vehicles;

(h) Input from affected local governments and metropolitan planning organizations; and

(j) State funding and support for scenario planning and public engagement.

A. Results Of Land Use and Transportation Scenario Planning Conducted Within Metropolitan Planning Areas to Reduce Greenhouse Gas Emissions From Light Vehicles

Since the targets were amended in 2017, no metropolitan areas have completed a scenario planning effort, though projects in the Central Lane and Albany regions are ongoing and the department received an implementation progress report for Metro's Climate Smart Strategy.

In 2018, Metro completed an update to the [Regional Transportation Plan](#) which included fully incorporating the Climate Smart Strategy greenhouse gas emissions reduction targets, climate smart specific policies, and the required reporting on implementation in the [2018 RTP](#). In the performance monitoring process, staff assessed whether key elements or actions that make up the adopted strategy are being implemented. The report concluded that the region is making satisfactory progress towards implementing the strategy and that, if fully implemented, can be expected to meet the region's greenhouse gas target. Metro has demonstrated that the existing rules for required scenario planning established in Division 44 are a successful framework to develop a regionally preferred scenario for greenhouse gas reductions. Those rules provide directives for:

- Cooperative selection of a preferred scenario;
- Evaluation criteria, adoption and implementation;
- Amendments to local plans to implement the regionally preferred scenario;
- Development of performance measures and performance targets to be adopted as a part of the preferred scenario; and
- Reporting and monitoring progress in implementation of the preferred scenario.

Staff finds that the Portland Metropolitan area is the only metropolitan area in the state that has shown substantial actions toward meeting greenhouse gas emissions reduction

targets. As scenario planning remains voluntary in other parts of the state, local governments and metropolitan areas are not expected to meet greenhouse gas emissions reduction targets. Overall the state has seen limited return on the investments in the voluntary scenario planning efforts completed in the Corvallis and Rogue Valley areas.

B. New or Revised Federal and State Laws Or Programs Established to Reduce Greenhouse Gas Emissions from Light Vehicles

On March 10, 2020, Governor Brown issued Executive Order 20-04, directing state agencies to take actions to reduce and regulate greenhouse gas pollution. The order sets updated goals to reduce greenhouse gas pollution to 45% below 1990 levels by 2035, and 80% below 1990 levels by 2050, but does not include or update any sector specific targets. The 2016 update to the Target Rules resulted in greenhouse gas reduction targets for the state's metropolitan areas, consistent with the 2013 STS Vision scenario that met statewide state's greenhouse gas reduction goals set in ORS 468A.205. This included extended the years out to 2050, which should cover the planning horizon years expected in metropolitan land use and transportation plans over the next four years.

Since the current targets are based on the metropolitan share of greenhouse gas emission reductions in the STS Vision, staff finds that the updated greenhouse gas goals for the state overall would need to be first accounted for in the STS as a part of a larger state-wide effort.

C. Input from Affected Local Governments and Metropolitan Planning Organizations

In May and June of 2020, DLCD and ODOT staff conducted in depth interviews and surveys with nearly 100 respondents representing a range of interests. Interviews included participants from staff and elected leaders from local governments and agencies in each metropolitan area. Invitations to participate in the survey were sent out to members of each of the eight metropolitan planning organization elected policy boards and technical advisory committees. The interviews and survey questions focused on local greenhouse gas reduction practices and policies to help staff understand implementation challenges and opportunities.

The results of these interviews and surveys helped staff define the options associated with local greenhouse gas reductions in the Scenario Planning Policy Options memo.

Key themes from interview and survey respondents include the following, with additional detail presented below:

- There are a variety of climate pollution reduction strategies being employed at local and regional levels;

- Partnerships at the state, regional, and local levels are important to reduce pollution;
- The state should set overall goals, and provide local flexibility in meeting them; and
- The state needs to provide leadership in providing technical and financial support.

Opportunities and Challenges to Climate Pollution Reduction Work

Many local governments report working on or have a goal to reduce climate pollution, but the details of staffing, funding, and strategies vary widely. Respondents express that there are several significant barriers to reducing climate pollution, ranging from a lack of political leadership to systemic challenges in auto-oriented laws and engineering standards. There is also agreement among respondents that strategies to reduce climate pollution also produce other benefits and help communities meet important livability goals. Local governments report a clear need for technical and financial support from the state to support local implementation.

Respondents report that greenhouse gas inventories have mostly been conducted at the local level, though there is clear support expressed for regional planning due to the interconnections of the regional economy and transportation system. The majority of respondents say that a metropolitan planning organization or council of governments should provide more leadership on reducing climate pollution and support strong regional partnerships.

Barriers to Climate Pollution Reduction Work

- Many respondents reported little to no success in reaching local greenhouse gas reduction goals.
- A significant barrier to accomplishing reducing pollution is focusing on reducing motor vehicle congestion (e.g. level of service (LOS) measurements) instead of focusing on reducing vehicle miles traveled (VMT). Other barriers include a lack of public support, public education, political will, sustained leadership, and staffing.
- Ways to address barriers include developing strong coalitions, dedicated funding at the state level, community conversations about positive outcomes including environmental, economic and livability.
- Resource constraints is the largest barrier reported to achieve climate pollution reductions. Technical and financial support was frequently cited as a need.

Approaches to Monitor and Measure Climate Pollution Reduction Work

- Nearly 89% of respondents reported that cities in a region should work together to plan for reducing climate pollution.
- Regional planning participation should include building a clear and consistent set of best practices and tool kit at the state level while having individual autonomy to

meet measures within the regions. Allow local and regional planning to build on existing work.

- Greenhouse gas inventories have mostly been conducted at the city level.
- Approaches to monitor and measure greenhouse gas reduction strategies include vehicle miles traveled, housing units within a designated distance of transit, transportation options available, commute data, charging infrastructure availability, and health indicators.
- Assistance needed for pollution reduction work includes funding, easily accessible data, modeling, partnerships and community engagement assistance.

D. State Funding and Support For Scenario Planning and Community Engagement

To set the scope for the Scenario and Climate Pollution Reduction Planning action in the *Every Mile Counts* work program, DLCD and ODOT staff prepared a Scenario Planning Policy Options Memo to identify the costs, funding sources, technical support needs, and implementation challenges and constraints of several potential policy options focused on scenario planning and planning for local greenhouse gas reductions.

Based upon the analysis of policy approaches in the memo, ODOT and DLCD staff recommend that the newly identified funding source from ODOT will cover full scale scenario planning in the short term for the state's larger metropolitan areas (Metro, Salem-Keizer, Eugene-Springfield), and a reporting and monitoring approach for all other Oregon metropolitan areas. Over the next few years, this approach will provide adopted greenhouse gas reduction scenarios for the major population centers of the state that are home to 53% of the state's population and 82% of the state's metropolitan population.

This approach also provides a baseline assessment for smaller areas to track their progress towards achieving the STS Vision. Since the Metro and Eugene-Springfield metropolitan areas already have adopted or identified greenhouse gas reduction scenarios, more state agency resources can be directed towards implementation efforts in the short term. This approach is presently the most practical way to meet the intent of the metropolitan greenhouse gas reduction targets and the Governor's Executive Order. This approach provides the most efficient method to conduct appropriate greenhouse gas reduction scenario planning efforts across the state.

Staff recommendation

To implement commission's desired rulemaking outcomes and requirements in EO 20-04, staff recommend specific amendments to Division 44 as follows:

OAR 660-044-0000

- Update purpose to include requirements to include all metropolitan areas.

OAR 660-044-0005

- Update definitions of preferred land use scenario to include regional plans for all metropolitan areas.
- Update definitions to include comprehensive plan and transportation systems plan.
- Update definition of Statewide Transportation Strategy.

OAR 660-044-0025

- Require cities and counties in metropolitan areas to develop a regional scenario to meet the targets.
- Develop alternative pathways to achieving greenhouse gas reduction targets for metropolitan areas that have not yet adopted a regional scenario. Alternative pathways will include reductions in vehicle miles traveled and trajectories of local actions in the Statewide Transportation Strategy.

OAR 660-044-0030

- Develop alternative methods for estimating greenhouse gas emissions reductions for cities and counties in metropolitan areas without an adopted scenario plan that includes reductions in vehicle miles traveled and trajectories of local actions in the Statewide Transportation Strategy.

OAR 660-044-0035

- Amend date for next review from June 2021 to June 2025.
- Amend review to include all rules in Division 44, specifically to include requirements for scenario planning.

Develop new rules that create requirements for cities and counties in metropolitan areas to:

- Cooperatively select a preferred scenario regional scenario to meet the targets;
- Develop evaluation criteria;
- Adopt and implement a preferred regional scenario that meets the reduction targets;
- Amend local plans to implement the regionally preferred scenario;

- Develop performance measures and performance targets to be adopted as a part of the preferred scenario;
- Develop a report monitoring progress in implementing the preferred scenario; and
- Submit to the commission findings of preferred scenario implementation in conjunction with a UGB expansions or amendments or updates to a local transportation system plan.

Develop new rules that create interim requirements for cities and counties in metropolitan areas that do not yet have adopted scenario plans to:

- Develop performance measures and performance targets to be adopted as a part of a comprehensive plan;
- Develop a report monitoring progress in reducing greenhouse gas emissions from household travel; and
- Submit to the commission a review of progress towards reducing greenhouse gas emissions from household travel in conjunction with a UGB expansions or amendments or updates to a local transportation system plan.

Supplement to Exhibit D to Ordinance No. 23-1496
Findings of Fact and Conclusions of Law

I. Goal 12 and OAR Chapter 660 Division 12 (Transportation Planning Rule)

Under federal law, Metro is required to update the Regional Transportation Plan (RTP) every five years. The 2018 amendments to the RTP involved extensive policy revisions, including the addition of a new goal regarding climate leadership with related objectives and policies, new policies regarding transportation equity, and four new, supporting regional strategies addressing transit, freight, transportation safety and emerging technology. As in 2018, updates adopted in this 2023 RTP are aimed at staying ahead of future growth and addressing new trends and challenges facing the region. Significant new additions being adopted in this 2023 RTP include a new regional mobility policy and an updated high-capacity transit strategy.

The 2018 RTP was acknowledged by LCDC as being consistent with the statewide land use planning goals and the state Transportation Planning Rule (TPR); therefore, these findings focus on describing how the new 2023 amendments and updates ensure continued compliance with applicable state planning goals and administrative rules. The fundamental requirement of Goal 12 and the TPR is that the RTP must provide a transportation system that is adequate to serve planned land uses. The RTP, together with the local city and county transportation system plans (TSPs), are designed to serve the land uses planned by the region's 24 cities and the portions of Clackamas, Multnomah and Washington counties that are located in the metro area. Under Metro's regional planning authority, the Regional Transportation Functional Plan (RTFP) is an implementing component of the RTP that directs how local governments will be consistent with the RTP in their own transportation plans and land use regulations. The RTFP includes a schedule for city and county action, if necessary, to bring their local TSPs into compliance with the RTFP and the RTP. Upon completion of the 2023 RTP, the local compliance schedule will be updated in coordination with the local governments to reflect their own planning work programs and the availability of funds for the work.

The 2018 RTP applied an outcomes-based framework for regional transportation planning that includes policies, objectives and actions that guide future planning and investment decisions to achieve specific economic, equity and environmental outcomes. That approach remains unchanged in the 2023 RTP, which continues to include a broad set of performance targets that are tied to the five primary goals of the 2023 RTP: mobility, safety, equity, a thriving economy, and climate action. The targets and other performance measures included in the plan continue the region's shift away from exclusive reliance on level-of-service as the primary measure for determining transportation needs and success of the plan's strategies. In addition, the 2023 RTP commits Metro and its regional partners to continue developing a regional data collection and performance monitoring system to better understand the benefits and impacts of actions called for in the RTP and RTFP.

TPR 0015: Preparation and Coordination of Transportation System Plans

Findings of consistency of the 2023 RTP with the Oregon Transportation Plan and the Oregon Highway Plan are set forth in the table above that is included as part of this Exhibit D.

TPR 0020: Elements of Transportation System Plans

The RTP is the Transportation System Plan (TSP) for the Portland metropolitan region, implementing Metro’s acknowledged 2040 Growth Concept, and serving as the federal metropolitan transportation plan for the region as required by federal law. The plan establishes a network of regionally significant facilities and services (Chapter 3) to meet the overall transportation needs of the region (Chapter 4 and Section 6.1.1), and contains policies (Chapter 2, Goals and Objectives and Chapter 3, System Policies), regional strategies, projects (Sections 6.3-6.4 and Appendix A and B) and implementing land use regulations that must be adopted by cities and counties (the RTFP).

In 2021, the Metro Council adopted the 2045 Household and Employment Forecast Distribution after extensive review and involvement from local governments and Metro advisory committees (Metro Ordinance No. 21-1457). The regionally coordinated 2045 Household and Employment Forecast Distribution serves as the basis for future land use projections in the 2023 RTP. The model was prepared using the MetroScope TAZ forecasting model (described in Appendix M) and provides an estimate forecast and distribution of population and employment for the region from 2020 to 2045. The land use assumptions used in the forecast are based on the LCDC-acknowledged 2040 Growth Concept, estimating a modest expansion of the regional urban growth boundary over the RTP planning period consistent with state law.

The RTP identifies transportation needs and feasible solutions (Section 6.3 and Figure 6-3) based on projected growth and travel patterns and projected levels of funding for the planning period of 2020 to 2045. Funding forecasts and assumptions are described in Chapter 5.

The plan contains two levels of investments to the components of the overall transportation system:

1. The RTP Constrained Priorities set of investments (defined as the “financially constrained” list under federal requirements) for which funding over the planning period is “reasonably anticipated to be available” based upon the transportation revenue forecast for the region described in Chapter 5 of the RTP. The region has deemed this list of investments as “reasonably likely to be funded” for the purpose of state statute and administrative rules. The RTP demonstrates that these improvements would adequately support the region’s land use plans and meet or exceed most of the system performance targets established in the plan. This set of investments will also serve as the basis for complying with federal law and air quality regulations and findings of consistency with the Statewide Planning Goal 12, the Oregon Transportation Planning Rule and the Oregon Transportation Plan and its components.
2. The RTP Strategic Priorities (also known as the “Strategic” RTP list) includes the Constrained Priorities projects plus additional investments that the region could build if

new or expanded revenue sources are secured. These projects are simply illustrative for the purpose of compliance with federal and state requirements.

Through adoption of goals and objectives in the RTP and application of them through the RTFP and other mechanisms, the RTP promotes changes in travel behavior by calling for development of regional transit, bicycle and pedestrian systems and creating a well-connected arterial, collector and local street network. The RTFP requires city and county TSPs to do their part in meeting regional and state needs implemented through system design standards for street connectivity, transit system design, pedestrian system design, bicycle system design, freight system design and transportation system management and operations in Title 1 and considering regional travel needs identified in the RTP in local planning decisions and as part of local TSP updates.

Section 3.3 of the 2023 RTP describes the network vision, concept and supporting policies for each component of the regional transportation system. The different components are identified in Figure 3-11. The system network maps in Chapter 3 of the RTP (Figure 3-23, Figure 3-26, Figure 3-32, Figure 3-35 and Figure 3-37) identify the general location of existing and proposed regional transportation facilities and the accompanying RTP sections describe how those facilities will support the relevant regional policies and serve the land uses envisioned in the 2040 Growth Concept.

Chapter 4 of the RTP provides an assessment of the future transportation needs of the region as measured against the five priorities set by the Metro Council for the 2023 RTP: mobility, safety, equity, economy, and climate. Chapter 4 contains an inventory and assessment of existing transportation facilities, identifies current regional growth trends, and describes how the entire system performs over the RTP planning period when measured against those five priorities.

TPR 0025: Complying with the Goals; Refinement Plans

Findings of compliance with the statewide planning goals are set forth in the table above that is included as part of this Exhibit D. As contemplated by OAR 660-012-0025, the 2023 RTP identifies specific mobility corridors in the region that are recommended for more detailed refinement planning because they do not meet performance standards of the RTP and/or do not fully answer questions of mode, function and general location of needed transportation projects. These mobility corridors are listed in Table 8.4. The six groups of mobility corridors recommended for future refinement planning comprise 13 of the 24 mobility corridors identified in the Appendix and are shown in Figure 8.3. The steps associated with the proposed corridor refinement planning are described in Section 8.2.4, and detailed lists of the proposed contents of each of the refinement plans are included in Sections 8.2.4.1 through 8.2.4.6.

These corridor refinement plans will involve a combination of transportation and land use analysis, multiple local jurisdictions and facilities operated by multiple transportation providers. Metro, TriMet or ODOT will initiate and typically lead necessary refinement planning in coordination with other affected local, regional, state and federal agencies. In some instances, ODOT, TriMet and local partners may initiate and lead completion of more localized planning needed within an identified corridor refinement plan with an acknowledgement that the more

localized planning not preclude broader questions to be addressed. The refinement plans will more thoroughly define the need, mode, function and general location of transportation improvements and programs in the corridor and consider a range of solutions and strategies to address identified needs. Sections 8.2.4.1 through 8.2.4.6 of the 2023 RTP describe each of the corridor refinement plans, identifying the transportation needs that require further work on need, mode, function and general location, explain why a refinement plan is needed, and describe the specific findings that will be needed to resolve issues being deferred to the refinement plans.

TPR 0030: Transportation Needs

The determination of transportation needs included in the 2023 RTP has been evaluated using the regional travel demand model and determined to be appropriate and sufficient for the scale of the regional transportation network. The needs analysis described in Chapter 4 is based on the 2045 distributed forecast of households and jobs described in Appendix M and projected traffic volumes compared to capacity of road network and gaps and deficiency analysis for each mode. The forecast drives the determination of future needs, but the determination itself involves examination of the components of the overall system (roads, transit, etc.) in light of the goals and objectives of the RTP. The determination of regional transportation needs is also based on measures adopted by Metro to reduce GHG emissions by reducing reliance on automobile travel, and the RTP needs analysis includes a detailed assessment of how the region is doing on meeting its climate-related GHG and VMT reduction goals (Section 4.6).

The 2023 RTP addresses the needs of the transportation-disadvantaged by emphasizing facilities and services for transit riders, pedestrians and bicyclists and increasing access to these facilities and services for youth, older adults and people with disabilities. Transportation needs of seniors and people with disabilities identified in the Coordinated Transportation Plan for Seniors and People with Disabilities (2020) are included in the region's needs, based on coordination with TriMet. These needs are documented in Appendix G to the 2023 RTP.

State transportation needs identified in the state TSP are included in the region's needs, based upon coordination with ODOT, as are needs for the movement of goods and services to support industrial and commercial development planned by cities and counties pursuant to OAR 660-09 and Goal 9 (Economic Development). The RTP, and Regional Freight Strategy and TSMO plan, address the needs for the movement of goods and services by establishing a regional freight network, addressing freight reliability and shipping choices in RTP Goals 2, 3 and 4, and prioritizing investments that optimize the existing transportation system and provide access to centers and employment areas (including industrial areas and freight intermodal facilities).

TPR 0035: System Alternatives

The 2023 RTP continues to prioritize investment in connectivity of multimodal systems and defines a system of investments that is reasonably expected to meet identified needs in a safe manner and at a reasonable cost with available technology, strategies and actions. The 2023 RTP evaluates a full range of transportation investment and system management alternatives, including improvements to existing facilities, new facilities with a focus on safety, transportation equity, expanded travel options, a well-connected transportation network, transportation system

management and operations measures and demand management measures.

Like previous RTPs, the 2023 RTP is designed to achieve adopted standards for increasing transportation choices and reducing reliance on the automobile. The transportation system analysis in Chapter 7 of the 2023 RTP describes outcomes from applicable performance measures and benchmarks under each of the five RTP goal areas: mobility, safety, equity, climate and economy. Those results are identified in Tables 7.2 through 7.7.

The Regional Framework Plan and its component functional plans implement the state-acknowledged 2040 Growth Concept in our region. Since adoption of the 2040 Growth Concept in 1995, the region has aggressively pursued implementation of the integrated land use and transportation vision called for in the plan through both functional plan requirements and regional investments identified in the RTP. The concept calls for compact, mixed-use, pedestrian friendly and transit supportive development patterns in centers and major travel corridors where existing infrastructure is already concentrated, and where new system investments can have the greatest impact. In the 28 years following adoption of the Growth Concept, cities and counties have amended plans and land use regulations to allow mixed-use and higher density development. The region has added four new light rail lines to the high-capacity transit system since adoption of the Growth Concept (with a fifth line still in the planning stages) and frequent service bus lines connecting the Central City and several Regional and Town Centers.

Local governments in the region have been implementing arterial and local street connectivity, completing gaps in the bike and pedestrian system and adopted the parking ratios in Title 4 of the RTFP. At the regional level, programs such as the Regional Travel Options (RTO) program, the Transit-Oriented Development (TOD) program and coordination of the application of Intelligent Transportation Systems (ITS) have also supported the 2040 Growth Concept vision. As described in Chapter 7 of the 2023 RTP, performance measurement indicates that regional and local implementation of the 2040 Growth Concept is producing good results toward reducing vehicle miles traveled.

Chapter 2 of the 2023 RTP adopts revised goals and objectives for the region that focus on the five key goals identified by the Metro Council and JPACT: equity, climate, safety, mobility, and the economy. All of these goals and objectives are implemented through regional investments in the RTP, Regional Flexible Funds Allocation process and the requirements for city and county transportation planning in the RTFP. Section 3.08.220A of the RTFP requires cities and counties to consider first those transportation alternatives that do not involve new road capacity for motor vehicles.

TPR 0045: Implementation

Section 0045 provides direction to cities and counties as the local governments that adopt and apply comprehensive plans, zoning and land division ordinances, building codes and other land use regulations. Metro's RTFP implements the RTP and prescribes standards and criteria that cities and counties in the Metro region must adopt as part of their TSPs and land use regulations.

TPR 0050: Project Development

The 2023 RTP provides for coordinated project development among affected local governments, including public notice and citizen involvement. Section 6.3 of the RTP describes the process for development of project lists and related regional coordination with local governments. Section 8.2.4 describes coordinated corridor refinement planning and project development among affected local governments. In addition, Metro’s “Public Engagement Guide” creates policies and procedures for citizen involvement that Metro is expected to follow in the development of plans and projects, including Metro-administered funding, and Metro-led corridor refinement plans and project development activities.

Cities and counties are generally responsible for transportation project development to implement the regional TSP by determining the precise location, alignment, and preliminary design of improvements included in the regional TSP. Title 3 (Transportation Project Development) of the RTFP requires cities and counties to specify the general locations and facility parameters of planned transportation facilities. ODOT is responsible for project development activities of state-owned facilities pursuant to OAR 731 Division 15. Under RTFP 3.08.310A, the specifications must be consistent with the RTP.

TPR 0055: Timing of Adoption and Update of TSPs

Under provisions of the TPR, Metro establishes an implementation schedule for city and county TSP updates to respond to adoption of an updated RTP. The Metro website includes a work plan and compliance schedule for local TSP updates to be consistent with the RTP (www.oregonmetro.gov/tsp).

TPR 0140: Planning in the Portland Metro Area

This 2023 RTP is the regional transportation system plan required under both state and federal law and is being adopted through a single coordinated process that complies with state and federal law and the TPR, as described in these findings of fact and conclusions of law.

TPR 0155: Prioritization Framework

Chapter 7 of the 2023 RTP presents the results of the system analysis conducted on the financially constrained project list in Chapter 6. The analysis assesses the RTP’s impact on the five RTP goal areas: mobility, safety, equity, climate and economy. The RTP uses several different performance measures to capture the region’s progress in each of these goal areas and compares the results to targets described in Chapter 2. The analysis uses Metro’s travel model and other analytical tools.

The system analysis results are described alongside key takeaways from the project list assessment completed as part of the evaluation process. The project list assessment reviews whether individual projects in the RTP project list have certain features that support RTP goals and considers the share of the RTP spending devoted to different types of projects. The project

list assessment and system analysis in combination with public feedback received helped inform policymakers and regional technical and policy advisory committees in finalizing the draft RTP and projects lists for adoption.

TPR 0160: Reducing VMT

As described in more detail below in Section II of these findings, Appendix J of the 2023 RTP includes projections of changes between vehicle miles traveled (VMT) per capita from the base year and the VMT per capita that would result from completion of all projects on the financially constrained project list by 2045. Those results are described in RTP Sections 4.5 and 7.6, and show a 30 percent reduction in VMT by 2045, which is the planning horizon for the 2023 RTP, based in part on assumptions regarding future state actions including state-led pricing policies.

TPR 0215: Transportation Performance Standards

The 2023 RTP adopts a new Regional Mobility Policy that updates how the region defines and measures mobility. The mobility policy establishes three new performance standards for the RTP and for local transportation agencies to use in their plans and projects: (1) VMT per capita; (2) system completeness; and (3) travel speed reliability on throughways. The three performance standards are described in Section 3.2.6.1 of the 2023 RTP and are summarized in Table 3-5. These standards will be used to assess the adequacy of mobility in the Portland metropolitan area for the regional networks based on the expectations for each facility type, location, and function. These measures will be the initial tools to identify mobility gaps and deficiencies and consider solutions to address identified mobility needs. An update to the Regional Transportation Functional Plan described in Section 8.2.3.11 will further define how the updated policy will be implemented in local plans.

TPR 0340: Land Use Assumptions

As contemplated by section 0340, the 2023 RTP is based on future land use assumptions for transportation planning consistent the most recent population forecast for the Portland Metro region. In 2021, the Metro Council adopted the 2045 Household and Employment Forecast Distribution after extensive review and involvement from local governments and Metro advisory committees (Metro Ordinance No. 21-1457). The regionally coordinated 2045 Household and Employment Forecast Distribution serves as the basis for future land use projections in the 2023 RTP. The model was prepared using the MetroScope TAZ forecasting model (described in RTP Appendix M) and provides an estimate forecast and distribution of population and employment for the region from 2020 to 2045. The land use assumptions used in the forecast are based on the LCDC-acknowledged 2040 Growth Concept, estimating a modest expansion of the regional urban growth boundary over the RTP planning period consistent with state law.

II. Climate Targets

As described in Section 4.5 of the 2023 RTP and Appendix J, in 2014 the Metro Council and JPACT adopted a regional “Climate Smart Strategy” to reduce per capita greenhouse gas emissions from passenger cars and light trucks to meet state-mandated targets by 2035. That

strategy relies on policies and investments that have been identified as local priorities in communities across the region (see Appendix J, page 2). Specific implementation actions that Metro has taken since adoption of the Climate Smart Strategy in 2014 are listed on pages 4-5 of Appendix J.

The Climate Smart Strategy includes a set of performance measures for tracking the region's progress, which were also incorporated into the Regional Framework Plan (RFP) at Section 7.8.6. The purpose of those performance measures is to monitor and assess whether key elements and actions that make up the strategy are being implemented, and whether the strategy is achieving expected outcomes. The performance monitoring measures are applied in Table 4 of Appendix J, which documents progress on implementing the Climate Smart Strategy using observed data sources for the 2020 base year and estimating the expected progress that would be achieved by 2045 assuming that planned projects included in the 2018 RTP constrained list are fully implemented by those years. As described in Appendix J, the 2023 RTP demonstrates progress towards implementing the Climate Smart Strategy and, if fully funded and implemented, can be expected to meet the state-mandated targets for reducing per capita greenhouse gas emissions from cars and small trucks by 2045.

In addition, in 2022 the Land Conservation and Development Commission (LCDC) adopted new rules governing GHG emission reduction targets as part of its statewide Climate-Friendly Equitable Communities (CFEC) rulemaking. Application of those rules and targets is described in Sections 4.5 and 7.6 of the 2023 RTP, with more a more detailed analysis provided in Appendix J and its supplement dated October 25, 2023. As described in RTP Section 7.6 and Appendix J, ODOT's preferred VisionEval model was used to demonstrate how the region can meet the DLCD Target Rule through a mixture of regional and state actions, as allowed by the CFEC rules. The VisionEval model was used by the state to set the region's GHG emissions reduction targets in OAR 660-044-0020, and therefore Metro also used VisionEval for the climate analysis in order to obtain accurate results for making comparisons against the state-created targets.

Metro coordinated closely with ODOT and DLCD on use of VisionEval and the assumptions used in the analysis, consistent with OAR 660-044-0030 and the target rules methodology contained in the Scenario Planning Guidelines Technical Appendix 1.1 published by ODOT and DLCD in August 2017. The results indicate that if the region pursues identified regional actions (policies and investments) alone with no further action from the state, the region will fail to meet the target rule VMT per capita reductions. However, the analysis shows that if the state implements the actions identified in the Oregon Statewide Transportation Strategy (STS), then the Metro region would exceed the target rule VMT per capita reductions (see RTP Figure 7.6 and Appendix J, Figure 3).

As described in Section 7.6 of the 2023 RTP and Appendix J, the RTP modeling analysis indicates that the Metro region can meet its climate targets while also advancing mobility and equity goals if revenues from new pricing programs are reinvested in other GHG reduction strategies.

The Metro Council received a letter from Joe Cortright dated November 17, 2023, asserting that the 2023 RTP does not comply with state climate law. Mr. Cortright asserts that the RTP violates state law because it includes two different sets of inconsistent modeling results for estimates of future VMT in 2045, and the results shown in Appendix I indicate that the Metro region will not meet state targets by 2045. However, the fact that Metro applied two different models for projecting future VMT for different purposes does not mean that the RTP climate projections violate the law. To the contrary, Metro is expressly required by OAR 660-044-0030 to rely on certain assumptions included in the STS for purposes of its modeling to determine whether the state-created targets will be met.

The state GHG emission rates and other assumptions in the STS applied by Metro in the RTP climate modeling include the same assumptions that were used by the state when it created the climate targets for the Metro region in 2017. The only way for Metro to obtain an accurate apples-to-apples comparison of whether the state targets can be met in 2045 is to apply the same inputs and assumptions in Metro's RTP climate modeling. This approach is explained in detail in Appendix J of the RTP and the supplemental Appendix J analysis dated October 25, 2023. Metro's VMT climate modeling methodology in the 2023 RTP is expressly authorized by DLCDC's climate rules in OAR 660-044-0030(3) and (4).

Mr. Cortright points to a separate set of data in RTP Appendix I, where Metro provides a performance evaluation of the financially constrained project list using projected regional growth to the year 2045. That data is provided for the purpose of a broader transportation system analysis to comply with other state and federal reporting requirements, and the results are based on a different model that measures regional trips differently and does not include the same state-created emission and policy assumptions as the climate modeling described in Appendix J. It is not surprising that different models for different purposes that are based on different inputs will yield different results.

In developing the 2023 RTP, Metro coordinated closely with ODOT and DLCDC on the climate modeling and state-defined technical assumptions used in the RTP analysis, and those agencies have supported Metro's methodology as being consistent with the TPR and new state climate rules in CFEC. For the reasons described above, Metro's climate analysis in the 2023 RTP complies with state law and the Climate Smart Strategy.