U.S. Department of Transportation
Federal Highway Administration

Every Day Counts
Innovation for a Nation on the Move

A Statewide Coordinated Greenhouse Gas Reduction Effort in Oregon

OVERVIEW

Transportation is the largest contributor to greenhouse gas (GHG) emissions in Oregon. Through legislative and executive action, Oregon has established climate reduction goals and directed State agencies to adopt and administer strategies in the transportation sector towards reaching those goals. Cities and Counties within metropolitan areas also have targets and requirements for incorporating GHG emissions reductions into long range transportation and land use planning.

BACKGROUND

Over the course of two decades, the State of Oregon adopted legislation and policies that set GHG reduction goals and required that GHG reduction become part of the transportation planning process at both the statewide and metropolitan levels.

In 2007, Oregon adopted House Bill 3543. The bill addressed GHG emissions from all industry sectors and set statewide GHG reduction goals for 2020 and 2050.

In 2009-2010, Oregon House Bill 2001 (2009) and Senate Bill 1059 (2010) created a process for adoption and implementation of plans for reducing GHG emissions. This covered all transportation emissions at the state level, and light duty vehicles such as cars, minivans, SUVs, and pickups at the metropolitan level. Targets for the metropolitan areas were set with direction that the Oregon Department of Transportation (ODOT) and the Department of Land Conservation and Development (DCLD) report progress and recommendations for future actions to the Oregon Legislature.

In 2013, ODOT completed a 2-year stakeholder process that outlined an agreed-to set of strategies for greenhouse gas reductions in the Statewide Transportation Strategy: a 2050 Vision for Greenhouse Gas Emissions Reduction (STS). The document was developed in response to Senate Bill 1059 and was later adopted as an amendment to the Oregon Transportation Plan (OTP), the statewide long-range transportation plan. The STS provides GHG emissions reduction approaches for consideration by public agencies, private industry, and policymakers and covers all transportation modes. The STS describes what it would take for the Oregon transportation sector to come as close as plausible to the State's 2050 GHG reduction goal. As of November 2023, this plan remains the State's roadmap for GHG reduction, with progress tracked in the multi-agency Oregon Transportation Emissions website.

In 2020, Governor Kate Brown issued Executive Order 20-04, directing State agencies to take actions to reduce and regulate GHG emissions, furthering progress on the STS.

In 2022, the Climate-Friendly and Equitable Communities (CFEC) rulemaking process changed Oregon's transportation and land use planning rules for cities and counties in metropolitan areas (regions with over 50,000 population). The rules require those communities to develop a path to achieve their GHG reduction target through updating their local transportation and land use plans, prioritizing investments, increasing equity and stakeholder engagement, and tracking progress towards meeting local GHG reduction targets. The CFEC program effectively extends climate and equity requirements to project planning for the next few years within constrained budgets.

GOALS AND TARGETS

Oregon's targets, enacted by legislation and executive order, are:

- GHG reductions of 10 percent by 2020 compared to 1990 levels,
- GHG reductions of 45 percent by 2035 compared to 1990 levels, and
- GHG reductions of 75 percent by 2050 compared to 1990 levels.

The latest OTP was adopted in July 2023. The OTP defines the long-term transportation policy for the State, setting the framework for policies and strategies from the present-day to 2050, including how the transportation system can decarbonize to achieve the State's GHG reduction goals. The OTP set key performance targets for the transportation sector related to GHG reduction (consistent with the 2013 STS), including:

- Reduce passenger vehicle miles traveled (VMT) per capita by 20 percent by 2050
- Transition to cleaner vehicles and fuels, reducing carbon dioxide equivalent (CO_2e) emissions per mile by 77 percent.

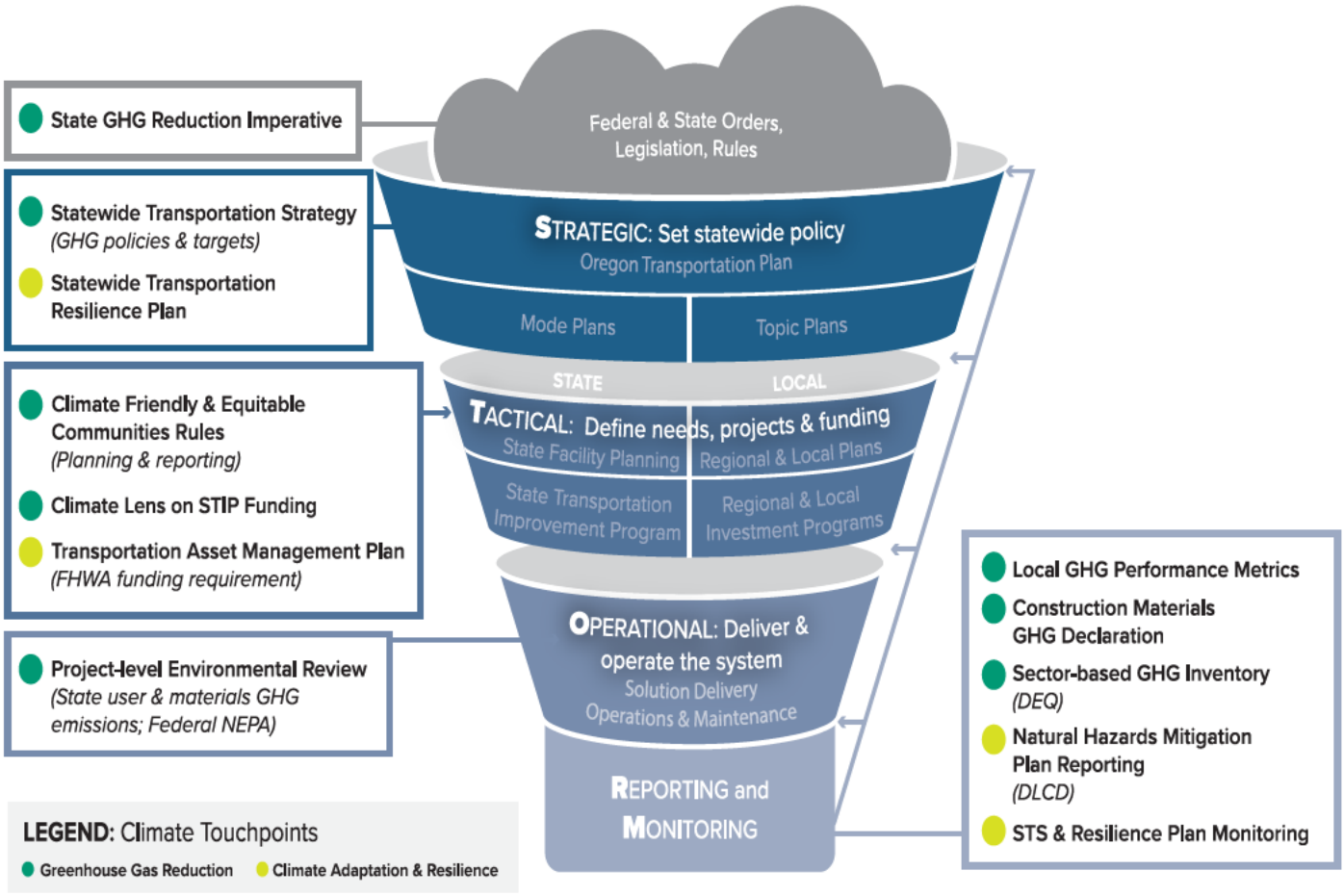

Figure 1 ODOT Climate Touchpoints
Source: OR-Plan Policy Briefs

INTEGRATION WITH TRANSPORTATION PLANNING

Statewide transportation planning work in Oregon is designed to support the State's GHG reduction goals. ODOT and its State agency partners have several efforts and tools to achieve these goals. These include the Statewide Transportation Improvement Program (STIP), VisionEval Model, Oregon Statewide Integrated Model, STS, Oregon Transportation Emissions website, ODOT Climate Action Plan 2021-2026, ODOT Scenario Planning Guidelines, and Every Mile Counts. Figure 1 depicts how ODOT integrates climate considerations into the planning process.

VisionEval Strategic Planning

ODOT uses the VisionEval strategic planning model to forecast the long-term effects of policies and other influences on the amount of vehicle travel, the types of vehicles and fuels used, energy

consumption for vehicle travel, and resulting greenhouse gas emissions. The VisionEval model, first developed by ODOT, allows lifecycle GHG accounting as opposed to vehicle tailpipe only. ODOT has adopted VisionEval for state and metropolitan GHG target analysis.

Statewide Travel Demand Models
ODOT's travel demand model is the Oregon Statewide Integrated Model (SWIM), an integrated land use and transportation model covering the entire State. The model is a second-generation model and incorporates the interaction between Oregon's economy, land use, and transportation systems using a set of connected modules that cover different components of the full system. ODOT also uses the HERS-ST model that covers more operational improvements. A new Post-Processor uses SHRP2 reliability methods to convert average speeds from these models into distributions. This is important when SWIM and HERS are used with the EPA MOVES model for estimating emissions, that are highly sensitive to speed and vehicle type. A recent collaboration between ODOT and the Oregon Department of Environmental Quality developed lifecycle-emission rates that reflect Oregon-specific vehicle and fuel regulations.[1] The emission rates can be used in regions of the State that are not familiar with the MOVES model.

ODOT Climate Action Plan
Climate Action Plan 2021-2026 is ODOT's five-year plan to address the climate change impacts stemming from and affecting the transportation system. It is a short-term action plan of activities within ODOT's authority under the larger STS roadmap for transportation GHG reduction. The plan is based on agency goals and priorities, as well as stakeholder feedback and monitoring progress on the STS. The plan contains actions to reduce GHG emissions, including recommendations related to transportation electrification and electric vehicles, walking and bicycling, public transit, system efficiency, pricing, sustainable construction, addressing climate justice, measuring progress, and making the transportation system more resilient.

Every Mile Counts
Through a collaborative, multi-agency effort, Oregon state agencies developed the Every Mile Counts program as a pathway to work together on actions to implement the STS. The focus is on reducing transportation GHG emissions by reducing vehicle miles traveled and increasing cleaner fuel and electric vehicle use. ODOT leads this effort in collaboration with the DLCD, Oregon Department of Environmental Quality, and Oregon Department of Energy, sharing actions in implementing the two-year workplans.

Oregon Statewide Transportation Strategy
The STS is ODOT's roadmap to reduce emissions from the transportation sector and achieve the State's GHG reduction goals. The STS is a state-level scenario planning effort identifying strategies and actions to reduce GHG emissions throughout the transportation system. The STS details transportation sector-

[1] Vehicle emissions and fuel efficiency standards can only be established by the federal government and California; Oregon has chosen to adopt California's standards which are typically more rigorous than federal standards.

specific GHG emissions reduction strategies and urban land use patterns. The STS was adopted into ODOT policy as part of the OTP. The STS includes both short-term and long-term action items, with a horizon year of 2050, and is monitored through the Oregon Transportation Emissions website to track progress towards the State's GHG reduction goals.

Oregon Transportation Emissions Website
In 2023, ODOT and State agency partners developed the Oregon Transportation Emission website, which tracks State Agencies' collective progress towards implementing the STS and achieving the State's GHG reduction goals. The site aggregates various sources of information on reducing growth in VMT and reducing the GHG emissions of travel. The site also tracks progress in over 25 actions toward meeting Oregon's GHG reduction goals in report cards and progress charts. The site demonstrates progress in different areas of the transportation sector (e.g., pricing, multimodal options, operations, fuels, etc.) to show the gap between the current status and the State's goals.

Statewide Transportation Improvement Program (STIP)
The STIP is ODOT's 3-year capital improvement plan for State and Federally funded projects. ODOT applied two metrics in assessing its 2024-2027 STIP with a climate lens. A simple GHG Index for influencing the ODOT-led projects funded by the STIP and a more detailed traditional analysis method to evaluate the combined effect of the ODOT-led construction projects on progress towards GHG reduction goals. The GHG Index was used to prioritize projects for funding and track funding that advances and challenges GHG across STIP cycles. The Index enabled a scenario planning exercise with the Oregon Transportation Commission to inform funding allocation decisions for the 2024–27 STIP and the Federal Infrastructure Investment and Jobs Act (IIJA). The resulting funding enabled strategic rather than opportunistic bicycle and pedestrian programs within the agency. The Index is being expanded to identify opportunities for resilience planning, addressing top climate risks in project scoping and selection.

In evaluating GHG from ODOT Construction projects in the STIP, emissions are evaluated on a cumulative basis through 2050, as opposed to producing GHG estimates for a single calendar year. This method acknowledges that the long-lasting nature of GHGs means that the cumulative impacts of emissions in the atmosphere is most relevant to climate change. The method helps to calculate the long-term impact of projects and allows comparison with the "gap" that remains in reaching statewide goals through 2050. Analysis of the 2024-27 STIP found that ODOT-led construction projects would make progress in reducing that gap by 0.5%. The STIP analysis evaluates projects on a lifecycle basis and includes GHG from project construction.

IMPLEMENTATION AT THE REGIONAL AND LOCAL LEVEL

Oregon climate change planning requirements for cities and counties within metropolitan areas of the state were updated through the CFEC program in 2023. Administrative rules and planning requirements were updated for the state's eight metropolitan areas to develop a long-range path to meet their GHG reduction target. Portland Metro and the three other regions designated as Transportation

Management Areas[2] (TMAs) each developed a collaborative regional plan to achieve their targets. Smaller metropolitan areas can assume the STS path to meet the target, unless they choose to also engage in regional planning.

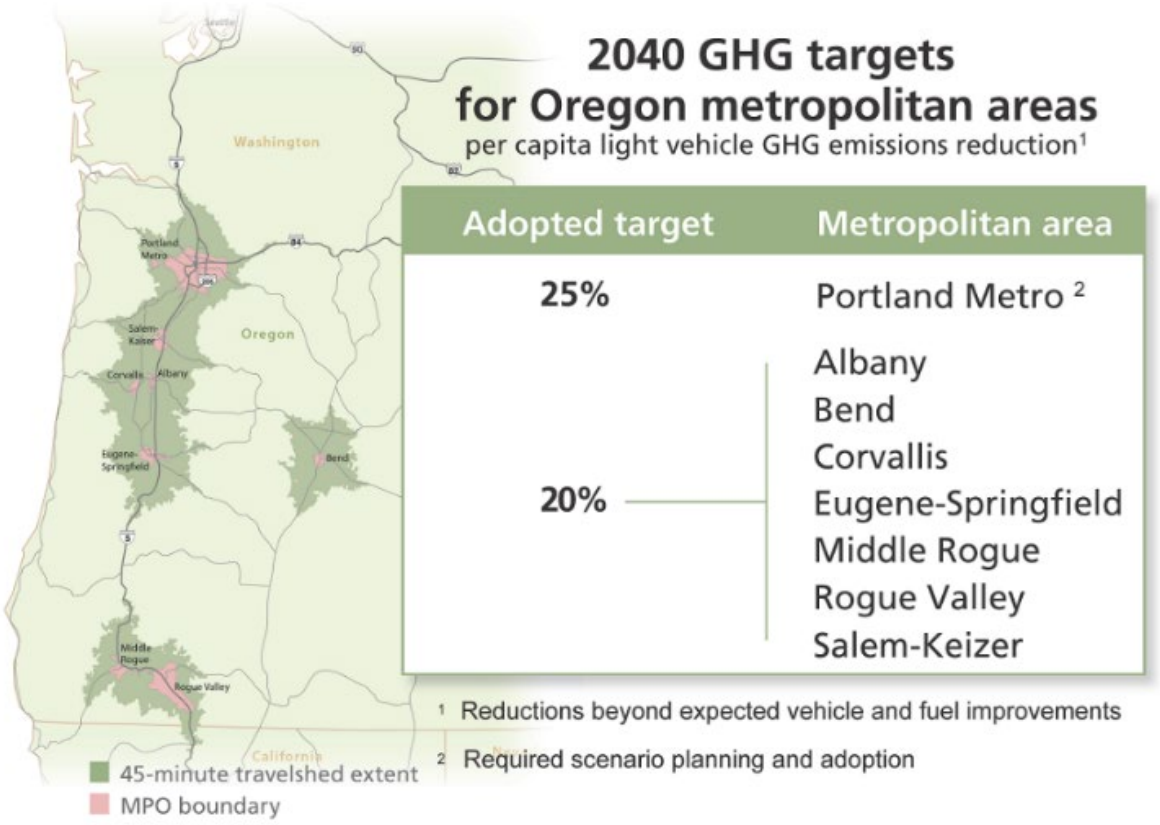

Figure 2: GHG Reduction Targets for Oregon's Metropolitan Areas

The program and administrative rules also require the cities and counties to develop performance targets that allow tracking each region's path to meeting their GHG target. These metrics reflect implementing specific land use and transportation actions, such as bike lanes and development types, that in combination with actions led by state agencies, result in a reduction of transportation sector GHG emissions that would meet their regional targets.

[2] Transportation Management Areas are designated by the U.S. Secretary of Transportation based on Census urban area populations. TMAs have additional transportation planning responsibilities under Federal regulations and some Federal funding sources are sub-allocated to TMAs.

Reduction targets are set for the State's eight metropolitan areas (Figure 2) on a per capita household based VMT (light duty vehicle by resident households) reduction basis, which reflects reductions beyond the expected vehicle and fuel improvements. This metric is intended to demonstrate progress that is more directly attributable to the decisions and actions of local jurisdiction transportation agencies, and more easily analyzed with traditional modeling done in long-range system plans. Along with relying on the state to push the transition to electrification, the regions are allowed to assume the State shifts to full cost pricing, where per-mile fees and gas taxes are set to cover the cost of the multi-modal transportation system infrastructure and maintenance and congestion tolls under discussion for Portland.

In 2023, the Portland Metro region demonstrated compliance with its GHG reduction goal with its Transportation Plan (see Appendix J). The plan details progress on the household based VMT per capita target and associated performance metrics. Other metropolitan areas are working to establish their own regional plan and tracking metrics. These plans and targets demonstrate how regions can accomplish State GHG goals collectively with statewide actions. ODOT and DCLC work with metropolitan areas to achieve the regional targets in various ways, such as providing the support and guidance, funding planning efforts, and establishment of performance targets.

Beyond expanding the requirements for strategic planning to achieve regional GHG reduction targets, the program includes requirements in more near-term financially constrained local transportation system plans. These include special reviews of any roadway expansion projects included in the plan, and a requirement that the full project list not increase household-based vehicle miles travelled per capita in the future. The program requirements also integrate land use-transportation planning to enable 30% of future households to live within compact mixed-use areas with supportive walking, biking and transit networks. To inform land use and transportation decision making for land use planning, new procedures are being developed to expand assessment beyond strictly vehicle-based level of service to measures that incorporate walking, biking, and other outcomes, within expanded stakeholder engagement efforts.

NEXT STEPS

ODOT will continue to implement GHG emissions reductions through their planning and programming processes, in support of the statewide GHG reduction goals for 2035 and 2050. This includes ODOT's work with other State agencies and local governments to consider GHG reduction strategies and track progress.