



Puget Sound Regional Council

Regional Staff Committee | Remote Only

Date: Thursday, January 19, 2023 from 9:30-11:15 am

- 1. Welcome and Introductions (9:30)** – *Jesse Hamashima, Pierce County*
- 2. Reports (9:35)**
 - a. Meeting Summary for December 15, 2022*
 - b. PSRC Announcements and Updates
- 3. Discussion Item (9:45)**
 - a. Housing Public Opinion Poll* – *Laura Benjamin & Paul Inghram, PSRC*
- 4. Discussion Item (10:15)**
 - a. REV Clearinghouse Launch – *Kelly McGourty, PSRC & PSCAA*
- 5. Discussion Item (10:25)**
 - a. 2030 GHG Analysis* – *Kelly McGourty & Craig Helmann, PSRC*
- 6. Next meeting: February 16, 2023**
- 7. Adjourn (11:15)**

*Supporting materials attached.

Zoom Remote Connection Details

- To join via a smart device or web browser, go to <https://psrc-org.zoom.us/j/84500998612?pwd=WjNwa09WMmFvNIBLdFZveXUyZCtBdz09> and enter Meeting ID: 845 0099 8612 and Passcode: 276766.
- To join by phone, call 833 548 0276 or 833 548 0282 and enter Meeting ID: 845 0099 8612 or Passcode: 276766.
- If you need a sign language interpreter or communication aid, call 206-464-7090 or TTY Relay 711.
- العربية | Arabic, 中文 | Chinese, Deutsch | German, Français | French, 한국어 | Korean, Русский | Russian, Español | Spanish, Tagalog, Tiếng việt | Vietnamese, email LanguageHelp@psrc.org.



Puget Sound Regional Council

Regional Staff Committee Meeting Summary

Date: December 15, 2022

Location: Hybrid Meeting

Presentations from the meeting are available on the PSRC website:

<https://www.psrc.org/rsc-meetings>. Audio recording of the meeting is available by request.

Introductions and Announcements

Chip Vincent, Co-Chair, called the meeting to order at 11:00 am. Participants were asked to view the meeting attendance on the “chat” feature on Zoom, and phone-in participants were asked to identify themselves verbally. Those attending in person introduced themselves around the room.

Reports

Co-Chair Chip Vincent welcomed the committee members and explained that PSRC staff would provide short updates on upcoming policy and Executive Board meetings and review the status of ongoing projects in the work program.

Ben Bakkenta, Director of Regional Planning, noted that the RSC will continue to hold hybrid meetings quarterly, with the next hybrid meeting in March 2023. He shared that PSRC released two new housing resources: the Draft Housing Element Guide and Regional Housing Strategy 2022 Monitoring Report. Feedback on the draft guidance can be sent to Laura Benjamin, Principal Planner, at lbenjamin@psrc.org and the draft guide is available [here](#). The RHS 2022 Monitoring Report is also available on the PSRC website [here](#). Ben noted that at the start of the new year, Mikayla would be reaching out to all members, alternates, and jurisdictions for reconfirmation of membership, and identification of new representatives. He also recognized the dedication of Dan Cardwell to the work of the RSC. Dan represented Pierce County on the committee since 2010, and with his recent job shift, was no longer serving on the RSC.

Discussion: Equity Planning Resources for Comprehensive Planning

PSRC is developing a Regional Equity Strategy to provide planning resources and best practices for local governments to support equitable outcomes. At the December meeting, the Regional Staff Committee were briefed on the Equity Planning Resources component of this work.

You can view the presentation [here](#).

For more information, contact Liz Underwood-Bultmann at lunderwood-bultmann@psrc.org or Erin Hogan at ehogan@psrc.org.

Discussion: Equitable Engagement Guidance for Local Jurisdictions

Community Engagement is one of four pillars of the Regional Equity Strategy. It includes several elements, including: 1) convening and facilitating the Equity Advisory Committee, 2) working with local organizations and 3) creating guidance and resources for engaging with communities (both for PSRC and local jurisdiction staff). At the December meeting, PSRC staff were briefed on the Equitable Engagement Guidance for local jurisdictions.

You can view the presentation [here](#).

For more information, contact Noah Boggess at nboggess@psrc.org or Gary Simonson at gsimonson@psrc.org.

Adjourn

The meeting adjourned at 12:00 pm.

Members and Alternates Represented at the Table

See attached attendance roster.

PSRC Staff and Other Guests Present

Mikayla Svob, PSRC
Laura Benjamin, PSRC
Jason Thibedeau, PSRC
Josh Brown, PSRC
Paul Inghram, PSRC
Noah Boggess, PSRC
Liz Underwood-Bultmann, PSRC
Erin Hogan, PSRC
Kathryn Johnson, PSRC
Kaelene Nobis, City of Kent
Maggie Moore, PSRC
Kristin Holdsworth
Camille Branch, PSRC
Casey Moreau, PSRC
Hannah Banhmiller
Pauline Mogilevsky, Kitsap Regional Coordinating Council
Brian Lee, PSRC
Jean Kim, PSRC
Eric Clute, PSRC
Emily Arteché, City of Snoqualmie
Ben Kahn, PSRC

PSRC Regional Staff Committee - Attendance Roster

Jurisdiction	Member		Jurisdiction	Member	
King County	2 Ivan Miller, King County Executive Office	R	Federal, Regional, State, Tribal & Other Agencies		
	Sunaree Marshall, King County		FHWA	1 Matthew Kunic, Community Planner	
	Rebecca Maskin, Demographer Alt			Vacant Alt	
	McCaela Daffern, King County Alt		FTA	1 Linda Gehrke, Regional Administrator	
At-Large	2 Arun Sambataro, Equity & Social Justice			Ned Conroy, Community Planner Alt	
	Vacant		Health	1 Keri Moore, Snohomish Health Dist.	
	Vacant Alt			Richard Gelb, King County Alt 1	R
	Vacant Alt			Jennifer Halverson Kuehn, Tacoma/Pierce Health Alt 2	
Transit	1 Peter Heffernan, King Co Metro Intergov Relations	R	Ports	1 Lindsay Wolpa, Port of Seattle, Gov. Affairs	
	Chris Arkills, King Co Metro Gov. Relations Alt			Deirdre Wilson, Northwest Seaport Alliance Alt	
Economic Dev.	1 Ashton Allison, King Co Exec Office, Econ Dev		PSCAA	1 Amy Fowler, Policy Manager	R
	Hugo Garcia, King County Exec Office, Econ Dev			Kathy Strange, Air Quality Programs Director Alt	
Seattle	2 Michael Hubner, Long Range Planning		Puget Sound	1 Stephanie Suter, Planning Program Director	
	Jonathan Lewis, SDOT	R	Partnership	Dan Stonington, Planning Manager Alt	
	Patrice Carroll, Planning & Comm Dev Alt	1	Sound Transit	1 Matt Shelden, Planning & Innovation	
	Joanna Valencia, SDOT Alt			Alex Krieg, Planning & Integration Alt	R
Bellevue	1 Thara Johnson, Planning Manager, Comm Dev	1	Tribal	1 Vacant	
	Katie Kuciemba Halse, Transportation, Alt	1	Representatives	Vacant Alt	
Cities/Towns	3 Chip Vincent, Renton, Planning, Co-Chair	1	US EPA	1 Susan Sturges	
	Diana Hart, City of Woodinville			Vacant Alt	
	Brian Davis, City of Federal Way		US HUD	1 Jack Peters	
	Vacant Alt			Vacant Alt	
	Minnie Dhaliwal, City of Issaquah, Alt		WA Dept. of Commerce	1 Chris Green	
	Bob Sterbank, City of Snoqualmie, Alt			Marie Davis	R
Kitsap County	1 Eric Baker, Policy		WSDOT	1 Thomas Noyes, WSDOT	
	Jeff Rimack, Alt			April Delchamps, WSDOT Alt	
At-Large	1 Heather Wright, Planning Director	R	PSRC Committees		
	Vacant Alt		PSRC Co-Chair	1 Ben Bakkenta, Director of Regional Planning	R
	Jennifer Sutton, Senior Planner		BPAC	1 Thomas Noyes, WSDOT	
Transit	1 Edward Coviello, Kitsap Transit	R		Eric Goodman, Community Transit Alt	
	Vacant Alt		FAC	1 Geri Poor, Port of Seattle, Gov. Affairs	1
Economic Dev.	1 Kathy Cocus, KEDA			Vacant Alt	
	Vacant Alt		RPEC	1 Doug McCormick, RPEC Chair	
Bremerton	1 Andrea Spencer, Comm Dev, Co-Chair			Vacant Alt	
	Garrett Jackson, Senior Planner, Alt		SNTC	1 Susan Carter, SNTC Chair	
Cities/Towns	1 Nick Bond, Comm Dev., Port Orchard	1		Vacant Alt	
	Vacant Alt		TDM	1 Jennifer Hass, Community Transit	
	Jennifer Sutton, Senior Planner			Sarah Spicer, City of Seattle, Alt	
Pierce County	1 Vacant		RTOC	1 Vacant	
	Vacant Alt			Vacant Alt	
At-Large	2 Jesse Hamashima, Transportation, Co-Chair	1	R = Remote attendance		
	Tiffany Speir, Lakewood, Planning	R			
	Ryan Windish, City of Sumner, Alt	R			
	Jason Sullivan, Bonney Lake, Plan. & Build., Alt				
Transit	1 Lindsey Sehmel, Pierce Transit	1			
	Darin Stavish, Pierce Transit, Alt				
Economic Dev	1 Rob Allen, Economic Development				
	Vacant Alt				
Tacoma	1 Peter Huffman, Planning & Dev Svcs				
	Vacant				
Cities/Towns	1 Katie Baker, Puyallup	1			
	Vacant Alt				
Snohomish County	1 Mike McCrary, PDS Director	R			
	David Killingstad, Planning & Development				
At-Large	2 Kelly Snyder, Director, Co-Chair	1			
	Ken Klein, Executive Director				
	Jay Larson, Transportation Specialist, Alt				
	Joshua Dugan, Chief of Staff, Alt				
Transit	1 Roland Behee, Director of Planning				
	Melinda Adams, Everett Transit Alt				
Economic Dev	1 Neepaporn Bounjaktha, Economic Dev				
	Vacant Alt				
Everett	1 Yorik Stevens-Wajda, Planning Director	1			
	Becky Ableman McCrary, Long Range Planning Mgr				
Cities/Towns	1 Russ Wright, Lake Stevens, Comm Dev. Director				
	Patricia Love, Stanwood, Comm Dev. Director, Alt.				
Total Members	51	Attended 24			



Puget Sound Regional Council

DISCUSSION ITEM

January 19, 2023

TO: Regional Staff Committee

FROM: Paul Inghram, Director of Growth Management & Laura Benjamin,
Principal Planner

SUBJECT: Housing Public Opinion Poll

IN BRIEF

PSRC and the state Department of Commerce hired consulting firm PRR to conduct a state-wide public opinion survey on housing. PSRC staff will provide a briefing on survey results.

DISCUSSION

To learn more about public opinions on housing, PSRC and the state Department of Commerce collaborated and contracted with PRR to develop and conduct a statistically valid public opinion poll. PRR surveyed individuals from the four counties in the central Puget Sound region and eight additional counties in eastern and western Washington. The survey collected responses from 4,329 people conducted October 15 to November 6, 2022,

This collaborative effort allows for a better understanding of the public interest in housing strategies both within the PSRC region and statewide. The number of responses is sufficient to look at the region as a whole and major subareas, as well as to assess demographic differences, such as age, housing tenure, and income. Survey results will aid PSRC in the implementation of housing strategies and provide useful information for local governments as they update the housing elements of their comprehensive plans.

Key Findings

The [survey report](#) is posted on PSRC's Regional Housing Strategy webpage.

A few of the key findings from the report include:

- **The Cost of Housing is a Top Issue Across the State**

The survey found that people universally share deep concerns about access to and the affordability of housing. People say that more housing is needed and that government agencies need to step up to do more. Housing costs/rent and homeless were ranked as the two top issues facing Washington state today, ahead of crime, transportation, or the economy. People responded that housing costs (75%) and rents (77%) are too high.

- **Housing is Hard to Find and Discrimination Continues**

Many people, 49%, say that it is difficult or very difficult for them personally to find affordable housing that meets their needs and 74% identified experiencing one or more challenges in finding housing, including increased rents, lack of income, or having to live further from work to afford housing. Eight percent of respondents said that they had dealt with eviction or foreclosure.

While the redlining and discrimination of the past are prohibited, a surprising number (7%) indicated that they had trouble finding housing due to discrimination. A recent [King 5 Television story](#) illustrates how discrimination continues to impact housing in our region.

- **Housing can Strengthen Communities; Support for Middle Housing**

People say more reasonably priced housing is needed in their communities (83%) and 78% say they want more housing options for people in their communities, including seniors, teachers, firefighters, childcare workers, and health care workers. Additionally, while communities often hear concerns about growth, 80% of those surveyed say that more housing, if done well, is likely to make their community better.

People prefer new housing in walkable neighborhoods. When asked to choose between two options, 74% say they would prefer new housing to be in walkable neighborhoods near town centers rather than further from existing centers.

There was widespread support for “Middle Housing.” People thought that that multifamily housing like triplexes should be allowed in single-family zones if they meet the standards of the zone (58% agree) and 66% say their community needs more diverse and affordable types of housing.

Additional results and details are available in the survey report.

Lead Staff

For more information, please contact Paul Inghram, Director of Growth Management, at (206) 464-7549 or PInghram@psrc.org, or Laura Benjamin, Principal Planner, at LBenjamin@psrc.org.



Puget Sound Regional Council

DISCUSSION ITEM

January 19, 2023

TO: Regional Staff Committee

FROM: Kelly McGourty, Director of Transportation Planning, & Craig Helmann,
Director of Data

SUBJECT: 2030 GHG Analysis

IN BRIEF

The Transportation Policy and Executive Boards have been briefed on the work to develop a 2030 climate analysis as identified in the Regional Transportation Plan as an implementation item due by the end of 2022. In December, the boards were briefed on the results of the analysis and various sensitivity tests conducted to evaluate potential additional strategies towards meeting the region's climate goals. In January, additional background and documentation on the analysis and performance metrics is being provided, including preliminary results of a hybrid combination of selected levers. On January 19, the Regional Staff Committee will be briefed on the work to date.

DISCUSSION

The [Regional Transportation Plan](#) (RTP) identifies numerous implementation items, covering all of the major plan elements and policy focus areas. These implementation items call for new and continued work to be done by PSRC, local agencies and other regional and state partners. Scheduled for completion by December 2022 was an analysis of 2030 greenhouse gas emissions compared to the region's climate goals.

Since 2010 PSRC has had an adopted Four-Part Greenhouse Gas Strategy (addressing land use, transportation choices, pricing and technology) and conducted a climate analysis for the horizon year of the RTP. The most recent analysis forecasted emissions and applied the strategy to a horizon year of 2050. The plan further calls for PSRC to develop an interim year transportation network and conduct a 2030 analysis, and to continue to work with partner agencies including the Puget Sound Clean Air Agency to develop a climate implementation strategy for achieving the climate goals and to monitor progress.

Over the last several months, the boards have been briefed on the status of this work and provided feedback on proposed sensitivity tests to analyze potential impacts of additional strategies within the framework of the Four-Part Greenhouse Gas Strategy.

These levers included various road usage charge scenarios, acceleration of high-capacity transit expansions, additional transit service, adjustments to roadway capacity expansion, percentages of electric vehicles, and work from home levels. In December the boards were provided preliminary analysis results of the 2030 plan compared to the 2030 climate goals and an assessment of the various sensitivity tests for further implementation possibilities.

Staff will provide the Regional Staff Committee additional background and performance metrics on the sensitivity tests, as well as preliminary analysis results of a hybrid combination of key levers with the greatest potential to reduce emissions.

A more detailed report containing additional information on the analysis is provided as Attachment A.

Lead Staff

For more information, please contact Kelly McGourty, Director of Transportation Planning, at (206) 971-3601 or kmcgourty@psrc.org.

Attachment A: 2030 Climate Analysis Background and Performance Metrics

REGIONAL TRANSPORTATIONPLAN

2022–2050

2030 Climate Analysis – Background Documentation and Analysis Results Review Draft

January 2023

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Introduction

Since 2010 PSRC has had an adopted Four-Part Greenhouse Gas Strategy and conducted a climate analysis for the horizon year of the [Regional Transportation Plan](#) (RTP). The most recent analysis forecasted emissions and applied the strategy to a horizon year of 2050. The plan further calls for PSRC to develop an interim year transportation network and conduct a 2030 analysis, and to continue to work with partner agencies including the Puget Sound Clean Air Agency to develop a climate implementation strategy for achieving the climate goals and to monitor progress.

Over the last six months PSRC has worked with the region's transit agencies to develop the necessary inputs for a 2030 transportation network analysis. In addition, staff has received feedback from the Transportation Policy and Executive Boards on various sensitivity tests that can be modeled to analyze potential impacts of additional strategies within the framework of the Four-Part Greenhouse Gas Strategy. These levers include various road usage charge scenarios, acceleration of high-capacity transit expansions, additional transit service, adjustments to roadway capacity expansion, percentages of electric vehicles in the regional auto fleet, and work from home levels.

Preliminary results of the 2030 analysis and sensitivity testing have been shared with the boards, and this document provides additional background and additional performance metrics such as delay, transit ridership and vehicle miles traveled.

Four-Part Greenhouse Gas Strategy

Land Use: VISION 2050 regional growth strategy

Choices: Expanded and integrated regional transit network, active transportation and other multimodal investments

User Fees: State facility tolls, transition to road usage charge in later years

Technology: Shift to zero emission vehicles, Clean Fuels Standard, etc.

Climate Goals and Regional Inventory

The climate goal adopted in VISION 2050 is for the region to substantially reduce emissions of greenhouse gases that contribute to climate change in accordance with the goals of the Puget Sound Clean Air Agency: 50% below 1990 levels by 2030 and 80% below 1990 levels by 2050.

The regional greenhouse gas emissions inventory has recently been updated as part of the multi-agency Puget Sound Regional Emissions Analysis (PSREA) project. The project provides a set of consistent, comprehensive, and up to date emissions data and analysis for all four counties in the region. It also provides for innovative tools to advance local climate actions, including a “wedge” planning tool that allows users to explore the various sources of emissions and to customize scenarios to achieve further reductions across each sector into the future – from transportation, buildings, land use, refrigerants, waste, and wastewater.

Results from the project show significant emission reductions in the coming years from new local, state, and federal energy policies and substantial investments from the federal and state governments. However, it also shows the need for additional actions by local governments, industries, businesses, and residents to accelerate further emissions reductions.

Information on each county's updated greenhouse inventory and report may be found below:

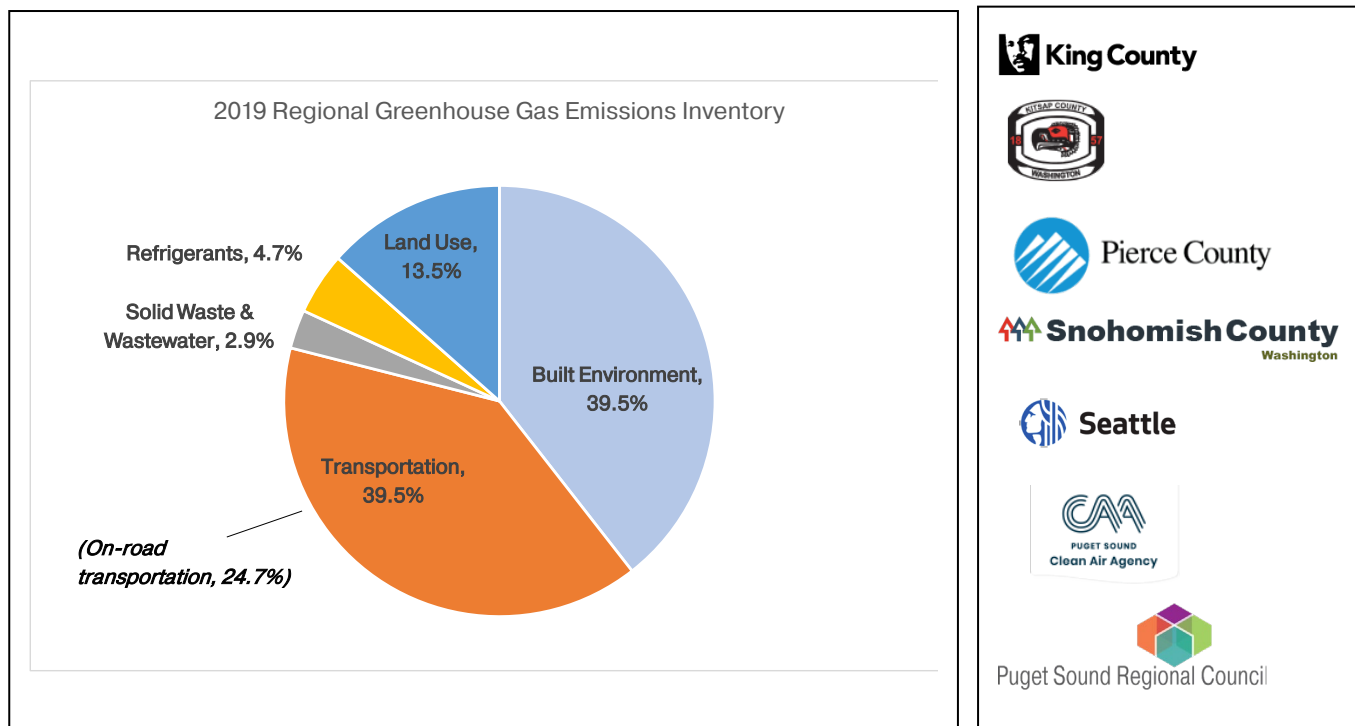
King County: <https://kingcounty.gov/services/environment/climate/actions-strategies/strategic-climate-action-plan/emissions-inventories.aspx>

Kitsap County: https://www.kitsapgov.com/dcd/Pages/Climate_Change_Resiliency_KC.aspx

Pierce County: <https://www.piercecountywa.gov/2058/Sustainability-2030>

Snohomish County: *pending publication*

Puget Sound Regional Emissions Analysis Project



Assumptions and calculations used in the PSREA analysis are carried forward into PSRC's 2030 climate analysis. In particular, since PSRC's analysis addresses on-road transportation emissions only – i.e., from cars and trucks – the assumptions from recent state actions such as the clean fuel standard, zero emission vehicles rules, and the cap and invest program are drawn directly from the PSREA calculations for consistency. More details on these assumptions are provided in later sections of this document.

PSRC Models and Tools

[Appendix I](#) of the Regional Transportation Plan (RTP) provides an overview of the full suite of PSRC forecasting tools used to model the plan and generate the evaluation metrics used to evaluate outcomes.



Figure 1. PSRC Model Suite

In addition, detailed information is available on PSRC’s [Data](#) web pages describing the various tools and data products used in PSRC’s modeling. For example, there is a wide breadth of information available on PSRC’s [SoundCast](#) transportation forecasting model, including a user guide, information on the design and calibration of the model, and various components such as how mode choice is determined.

The full background on the suite of modeling and analysis tools will not be duplicated in this background document, but a few key components pertinent to the 2030 climate sensitivity tests are described further below, within the framework of the Four-Part Greenhouse Gas Strategy.

Land Use: Regional Macroeconomic Model and Forecast

The Puget Sound Regional Macroeconomic Model was used to produce PSRC’s 2018 Regional Macroeconomic Forecast, which establishes long-range regional growth assumptions for population, households, and employment out to the year 2050. The regional forecast values serve as control totals for developing the population and employment growth allocations by county and regional geography that define the Regional Growth Strategy. The regional forecast and subregional growth assumptions then serve as key inputs to the UrbanSim land use model.

- The region is projected to grow by 700,000 people (19%) and 362,000 jobs (23%) between 2018 and 2030.

Land Use: UrbanSim Model

UrbanSim is a microsimulation model that predicts land development and the location choices of households and jobs over time at the land parcel level. PSRC used its UrbanSim model as a tool for modeling the VISION 2050 Regional Growth Strategy at a sub-jurisdictional level of geography. The UrbanSim output also serves as inputs to the regional travel demand model and other supplemental analyses.

- Jurisdiction-level growth assumptions are derived from the county and regional geography level growth allocations for the Regional Growth Strategy in conjunction with locally developed growth targets.
- Development parameters in the model were established based on local comprehensive plans and zoning regulations circa 2015/2016, with selected updates for major rezones. The model does not yet account for anticipated future plan and zoning updates, such as updates that may be expected at transit station areas to support transit-oriented development or through local comprehensive plan periodic updates, required by December 2024.

Transportation Choices and Pricing: SoundCast Travel Demand Model

PSRC has developed a customized set of software programs and mathematical procedures to simulate current and future travel patterns and conditions within the central Puget Sound region. These programs and procedures are collectively referred to as the SoundCast travel model.

PSRC used its SoundCast travel model to analyze the transportation-related impacts of the RTP. SoundCast is an activity-based model that represents how individual people travel to conduct their daily activities. Modeled performance of the transportation system is the result of complex interactions over time produced by assumptions about the location and nature of development, and the cost and accessibility of transportation choices and infrastructure.

The current SoundCast model operates on a 2018 base year which captures the existing development patterns and transportation infrastructure at that time along with key variables validated against PSRC's most recent Regional Household Travel Survey, described below.

- For the travel demand analysis conducted on the RTP, a distribution of parcel level population, household, and employment in the years 2030 and 2050 from the UrbanSim model representing the VISION 2050 Regional Growth Strategy comprise the key land use assumptions.
- The set of transportation projects and policies listed and described in the RTP provide the future transportation network assumptions used by SoundCast for this analysis.
- The SoundCast model is a state of the practice tool that was thoroughly peer-reviewed by a panel of national travel modeling experts funded through the Travel Model Improvement Program (TMIP) sponsored by the US Department of Transportation.
- SoundCast is an activity based modeling tool that is responsive to changes in both land use and transportation inputs

Transportation Choices and Pricing: Household Travel Survey

PSRC conducts a household travel survey every two years. The survey is designed to collect day-to-day information from households in the central Puget Sound region regarding how, where, and when they travel. The overarching goal of the multiyear program is to maintain an updated source of household travel behavior data that supports the travel and land use modeling and analysis described above and to track trends over time.

The Household Travel Survey is a key input to the SoundCast model described previously. The survey is used to estimate the behavioral responses that people exhibit in their daily travel choices to better

understand how changes in transportation and land use policy will impact their travel behavior in the future. The timing of the Household Travel Survey is intentional and is used to provide the latest observed travel behavior for use in the estimation and validation of the SoundCast model for use in the Regional Transportation Plan analysis every four years.

Technology: EPA's Motor Vehicle Emissions Simulator (MOVES)

The region's air quality model estimates future motor vehicle emissions of criteria pollutants and greenhouse gases. The Federal Clean Air Act requires the Environmental Protection Agency to set National Ambient Air Quality Standards (NAAQS) for six criteria air pollutants: particulate matter (fine particulates, PM 2.5, and coarse particulates, PM 10), ground-level ozone, carbon monoxide (CO), sulfur oxides, nitrogen oxides (NOx), and lead. The analysis combines mobile source emissions factors from the U.S. Environmental Protection Agency's latest Motor Vehicle Emission Simulator (MOVES) and output from the travel demand model, including link-specific vehicle miles traveled and vehicle speed.

PSRC used the most recent version of the MOVES model, MOVES3, to develop emissions factors used to conduct the air quality analysis of the RTP. The MOVES3 model, released in 2021, represents EPA's most up-to-date assessment of on-road mobile source emissions, including incorporation of the most current vehicle, fuel, and emissions standards and new and updated emissions data from a variety of test programs and other resources. Metropolitan Planning Organizations are required to use the most current tool for regional analyses to determine whether emissions from planned transportation investments will conform with federal regulations.

- The most current regional vehicle fleet mix and age distribution data is used.
- The model accounts for the phase-in of current emissions standards, fuel standards, and engine technology, and contains assumptions regarding the rate of vehicle changeout and fleet turnover for each forecast year.
- The model does not predict future changes in regulations or technological advances. PSRC conducts a post-process analysis to address newer regulations and requirements not yet captured in MOVES3, and to address sensitivity testing of future vehicle fleets and technology assumptions.

As indicated earlier, the assumptions and calculations from recent state actions not yet incorporated into MOVES3 are the same as those identified and used as part of the PSREA partnership project. Actions and regulations that will affect emissions from cars and trucks are as follows:

- **Clean Fuel Standard**

The [Clean Fuel Standard](#) was passed by the Washington State Legislature in 2020 and requires fuel suppliers to reduce the carbon intensity of fuel 20% below 2017 levels by 2038. To apply a reasonable assumption of the emission reductions expected in the Puget Sound region by 2030 from the Clean Fuel Standard, the PSREA analysis applied an overall reduction factor of 10% to forecasted 2030 emissions.

- **Zero Emission Vehicles**

Several pieces of legislation have been passed in the last few years related to vehicle emission standards and the sale of zero emission vehicles (ZEVs). In particular, with the most recent

[rulemaking](#) by the Washington State Department of Ecology in 2022, all new passenger cars and trucks sold in Washington State must meet zero emission vehicle standards by 2035. Percentages of sales will increase transitionally between now and 2035: approximately 13% of all new vehicles sales in Washington State today are ZEV; beginning with model year 2026, 35% of new passenger vehicle sales will be ZEV, and manufacturers are required to increase ZEV sales by 6-9% each year until they reach 100% by 2035.

To apply a reasonable assumption of the emission reductions expected in the Puget Sound region by 2030 from the ZEV rules, the PSREA analysis assumes that 65% of new vehicle sales will be ZEV by 2030.

- **Climate Commitment Act**

The [Climate Commitment Act](#) was passed by the Washington State Legislature in 2021 and establishes a market-based program to reduce carbon pollution from the state's largest industries and sources of emissions. A limit, or cap, will be set on overall carbon emissions and businesses must either meet the cap through reduction of emissions or obtain allowances through auctions to be hosted by the Department of Ecology. The cap will be reduced over time. Proceeds from the auctions will be invested in projects that focus on clean transportation, climate resilience, and environmental justice. It is assumed that the Climate Commitment Act will result in a 26% reduction in emissions statewide by 2030 (from 2018 levels).

To apply a reasonable assumption of the emission reductions expected in the Puget Sound region by 2030 from the Climate Commitment Act, the PSREA analysis applies a 23% reduction factor to transportation fuel emissions by 2030.

What's in the RTP in 2030?

As noted earlier, the RTP incorporates the planned growth in population and employment by 2030 as well as the planned distribution of that growth as adopted in the VISION 2050 Regional Growth Strategy. The region anticipates adding an additional 700,000 people (**19%**) and 362,000 jobs (**23%**) between 2018 and 2030.

The goal of the region's transportation system is for a sustainable, equitable, affordable, safe, and efficient multimodal transportation system, with specific emphasis on an integrated regional transit network that supports the Regional Growth Strategy and promotes vitality of the economy, environment, and public health. Specific investments and policies in the plan that are expected to be implemented by 2030 are summarized below.

High-Capacity Transit

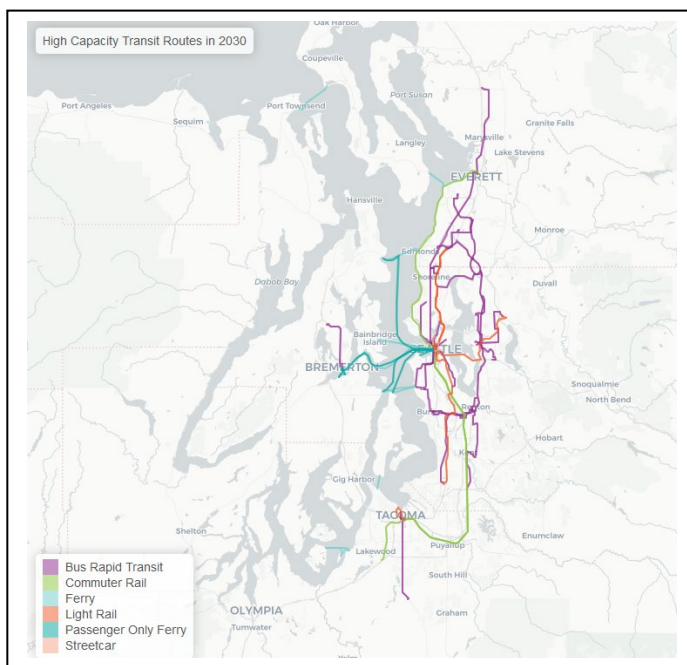
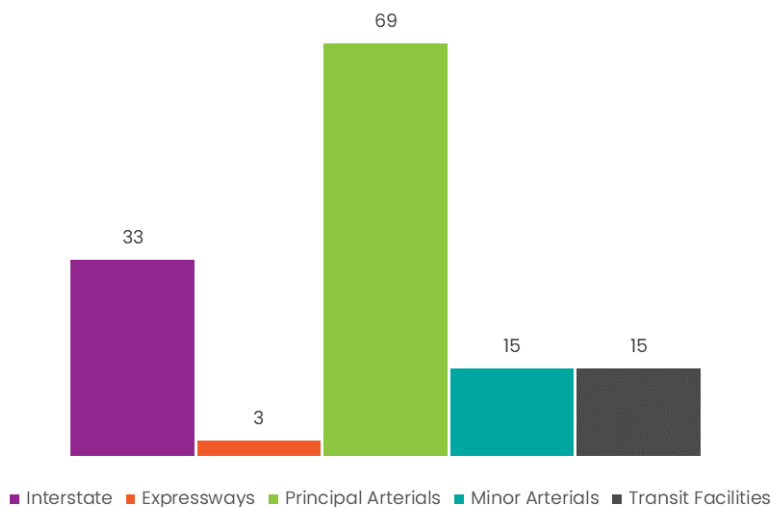
By 2030, expanded High-Capacity Transit options would operate in all four counties:

- 21 bus rapid transit routes
- 7 passenger-only ferry routes connecting Bremerton, Port Orchard, Kingston, Vashon Island and West Seattle with Downtown Seattle
- 50 light rail stations spanning 79 miles connecting Federal Way, Redmond and Lynnwood in addition to Downtown Tacoma

Roadway, Bicycle/Pedestrian and Other Investments

There are numerous investments planned on the transportation system that are considered programmatic in the RTP and are not explicitly identified on the [Regional Capacity Projects](#) list. These encompass a variety of modes and facilities, including sidewalks, bicycle lanes, local roadway improvements, safety, operational efficiencies, etc. However, in addition to the high-capacity transit expansions noted above, there are other larger scale projects included in the plan that are expected to be in operation by 2030. These include multimodal investments, regional trails, and improvements to various roadway facilities throughout the region. The investments in this latter category by 2030 are further described below.

There are 135 financially constrained projects between today and 2030 that are adding roadway capacity to the transportation network. Eighty-two of these 135 projects are focused on the State Highway system with the remaining 53 projects focused on the local owned transportation network across the region. As shown below in the further breakdown of project by facility type, 69 (51%) of these capacity projects are on Principal Arterials.



In total, the 135 roadway capacity projects in the 2030 RTP add approximately 530 centerline miles to the regional system, a change of approximately 2%. As shown in the table below, about 80% of these are **multimodal** projects that also include improvements for other modes of travel such as walking, biking, or transit; 5% improve **operational efficiency** through Intelligent Transportation System (ITS) measures or conversion from high occupancy vehicle (HOV) to high occupancy toll (HOT) lanes; and 15% primarily provide additional **general purpose capacity** to highways or major arterials.

Project Type	Number of Projects	Total Centerline Miles	Average Project Length (centerline miles)
Multimodal	108	306.5	2.8
Operational/Efficiency	7	150.5	21.5
General Purpose Capacity	20	72.7	3.6
Total	135	529.7	3.9

Example multimodal projects planned to be completed by 2030 include:

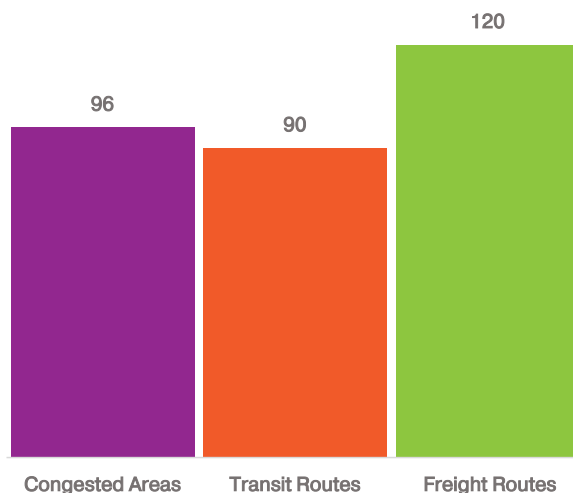
- A half-mile section of Auburn Way S, which will be widened to accommodate two lanes in each direction, center turn lane and medians, sidewalks, an enhanced pedestrian crossing, bus pull-outs, street lighting, and stormwater improvements.
- Approximately 1.5-mile section of Bothell Way, which will be widened to accommodate two lanes in each direction, center turn lane, ITS and signal improvements, protected bicycle lanes, sidewalks, stormwater improvements, landscaping, and illumination.

Spanning the multimodal and operational efficiency project types, 35 of the 135 projects are HOV lane, Business Access and Transit (BAT) lane, and/or Express Toll Lane (ETL) investments. These projects account for approximately 340 of the 530 miles (**64%**) added to the regional system by 2030.

Number of Projects with HOV/ETL investments	Total Centerline Miles	Average Project Length (centerline miles)
35	340.1	9.7

Example highway projects planned to be completed by 2030 include the Express Toll Lane system on I-405 between Lynnwood and Renton, as well as auxiliary lanes and interchange improvements at several locations along the I-405 corridor to relieve congestion choke points. I-405 Bus Rapid Transit (BRT) between Lynnwood and Burien that will use the Express Toll Lanes is also planned to be completed.

Many of the 135 financially constrained projects that are adding capacity to the transportation network are focused on improving freight connections and speed and reliability of transit routes. As shown below, 96 of these projects (71%) make improvements on congested highways or streets, meaning that the PM peak hour average vehicle speed is less than half of the posted speed limit. 120 of the projects (89%) are serving routes that move most of the freight on the regional transportation system and 90 (67%) improve the speed and reliability on highways or streets that serve transit routes.



Pricing Policies

The RTP assumes a transition to a road usage charge (RUC) system by 2030 that will serve as an eventual replacement of the motor fuel tax. Pricing mechanisms such as a RUC are recognized to serve not only as a source of transportation revenue but also as a demand management tool, and pricing is one of the four elements of the region's Four-part Greenhouse Gas Strategy.

The rate assumed in the RTP for the RUC is 10 cents per mile in peak periods and 5 cents a mile in non-peak periods. The plan further assumes flexibility in the use of revenues generated by a RUC to fund a wide variety of transportation improvements beyond roadways, without the restrictions of current motor fuel taxes.

The assumptions of the RUC included in the RTP differ from those currently being considered by the Washington State Transportation Commission, both in terms of the rates (approximately 2.7 cents per mile) and the use of revenues raised. These differences are discussed in greater detail in the RTP, and additional analysis is included in the 2030 sensitivity tests discussed later in this document.

2030 Analysis and Sensitivity Tests

Analysis of 2030 emissions began with identification of anticipated RTP system investments and services in place by 2030. Results using this year 2030 RTP network are provided below. Information is provided for various performance metrics, including the resulting greenhouse gas emissions and a comparison to the region's 2030 climate goals. Also described below are the various sensitivity tests and their corresponding results. The purpose of the sensitivity tests was to isolate individual levers

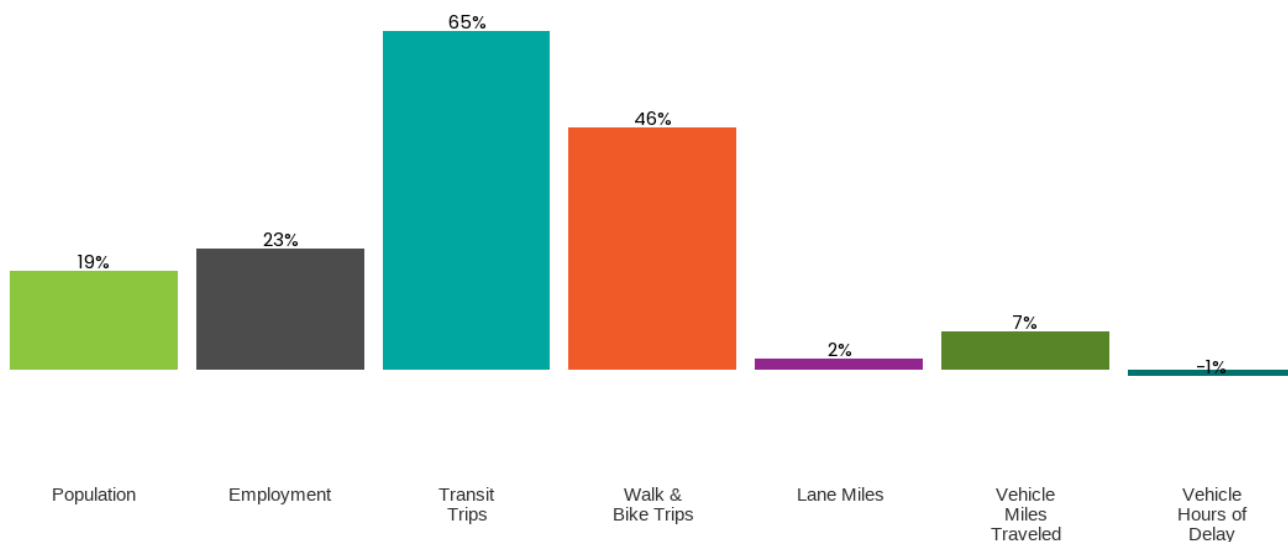
within the framework of the Four-Part Greenhouse Gas Strategy and identify the potential changes in emissions from differing assumptions for each.

2030 Transportation System – VISION 2050, the RTP and State Actions by 2030

As noted earlier, the 2030 transportation system includes the Regional Growth Strategy as adopted in VISION 2050, the investments and policies in the RTP, and the region's vehicle fleet under current federal fuel economy standards. In addition, as previously described, additional emission reductions are expected from recent state actions including the clean fuel standard, zero emission vehicles rules and the Climate Commitment Act.

A high-level overview of the impacts of growth and transportation investments by 2030 is illustrated in the chart below.

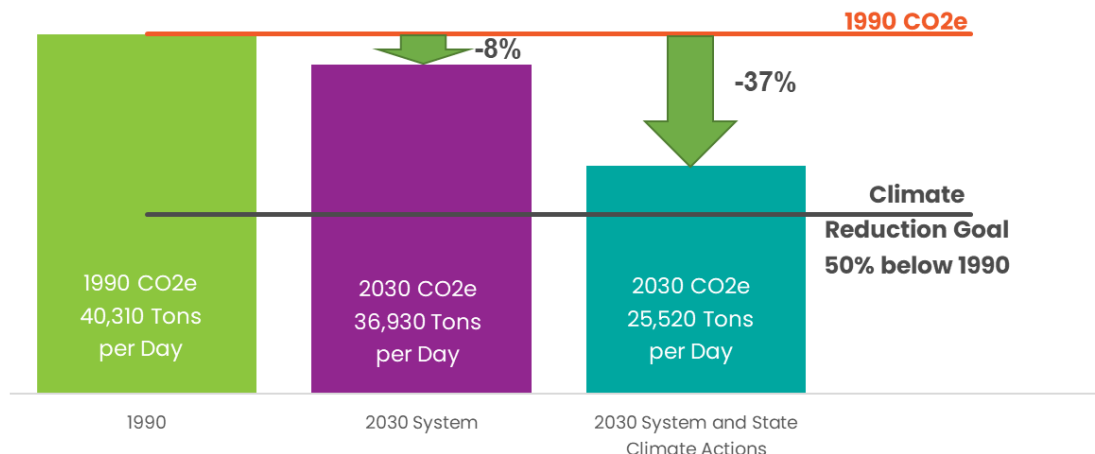
Percent Change between Base Year and 2030 Plan



Source: PSRC SoundCast Activity Based Model, Fall 2022 for King, Kitsap, Pierce and Snohomish counties.

The graphic below illustrates the resulting greenhouse gas emissions by 2030 from the combined elements of VISION 2050 land use patterns in 2030, the 2030 RTP network, and recent state actions, as compared to the 2030 climate goal to reduce emissions 50% from 1990 levels. As shown, significant progress is expected to be made but there is a remaining gap of 13% to fully meet the goal.

2030 Transportation System Greenhouse Gas Emissions



Sensitivity Testing – Land Use

The land use assumptions in the RTP are based on the adopted Regional Growth Strategy in VISION 2050. Jurisdictions are actively working to update their comprehensive plans and incorporate their local growth targets, so no new sensitivity tests were conducted within the category of land use for this analysis.

As noted earlier, the region is planning for an additional 700,000 people (**19%**) and 362,000 jobs (**23%**) between 2018 and 2030. In VISION 2050, the region committed to a Transit Focused Regional Growth Strategy that plans for 65% of the population growth and 75% of the job growth to occur near planned high-capacity transit investments. There were no set goals for the growth by 2030, however population growth trends between 2010 and 2020 near these facilities has been closer to 50%. The rate of growth near high-capacity transit facilities is planned to increase through time with the greatest growth occurring between 2030 and 2050.

It is important to consider the amount of growth and where it is planned when we consider future performance of the transportation system. Despite adding 20% more people to the region by 2030, investments in the plan along with planned growth limits overall growth of vehicle miles to 7% by 2030. If these same investments from the 2030 RTP were on the ground today, overall VMT in the system is estimated to be almost 5% lower than it is without the projects.

Sensitivity Testing – Pricing

As noted above, the RTP assumes a RUC rate of 10 cents per mile in peak periods and 5 cents a mile in non-peak periods. The RUC is applied as a per-mile rate for any vehicular travel on a roadway facility.

Several sensitivity tests were conducted to analyze different rates for the RUC. These include:

- No RUC
- State-level RUC of 2.5 cents per mile all day
- High-level RUC of 50 cents per mile all day

For context, the average cost of fuel for a mile of travel using an automobile today that averages 30 miles per gallon was approximately 20 cents per mile in the fall of 2022. This does not include the additional cost for maintenance and operation of the vehicle.

The table below provides model outputs for Vehicle Miles Traveled, Hours of Delay, Transit Boardings and Daily Tons of CO2e in 2030 for each sensitivity test analyzed. The % change column compares the 2030 outputs for the sensitivity test to the 2030 System and State Climate actions scenario for comparison.

Sensitivity Test	Vehicle Miles Traveled		Vehicle Hours of Delay		Transit Boardings		Daily Tons of CO2e	
	Total	% Change	Total	% Change	Total	% Change	Total	% Change
2030 System and State Climate Actions	94,046,700		398,000		432,000,000		25,521	
No RUC	98,232,700	4.5%	470,200	18.1%	416,970,000	-3.5%	26,977	5.7%
State RUC	95,825,500	19%	432,700	8.7%	424,800,000	-17%	26,149	2.5%
High RUC	81,845,800	-13.0%	256,300	-35.6%	482,610,000	117%	21,491	-15.8%

As highlighted in the sensitivity tests, pricing can lower vehicle miles of travel and delay while also lowering greenhouse gas emissions. As the system is priced at higher levels, demand for transit services is increased and the availability of transportation choices to driving alone are critical to those trying to lower the impact of higher transportation costs on their daily travel patterns. Any reductions in a RUC from the currently planned levels in the RTP result in increases in SOV travel, delay, emissions and a reduction in transit use.

Sensitivity Testing – Transportation Choices

The transit and roadway investments in the RTP by 2030 are briefly described above. Sensitivity tests were conducted related to the timing and level of transit investments, the implementation of general-purpose roadway capacity investments, and work from home levels. Specifically:

Transit

- Accelerating the 2050 high-capacity transit (HCT) network to 2030
- Increasing the frequency of all non-HCT transit service
- Increasing access to transit

Roadway Capacity

- Removing any roadway projects that add capacity for travel other than transit, bicycle, pedestrian, or HOV travel modes

Work from Home

- Increasing work from home levels to 30% (2021 pandemic levels)

Sensitivity Test	Vehicle Miles Traveled		Vehicle Hours of Delay		Transit Boardings		Daily Tons of CO2e	
	Total	% Change	Total	% Change	Total	% Change	Total	% Change
2030 System and State	94,046,700		398,000		432,000,000		25,521	
Climate Actions								
Accelerated Transit	93,37,800	- 10%	379,600	- 4.6%	579,168,000	34.1%	25,30	- 15%
Increased Frequencies	93,586,800	- 0.5%	390,700	- 18%	546,144,000	26.4%	25,302	- 0.9%
Increased Access	93,99,000	- 0.1%	395,800	- 0.6%	477,792,000	10.6%	25,469	- 0.2%
No Roadway Capacity	92,957,000	- 12%	448,600	12.7%	432,030,000	0.0%	25,503	- 0.1%
30% Telework	83,090,300	- 116%	225,000	- 43.5%	370,496,000	- 14.2%	21936	- 14.0%

All the sensitivity tests run centered around transportation choices lower vehicle miles of travel and emissions, but the overall levels of change were small except for the telework test. Telework had a large change on vehicle miles traveled and emissions but have a large impact on the amount of transit usage as well – reflective of large reductions in people commuting to large employment centers.

Acceleration of transit alternatives and frequencies had a noticeable increase in transit boardings by 2030 but had more reduced impacts on VMT and emissions. Analysis in 2050 showed greater impacts of transit access and frequency than witnessed in the 2030 analysis. A key difference between the 2030 and 2050 analysis and these differences is a result of the level of population and job growth near these transit investments. Many of the areas that have the highest levels of current activity unit density are the places that have the greatest HCT level of service by 2030. Ensuring that growth occurs near HCT is critical to further success of these transit sensitivity tests.

Sensitivity Testing – Technology

As described above, the 2030 transportation system results reflect the inclusion of VISION 2050, the RTP and recent state actions related to transportation vehicles and fuels. This includes the expectation that by 2030 65% of new vehicle sales will be zero emission vehicles.

The sensitivity test conducted related to technology increased this assumption of new vehicles sales by 2030 to 100%.

Sensitivity Test	Vehicle Miles Traveled		Vehicle Hours of Delay		Transit Boardings		Daily Tons of CO2e	
	Total	% Change	Total	% Change	Total	% Change	Total	% Change
2030 System and State	94,046,700		398,000		432,000,000		25,521	
Climate Actions								
100% Zero Emission Vehicle sales	94,046,700	0.0%	398,000	0.0%	432,000,000	0.0%	23,811	- 6.7%

Based on the current rate of turnover of the region’s vehicle fleet, this achieves an additional 7% reduction of emissions over the base 2030 transportation system results. This sensitivity test does not assume any further acceleration of fleet turnover between now and 2030.

Sensitivity Testing – Summary of Analysis Results

Based on the results of the sensitivity results run to date, pricing, commute trips alternatives and telework and increased zero-emission vehicle sales can have the greatest impact on overall greenhouse gas emissions. The table below shows the combined results of all the sensitivity results as compared to the 2030 System and State Climate actions.

Sensitivity Test	Vehicle Miles Traveled		Vehicle Hours of Delay		Transit Boardings		Daily Tons of CO2e	
	Total	% Change	Total	% Change	Total	% Change	Total	% Change
2030 System and State	94,046,700		398,000		432,000,000		25,521	
Climate Actions								
No RUC	98,232,700	4.5%	470,200	18.1%	416,970,000	-3.5%	26,977	5.7%
State RUC	95,825,500	19%	432,700	8.7%	424,800,000	-17%	26,149	2.5%
High RUC	81,845,800	-13.0%	256,300	-35.6%	482,610,000	117%	21,491	-15.8%
Accelerated Transit	93,137,800	-10%	379,600	-4.6%	579,168,000	34.1%	25,130	-15%
Increased Frequencies	93,586,800	-0.5%	390,700	-18%	546,144,000	26.4%	25,302	-0.9%
Increased Access	93,919,000	-0.1%	395,800	-0.6%	477,792,000	10.6%	25,469	-0.2%
No Roadway Capacity	92,957,000	-12%	448,600	12.7%	432,030,000	0.0%	25,503	-0.1%
30% Telework	83,090,300	-116%	225,000	-43.5%	370,496,000	-14.2%	21,936	-14.0%
100% Zero Emission Vehicle sales	94,046,700	0.0%	398,000	0.0%	432,000,000	0.0%	23,811	-6.7%

Next Steps

PSRC staff is currently working on a hybrid sensitivity test that combines several of the most promising levers from the four-part greenhouse gas strategy; this information will be provided to the boards in January for consideration and discussion of other hybrid scenarios.