Regional Transportation Plan

Analysis Tools

Puget Sound Regional Council

We are leaders in the region to realize equity for all. Diversity, racial equity and inclusion are integrated into how we carry out all our work.

psrc.org/equity

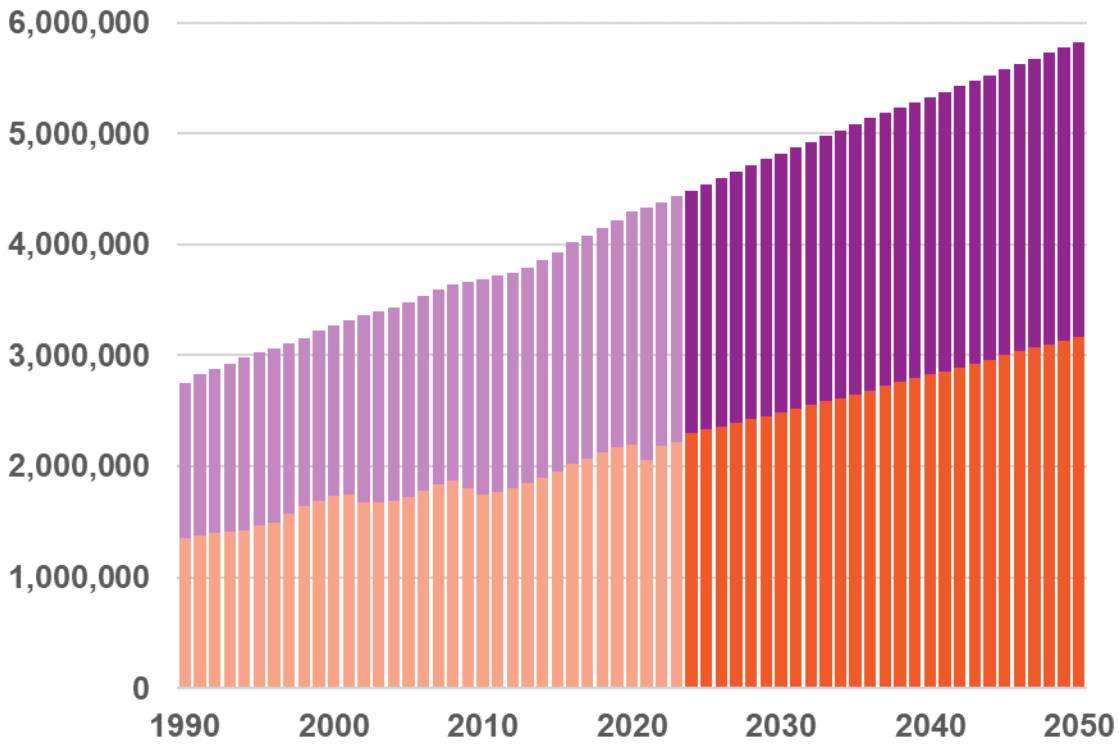
Analysis Tools at PSRC

Population and Employment

Population and Employment

Regional Forecast

- Provides regional estimates of population & jobs
- Informed by both local & national macro-economic trends.
- Basis for VISION 2050 & the Regional Growth Strategy



Population and Employment

Regional Forecast Comparison

REMI

WOODS & POOLE ECONOMICS WASHINGTON D.C.

Office of Financial Management
Working together for the equitable future of every Washingtonian.

THE PUGET SOUND ECONOMIC FORECASTER

- Purchased several forecasts for Post-Pandemic impact comparison
- Most forecasts range between 2%-5% of OFM mid and are well within the Low and High forecasts from OFM

Population and Employment

Land Use Allocation: UrbanSim

- Land Use Modeling at PSRC is State of the Practice with approximately ten (10) major metro-regions doing similar analysis

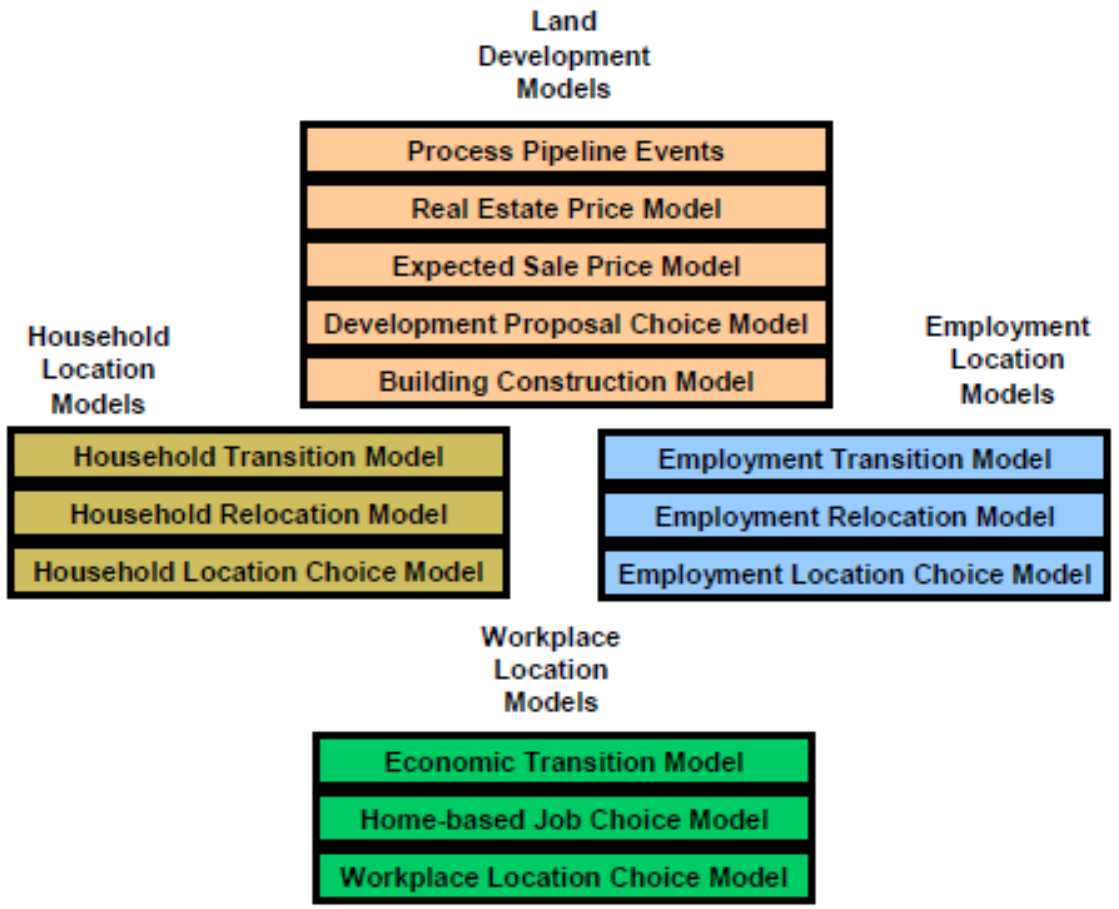
- Most metro regions don't have integrated Land Use and Transportation models

Image Source: https://www.urbansim.com/about

Population and Employment

Land Use Allocation: UrbanSim

- UrbanSim functions at the parcel level and deals with individual persons and jobs
- Interacts with accessibilities from Travel Models to inform decision making
- Allocation is based upon Adopted Targets



Population and Employment

Land Use Allocation: Comp Plan Consistency

LUV-it forecast product is the basis for all local Comprehensive Plan analysis and is consistent with VISION 2050.

Population and Employment

Population and Employment Metrics

Place-based metrics are available for many geographies:

- People near High-Capacity Transit
- People with access to Bike Facilities
- Jobs within ¼ mile of transit

Demographics like race and disability status are not forecasted so we can't directly output metrics:

- Equity Focus Areas highlight where changes occur in relation to where people live today

Travel Behavior

Travel Behavior

Activity Based Model: SoundCast

- PSRC is a national leader in Travel Demand Modeling
- Currently working with 11 other agencies as part of a consortium to advance modeling

SEMCOG Southeast Michigan Council of Governments

SANDAG

Metropolitan Washington Council of Governments

Metropolitan Transportation Commission

METROPOLITAN COUNCIL

MARICOPA ASSOCIATION of GOVERNMENTS

San Francisco County Transportation Authority

Oregon Department of Transportation

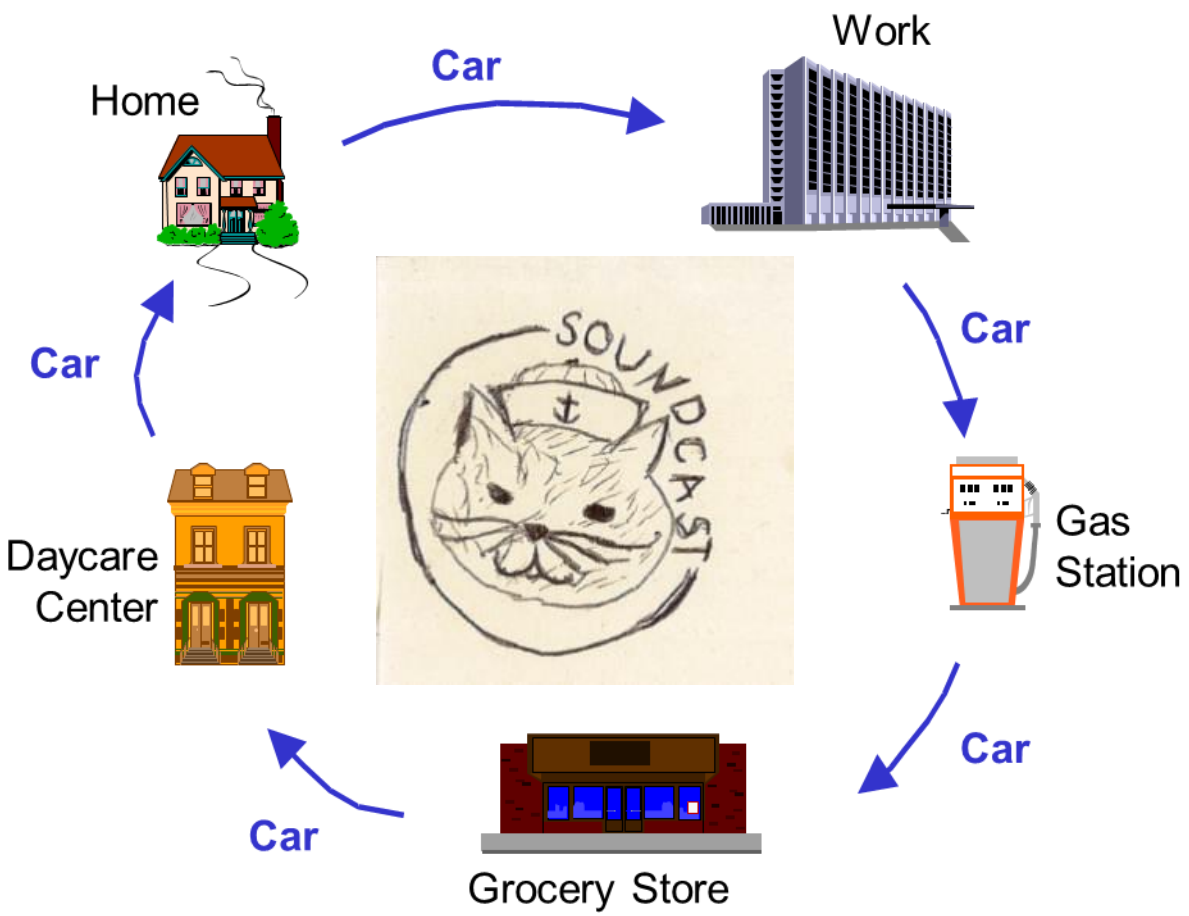
dot transportation.ohio.gov

Chicago Metropolitan Agency for Planning

ARC Atlanta Regional Commission

Travel Behavior

Activity Based Model: SoundCast



- Activity Based models function at parcels and deal to person level interactions
- Choices made for one part of a person's day inform all their choices

Travel Behavior

Activity Based Model: SoundCast

Population Synthesizer
Who is traveling?

Day Pattern
How much do people travel?

Destination Choice
Where do people go?

Mode Choice
What mode do people use?

Time Choice
What time do people travel at?

Route Assignment
What paths do trips use?

- Choices are sensitive to costs, time and distance – "accessibilities" in modeling
- How much people travel is influenced by changes in accessibilities

Travel Behavior

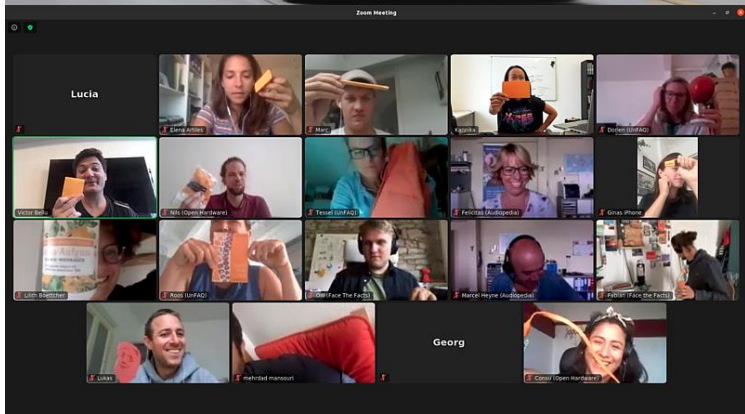
Travel Behavior: Household Travel Survey

Travel Behavior in SoundCast is informed by the latest Regional Household Travel Survey

2023 survey goal: Provide a baseline snapshot in time of behaviors post-pandemic.

Key topics of interest:

- Employment/teleworking
- Online shopping/deliveries
- Residential mobility

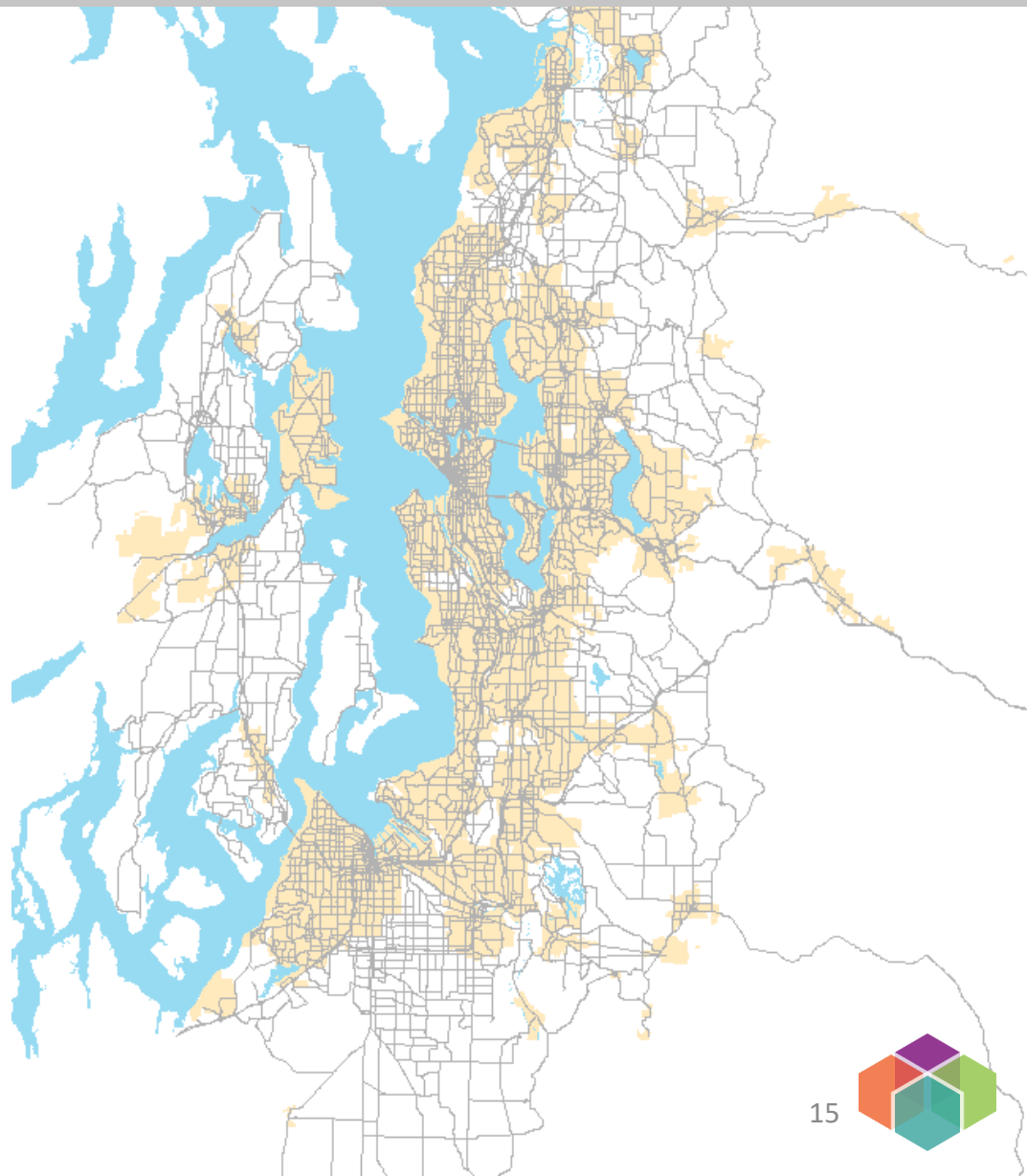


Travel Behavior

Roadway Network

- Regional Network consists primarily of Principal Arterials & above with Minor Arterials that serve transit

- Drive Alone, Carpools (2 and 3+), Transit, Bikes and Trucks are tracked throughout the network



Travel Behavior

Future Transit Network

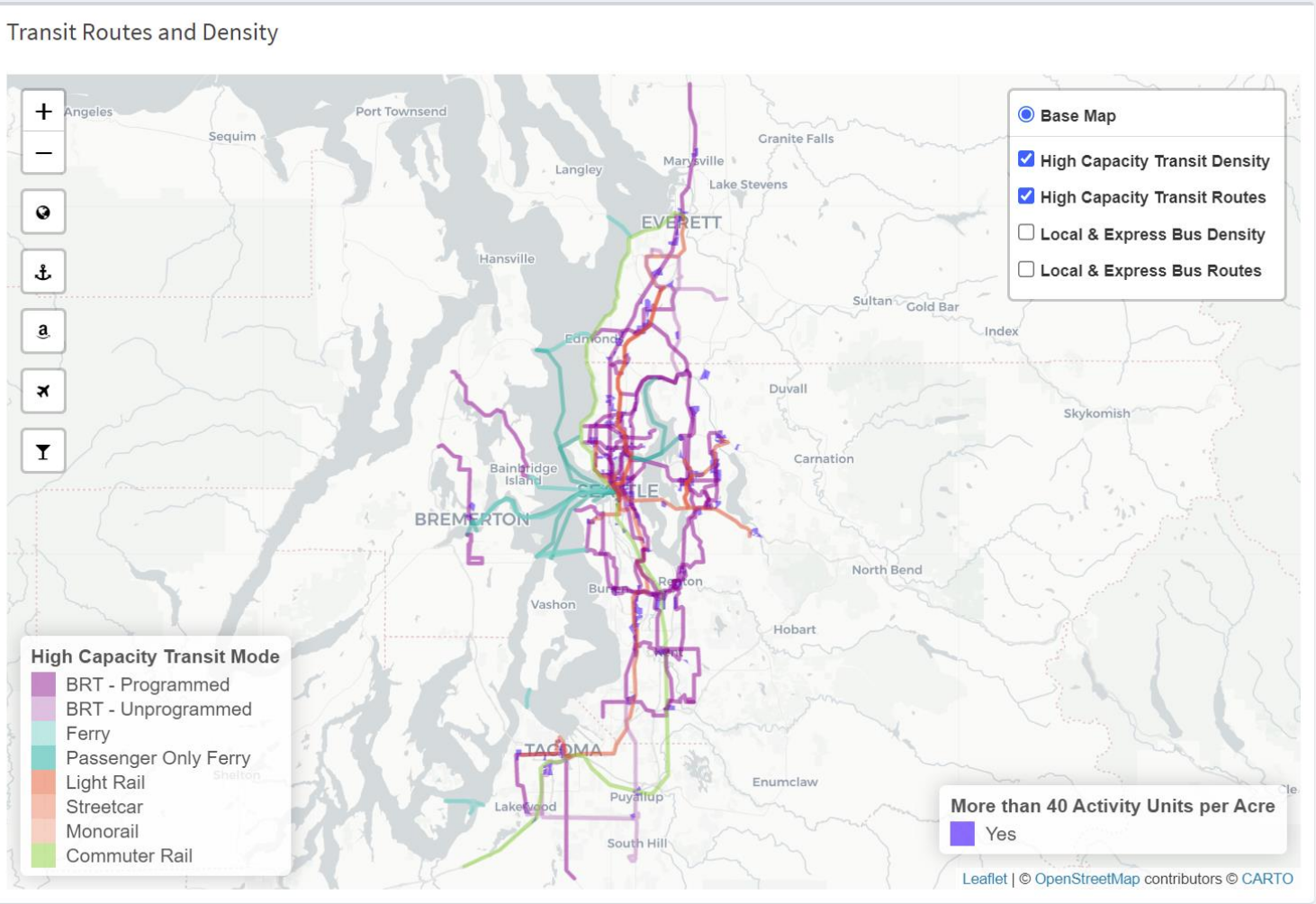
BUS RAPID TRANSIT
36 Programmed Routes
5 Unprogrammed Routes

LIGHT RAIL
5 Light Rail Routes
3 Streetcar Routes
1 Monorail Route

HEAVY RAIL
2 Commuter Rail Routes

FERRIES
10 Passenger-Only Routes
11 Ferry Routes

BUS
267 Local and Express Routes



Travel Behavior

Freight & Aviation Travel

- Truck demand is based on observed truck patterns that are grown based on employment

- Airport users are based on enplanement surveys performed by Port of Seattle and enplanements are consistent with Port of Seattle forecasts

Travel Behavior

Travel Behavior Metrics

Network based metrics:

- Speed, Travel Time, Vehicle Miles Traveled, Delay
- Transit Boardings, service hours and revenue miles

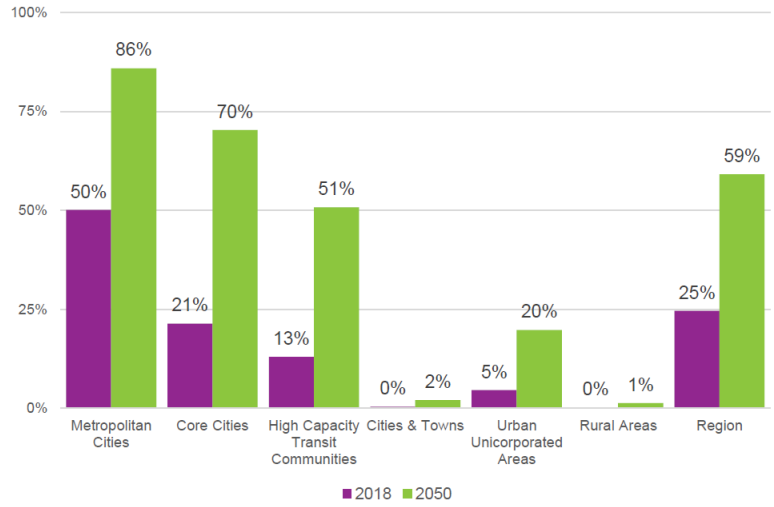


Figure 4. Households near High-Capacity Transit

Person based metrics:

- Delay and VMT per person
- Time spent walking and biking
- Metrics based on where people live

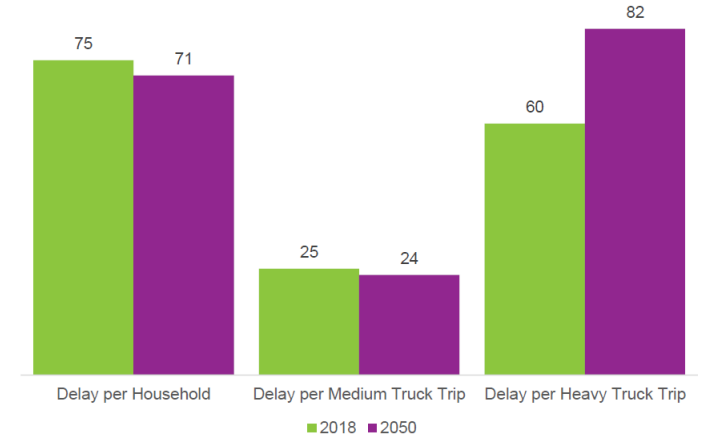


Figure 6. Annual Hours of Delay

Travel Behavior

Travel Behavior Metrics

We can't directly summarize travel metrics for demographics like age and race.

Where we can't measure directly, we use Equity Focus areas

Table 17. Mode Share to Work by Equity Focus Area

Geography	2018				2050			
	Drove Alone	Shared Ride	Transit	Walk & Bike	Drove Alone	Shared Ride	Transit	Walk & Bike
People under 18	72%	16%	5%	6%	63%	16%	11%	10%
People over 65	69%	15%	6%	9%	57%	14%	13%	16%
People with Limited English Proficiency	68%	16%	7%	9%	53%	15%	14%	18%
People of Color	65%	15%	7%	13%	50%	14%	13%	23%
People of Lower Income	65%	16%	7%	12%	52%	14%	13%	22%
People with Disabilities	68%	16%	6%	11%	54%	14%	11%	21%

Table 12. Percent of Households near High-Capacity Transit Service by Equity Focus Area

Geography	2018		2050	
	¼ Mile	½ Mile	¼ Mile	½ Mile
People under 18	2%	11%	19%	40%
People over 65	6%	19%	32%	55%
People with Limited English Proficiency	10%	31%	46%	76%
People of Color	13%	32%	48%	75%
People of Lower Income	9%	29%	46%	71%
People with Disabilities	8%	23%	34%	57%

Air Quality and Climate

Air Quality and Climate

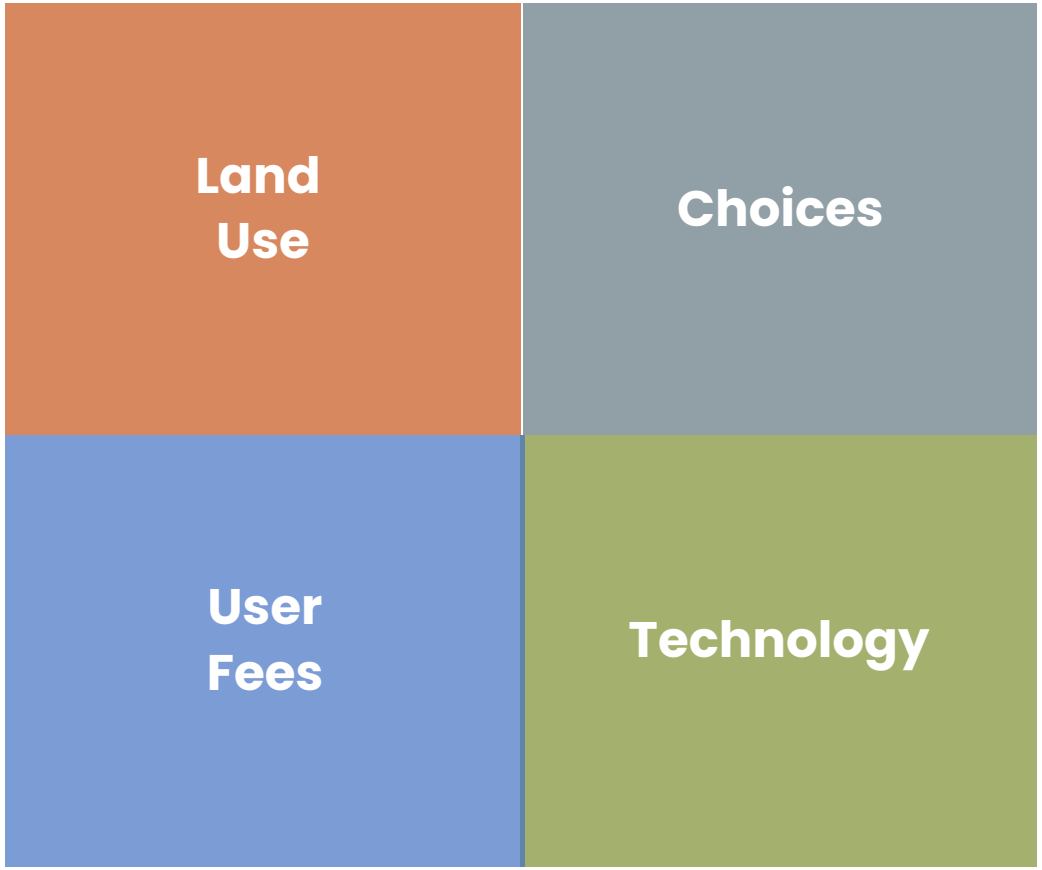
Four-Part Greenhouse Gas Strategy

Land Use: VISION 2050 regional growth strategy

Choices: Expanded and integrated regional transit network and other investments

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

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



Air Quality and Climate

Motor Vehicle Emission Simulator (MOVES)

- 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.

DEPARTMENT OF ECOLOGY
State of Washington

Air Quality and Climate

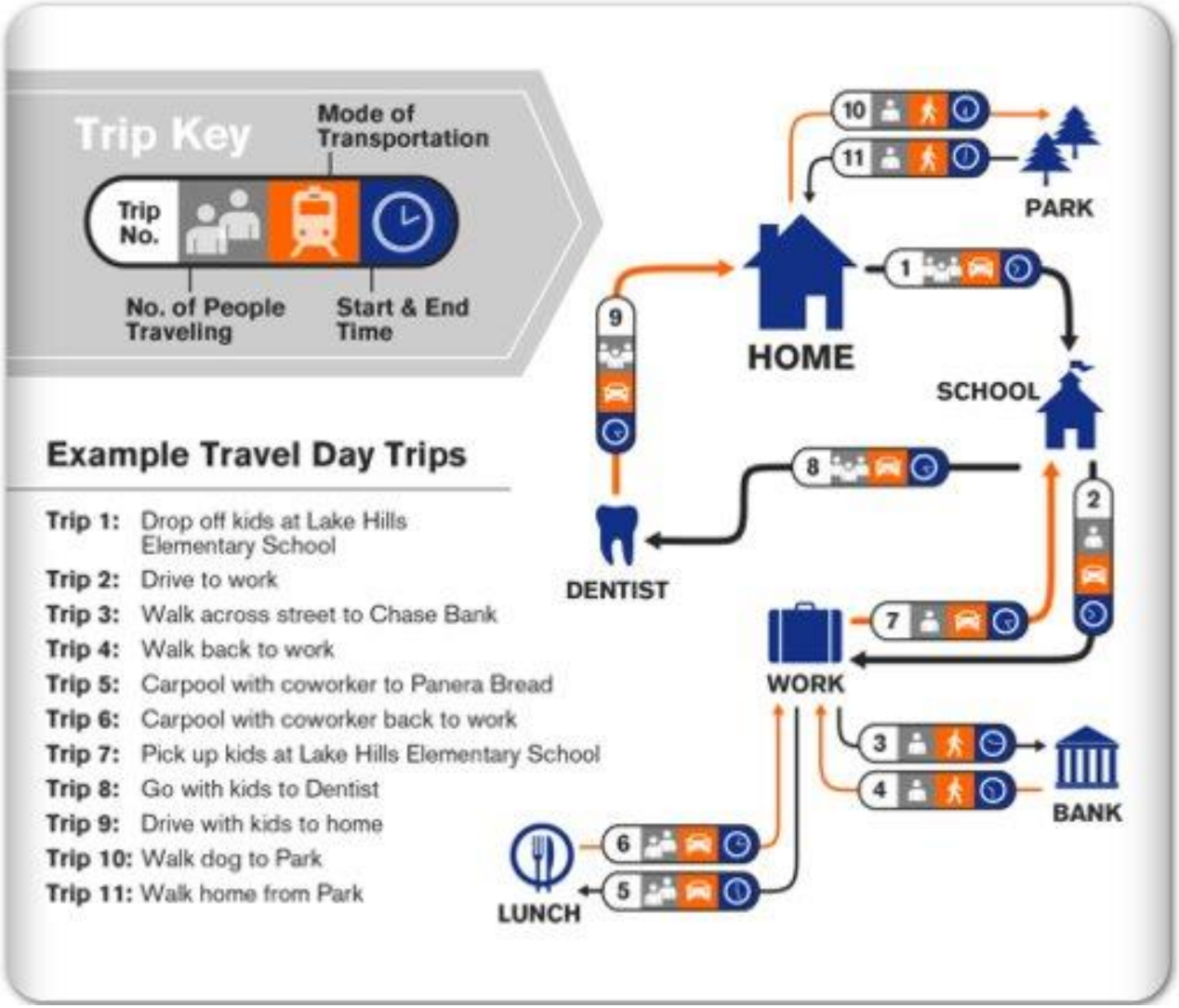
Air Quality Metrics

On-Road Transportation:

- Criteria pollutants (e.g., carbon monoxide, particulate matter)
- Green House Gas emissions

The MOVES 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.

Data for Analysis

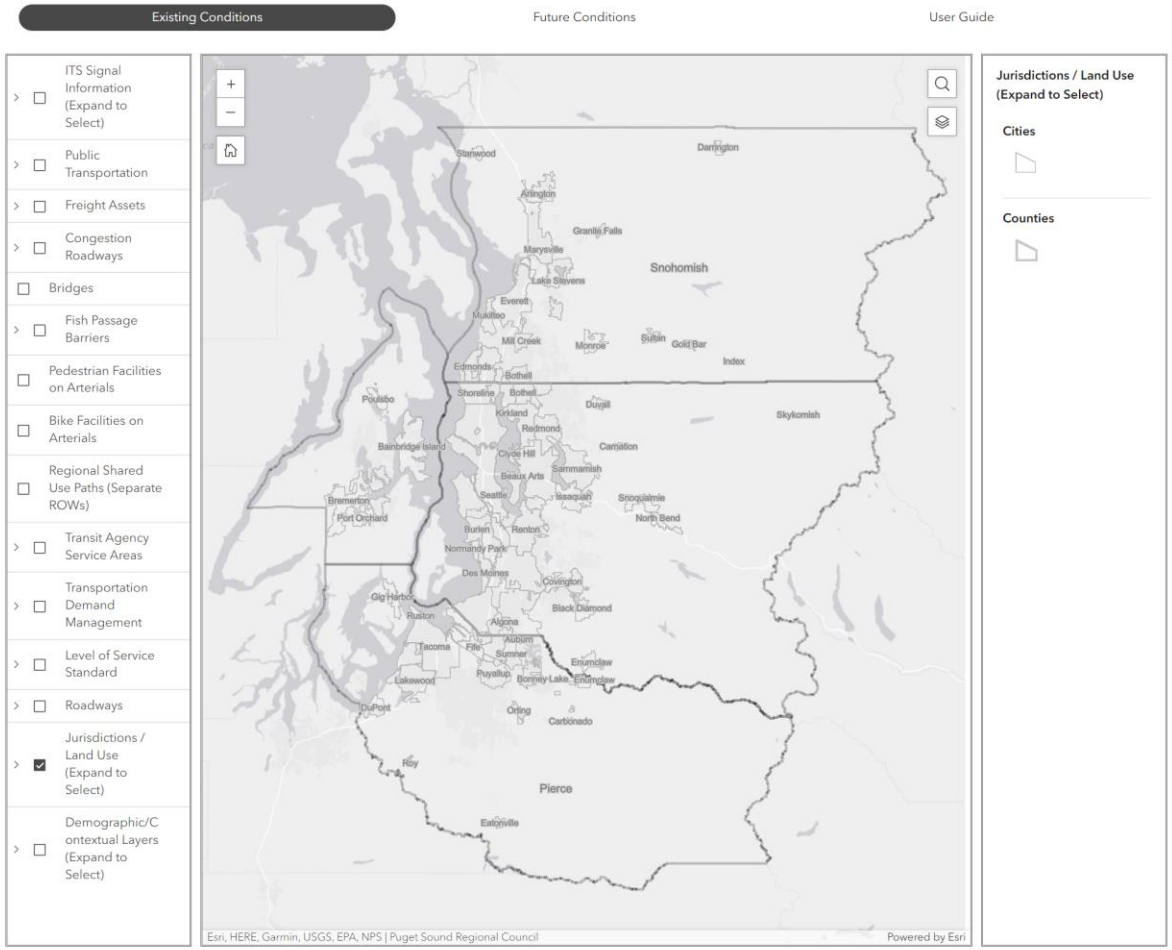


Data for Analysis

Non-Model Data

Many data items are collected and combined with other data at PSRC for use in the RTP. Examples include:

- Signals
- Sidewalks and Bike Lanes
- At-Grade railroad crossings
- Traffic Counts
- Transit Boardings



Thank you!

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