

Salem-Keizer Metropolitan Area Travel Demand Model

SKATS has developed a travel demand model for the Salem-Keizer metropolitan area to assist policymakers in making informed decisions regarding future transportation needs. This model is a software program that is used to forecast travel patterns and traffic volumes on existing and proposed roadways and streets.

Travel demand models require the following data:

- Personal trip making characteristics, from a household survey:
 - Number of trips per day
 - Types of trips (work, school, shopping, recreation, etc.)
 - Origin and destination of trips (inside or outside the region)
 - Mode of trips (driver, passenger, bus, walk, bike)
 - Time of day the trip took place
 - Number of autos in the household
- Socioeconomic information about the region:
 - Census information on household sizes, income levels, workers per household
 - Employment counts and location in the region by type (industrial, retail, service, etc.)
 - Forecasts of future population and employment growth and location based on local comprehensive land use plans.
- Detailed information about the street and highway system:
 - Number of lanes on streets and intersections (for estimating capacities)
 - Posted speeds
 - Turn prohibitions
- Other information:
 - Travel into and out of the region (e.g., Dallas to Salem, Salem to Portland)
 - Travel through the region (e.g., Eugene to Portland)
 - Auto occupancy information
 - Travel time/speed studies that relate congestion to reductions in speed
 - Traffic counts to validate the model's output

The model uses all this information to determine how many trips for each purpose (work, shop, etc.) are made by mode and time of day. The relationships between travel time and the “attractiveness” of a destination determine the starting and ending locations of trips. Information on the street system (speed, capacities, congestion) determines on which streets the trips are assigned. The model is continuously adjusted until the results match traffic counts. At this point, the model can be used with population and employment forecasts to analyze

future traffic volumes on existing or new streets.

Consultants working on projects within the SKATS Metropolitan Planning Organization’s boundary may request model runs and output. The services available is described in the document “Modeling Services at the Mid-Willamette Valley Council of Governments“, which includes the current fees for this service. Available separately is a map of the current (2019) Transportation Analysis Zones.

SKATS staff is working with staff from ODOT and other MPOs in Oregon to specify the next generation of travel demand models to be used. This will use data from the 2023-2024 Oregon Travel Study to understand how people are traveling post-COVID. Design work on the new model will take place in 2023 and into early 2024, with estimation of the underlying equations taking place in late 2024 to early 2025 after the Travel Study data has been cleaned and processed. Implementation is anticipated to take place in 2025 with testing of the model to continue into 2026.

If you have questions on how the model works, would like additional information on the data or procedures used, or would like to discuss model runs and/or output for your project, please contact Mike Jaffe or Ray Jackson at 503-588-6177.

Supporting Documents

[Modeling Services at the Mid-Willamette Valley Council of Governments](#) 160.36 KB

[Map of the Current Transportation Analysis Zones \(TAZs\) 2022](#) 220.17 KB