Frequently Asked Questions

How is Oregon's modeling program managed?

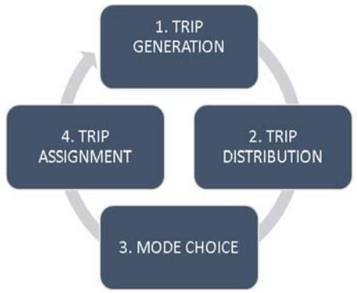
Statewide transportation models, as well as models for small to mid-size metropolitan areas and small cities, are managed by the Oregon Department of Transportation (ODOT). This centralized approach, which is unique to Oregon, supports regions with limited technical staff and provides significant advantages for model consistency, quality and cost.

For example, in order to handle the increasing demand for travel models in small to mid-size metropolitan areas, ODOT used Portland Metro's regional model to develop a template. The template is an empty shell that is then filled with local data and calibrated to match travel conditions in each unique location. This cost-effective approach expedites the development of new models, and provides Oregon's metropolitan planning organizations and other small and mid-sized communities with sophisticated planning tools that out-perform those used in comparable areas of the country.

CALM is a "4-step model." What does that mean?

CALM's calculations are performed in four steps representing major household travel behaviors:

1. **Why** we travel (*trip generation*). CALM estimates the number of trips made from each origin, based on household size, income and employment type.
2. **Where** we travel (*trip distribution*). CALM estimates a destination choice for each trip.
3. **How** we travel (*mode choice*). CALM estimates whether each trip will occur by car or truck, bicycle, walking or transit.
4. **Which way** we travel (*trip assignment*). CALM estimates the route taken to accomplish each trip.



How do we know CALM's forecasts are reasonable?

Before future travel forecasts are made, the model is run to provide a picture of existing travel patterns. The results are given a reality check where modelers confirm the numbers make sense and cross-check how well the model represents current "observed" patterns. This checking process is called validation.

Can we expand CALM's capabilities?

Can it be done? Yes. *Should* it be done? Maybe. When it comes to model development, there is a point of diminishing returns. At some point the additional information to be gained simply cannot justify the level of effort required for model enhancements. It is important to make a clear distinction between information that is essential for planning purposes, and information that may be helpful or interesting, but would take resources and model runtime that is not commensurate with the value that would be added.

While ODOT's modeling resources are limited, we welcome partnerships and resource-sharing opportunities with customers who may desire custom outputs or enhanced model functions.

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OMIP
Oregon Modeling Improvement Program

CORVALLIS ALBANY LEBANON MODEL

A Regional Computer Model for Transportation Forecasting

What is CALM?

The Corvallis Albany Lebanon Model (CALM) is an analysis tool used to forecast travel patterns (auto, walk, bike, transit) on the transportation system. CALM models how travel and transportation system conditions are likely to respond to changes in land use, population, employment, new transportation facilities, transit service, and public policy.

By showing the impacts and benefits associated with potential improvements, this powerful tool helps transportation planners and policymakers make the most of limited funds and avoid unintended consequences.

How is the model used?

Planners use CALM when preparing long-range transportation plans to evaluate transportation projects and strategies for accommodating growth. CALM forecasts travel changes in response to future land use and transportation scenarios. The model provides objective, quantitative information that enables communities to explore the potential impacts of alternative transportation system investments.

Information from CALM can be produced for an individual jurisdiction or the entire CALM model area. CALM information can also be used as input to other models, such as regional air quality models.

Like all transportation models, CALM is an informational tool to assist with decision making. While model information on the impacts of different investment scenarios is valuable for planning purposes, CALM does not provide the "right answer." It simply provides information to enable better decision-making.

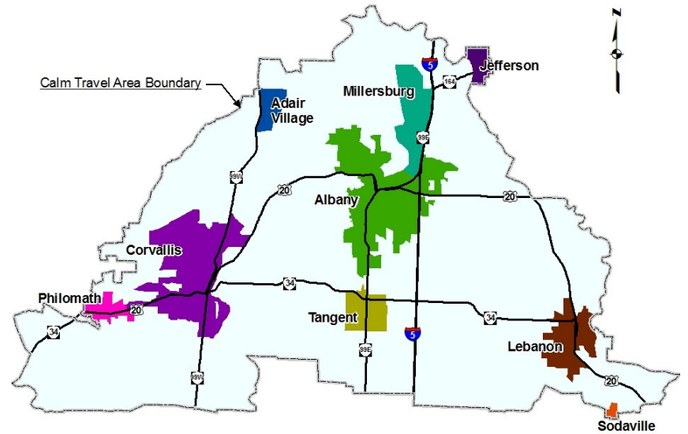
CALM can provide:

- ◊ *Trips by private vehicle, bus, bike and walking*
- ◊ *Roadway volume and demand-to-capacity estimates*
- ◊ *Regional travel patterns*
- ◊ *Peak hour and daily travel forecasts*
- ◊ *Regional vehicle miles and vehicle hours travelled*
- ◊ *Average trip distances*
- ◊ *Time of day parking lot utilization for the OSU area*
- ◊ *Routing for specific vehicle trips*
- ◊ *Daily transit ridership by route*

Other outputs are available. Some may require additional data and resources to develop.

CALM MODEL AREA

- ♦ *Corvallis*
- ♦ *Philomath*
- ♦ *Adair Village*
- ♦ *Albany*
- ♦ *Millersburg*
- ♦ *Tangent*
- ♦ *Jefferson*
- ♦ *Lebanon*
- ♦ *Sodaville*
- ♦ *Surrounding unincorporated areas*



CALM covers a region that includes the Corvallis, Albany and Lebanon urban areas.

CALM has enhanced transit modeling capabilities.

Transit Functions in CALM

Transit forecasting capabilities in regional models can range from simply forecasting the proportion of region-wide trips using transit (“level 1” forecasting), to highly complex route and stop-level analyses for large metro areas (“level 4” forecasting).

The detail and complexity of a large metropolitan transit model ("level 4" forecasting) is not necessary for regional transit planning in small metropolitan areas such as Corvallis, Albany and Lebanon. However, CALM supports a higher level of analysis than is typical for similarly sized metropolitan areas across the country. CALM’s transit module enables communities to examine how major transit investments, such as new routes or significant changes in service frequencies, may affect future ridership, while accounting for interaction and competition with other modes.

What transit information is used by CALM?

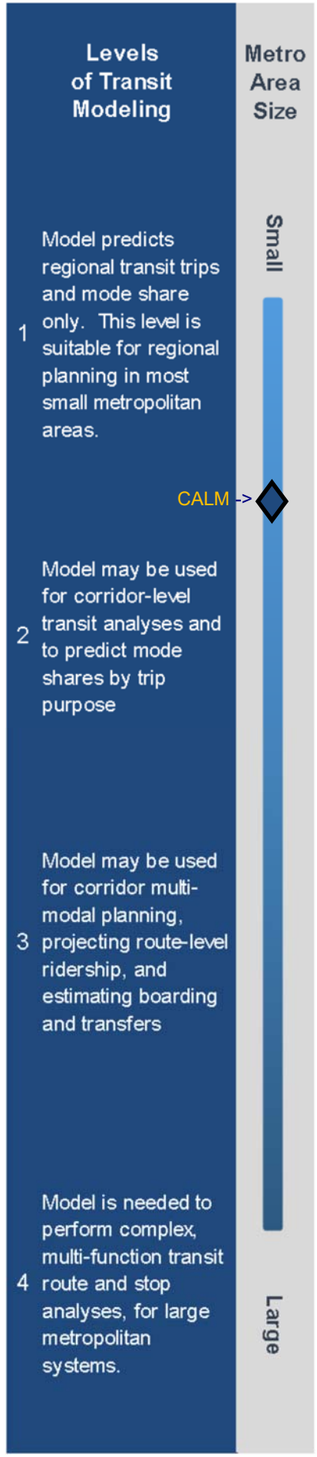
Transit route and schedule details, bus travel speed estimates, transit fares, data collected from on-board surveys and household travel surveys, observed transit ridership, and other national data sources were used to prepare CALM’s model functions. These data sets are used in a variety of ways:

- To define mathematical algorithms within the model.
- As inputs to run the model.
- To verify that the model replicates real world conditions.

What transit outputs does CALM provide?

CALM can forecast:

- Daily route-level ridership.
- Who is likely to use the transit system and why.
- Regional travel patterns of transit riders.
- Whether riders are walking or driving to get to and from the transit system.



University Life

The area around a college or university campus can have unique living and travel patterns.

Many students may live in group quarters on campus, or in apartment units in nearby neighborhoods, increasing residential densities and the number of cars per household in those areas.

Income levels in areas around campus may differ from comparable areas elsewhere in the region.

Commuting students and faculty may travel at different times of the day than typical residents.

Parking costs and restrictions can be much different on campus and in surrounding neighborhoods than in other parts of the region.

The CALM university model was developed using travel survey data from Oregon State University and University of Oregon.

University areas have unique living and travel patterns.

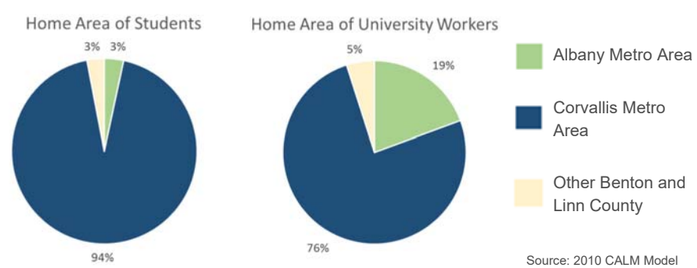
University Model Overlay

Embedded within CALM is a special university travel model covering the Oregon State University (OSU) Campus and nearby neighborhoods.

Travel and land use patterns within the university model are distinct from those in other areas of the region due to residential clustering of students; greater walking, bicycling and transit use; limited parking supply; and peak travel periods that are significantly influenced by class schedules and campus events. Because OSU is a major employment and travel hub for the region, the ability to replicate university travel patterns with a high degree of confidence is essential to overall model performance.

The university model allows consideration of additional factors affecting travel in and around campus, such as:

- Parking costs, parking availability, and parking lot utilization throughout the day.
- Analysis of special transit shuttles, such as the Beaver Bus.
- Unique land uses such as classroom, university offices, and recreational areas.
- Students and university workers in single family homes, townhomes, apartments and other housing options, including students in dorms and fraternities/sororities.
- Income levels, car ownership and household composition for students and university workers.



Source: 2010 CALM Model