



Oregon Modeling Steering Committee: Collaborative Transportation and Land Use Modeling

Quick Information

Organization(s): Oregon Department of Transportation (ODOT); Oregon Metro; Oregon Metropolitan Planning Organizations (MPOs)

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Website: <https://www.oregon.gov/ODOT/TD/TP/pages/omsc.aspx>

Cooperation Topic(s): Statewide Planning

Cooperation Practice(s): Data Sharing and Developing Common Modeling and Forecasting Tools

Cost Information: ODOT staff coded JEMnR into language R. The group used a population-based formula to determine how much each agency would contribute to the cost. ODOT financed the survey for the rural, non-MPO areas across the State.

The [Oregon Modeling Steering Committee \(OMSC\)](#) serves as a forum for MPOs, Oregon Department of Transportation (ODOT), and other agencies to improve current transportation and land use modeling and promote state-of-the-art practices in Oregon. OMSC's collaboration has led to many successes, including the implementation of similar modeling protocols and a consistent statewide household travel survey, as well as technical support and training.

Motivation for Establishing the Collaboration

In the 1990s, ODOT and the State's MPOs faced new Federal mandates in the form of Clean Air Act Amendments and the Transportation Equity Act for the 21st Century, in addition to the National Environmental Policy Act (NEPA) and related laws and regulations. To meet these mandates, ODOT created the [Oregon Modeling Improvement Program \(OMIP\)](#) in 1994 and began to identify data and resources needed for outreach, model development, and implementation. In 1996, ODOT created OMSC to oversee OMIP and provide technical support to MPOs with little funding and limited or no modeling staff. ODOT drew upon lessons learned from the successful modeling practices developed by Metro, the Portland MPO, which had invested in building and updating travel models for years. Though ODOT was not new to the concept of modeling, the State DOT was using a variety of models to serve different geographic areas of the State, and it was difficult to manage and meaningfully compare the data between models. After OMSC determined that incorporating elements of

OMSC Partners

- Port of Portland
- Oregon Housing and Community Services
- Oregon Health Authority
- Federal Highway Administration Oregon Division Office
- Oregon Department of Transportation
- Land Conservation and Development, Energy, and Environmental Quality
- Oregon Transportation Research and Education Consortium (OTREC), a USDOT University Transportation Center based at Portland State University

Metro's model into the smaller MPOs' models improved accuracy, the group developed the Joint-Estimated Model in R code (JEMnR) to serve as a template for all Oregon MPO models. ODOT staff were responsible for coding the model framework into R. The collaborative approach used by OMSC enables participating agencies to find common policy and analysis areas and efficiently share data, information, and resources, increasing the return on public resources.

Collaboration Structure and Process

Originally, OMSC consisted of modelers and planners from ODOT and the State's four MPOs, including Metro, who worked together to develop JEMnR. Four additional MPOs in Oregon joined OMSC when they were created after the 2000 and 2010 Census. The Southwest Washington Regional Transportation Council, the MPO from Vancouver, Washington, also participates in OMSC because of its proximity to the Portland area. When possible, ODOT provides resources to facilitate and administer the group.

In addition to MPOs, other agencies joined as formal or informal partners to provide expertise on critical emerging needs, such as air quality, greenhouse gas emissions, housing, energy consumption, and health. OMSC attempts to make decisions on a consensus basis, and even in contentious situations the committee has never failed to reach consensus after talking through an issue.

OMSC includes several standing subcommittees assigned to cover specific topics. Subcommittees meet several times a year and report to the full group during biannual meetings held in Salem, Oregon. The Long-Range Steering Committee includes senior staff from participating agencies and acts as OMSC's visioning body through considering topics to discuss, where the group focuses resources, and how to keep the partnership motivated and relevant over multi-year timeframes. The Long-Range Steering Committee also sets the agenda for OMSC meetings. The Modeling Program Coordination Subcommittee discusses technical information, such as how to improve transit choice modeling and incorporate analytical air quality measures. The Oregon Modeling Users Group serves as an educational forum in which participants discuss tools, methods, and findings from their individual, multi-modal projects. OMSC also includes short term ad-hoc committees, such as the recent Freight Subcommittee and the Health Subcommittee.

Takeaways

- OMSC serves as a forum for MPOs, ODOT, and other agencies to improve transportation and land use modeling and promote state-of-the-art practices in Oregon.
- OMSC consists of one modeler and one policy representative from each of the eight Oregon MPOs, ODOT, other State resource agencies, Oregon universities, and the Southwest Washington Regional Transportation Council in Vancouver, Washington.
- OMSC developed the Joint-Estimated Model in R code (JEMnR) to serve as a template for all Oregon MPO models.
- The JEMnR approach reduced new model development time significantly, increased the robustness of small MPO travel demand models, and offers the opportunity for cross-regional comparison on different parameters of travel demand.
- OMSC maintains standing subcommittees to cover specific topics and short-term ad hoc committees.
- Maintaining a culture of helpfulness and appreciation of mutual benefit has been a building block of OMSC's success.

Collaboration Accomplishments

The JEMnR model framework represents one of OMSC's most significant accomplishments. The partners developed trip generation and mode choice elasticities that apply across all MPOs, but tailored destination choice to individual communities. Smaller MPOs can turn off JEMnR features, such as modal alternatives that are not available in their area. The JEMnR approach has reduced new model development time significantly and increased the robustness of small MPO travel demand models. The tool also offers the opportunity for cross-regional comparison of different travel demand parameters.

Another significant benefit is the ability to identify projects that are of mutual interest to multiple agencies within the committee. OMSC played a vital role in funding, staffing, and scoping the statewide household travel survey, which is an important asset for identifying travel characteristics and initiating model enhancements. In 2007, when the State sought new household travel data, ODOT served as the project facilitator for its OMSC partners. Through a subcommittee devoted to the effort, OMSC created a core survey that enabled the group to pool data from the entire State, while individual MPOs were allowed to add their own unique questions to the survey. The group also shared financing based on available resources to complete the project, which created cost efficiencies for each agency. Some MPOs traded funding for services while others received direct assistance from ODOT or other agencies. The group used a population-based formula to determine how much each agency would contribute to the cost of development of the survey instrument, and each agency was responsible for funding its own data collection efforts to account for differences in sample size. ODOT financed the survey for the rural, non-MPO areas across the State. As partners, all OMSC members have access to the full statewide survey database.

OMSC plans to conduct another statewide household travel survey in 2020. In addition to the materials and strategies developed for the 2009 survey, OMSC will explore the use of enhanced technological mechanisms for data collection, such as smart phones and web applications.

Challenges and Lessons Learned

One challenge OMSC faces is that, because the group meets voluntarily and not by State mandate, the group lacks dedicated funding for its daily work. To address this gap, ODOT provides resources to facilitate and administer the group. To the extent possible, partner agencies contribute staff time, meeting facilities, and committee participation in OMSC activities. OMSC members are in the process of updating the OMIP to ensure its member organizations are meeting the current needs of Oregon decision makers. OMSC staff would also like to strengthen relationships with other entities, such as statewide policymakers, in order to better collaborate on projects of shared interest.

OMSC maintains a culture of helpfulness and thorough attention to detail, and because of this, the group has had a tendency to take on too much work and spread its efforts too thin. The group has since realized that setting clear goals, tightening its focus areas, and conducting evaluations to determine the appropriateness of taking on new projects will be essential to completing meaningful work moving forward.

OMSC has also learned to leverage the group's university resources and connections. The partnership itself plays an educational role by convening researchers from different backgrounds who help each other address new challenges. Portland State University, University of Oregon, Oregon Institute of Technology, and Oregon State University enhance this educational role through coordination with OMSC and the Oregon Transportation Research and Education Consortium (OTREC).

Staff turnover poses another challenge. While the partnership includes people who have participated since its inception and provide the knowledge and motivation to champion the work, some have started to retire. To address this challenge, OMSC recommends meeting in person to strengthen relationships, assist with identifying common ground, and learn fellow agencies' priorities firsthand. In-person meetings are held semi-annually in Salem, a central location, to reduce the burden on smaller MPOs, and all meetings have phone- and web-based remote access options. Because the group does not vote on its actions, but rather openly discusses potential options for future action, members often respectfully pursue different paths while continuing to work together on areas of shared interest.

By collaborating through a common forum, OMSC has achieved two decades of cost efficiencies and improved performance. These benefits will continue as the partners begin to analyze and apply the pooled data from the statewide household travel survey and undertake common projects in the future.

Additional Resources

- [Oregon Modeling Steering Committee](#)
- [Oregon Modeling Improvement Program](#)
- [OMCS Meeting Agenda](#)
- [OMSC Meeting Minutes](#)
- [OMSC 2013 Operating Procedures](#)