

**OREGON MODELING STEERING COMMITTEE**  
**ODOT Human Resource Center, Suite C**  
**2775 19th Street SE (near Airport), Salem, OR**  
**Wednesday, April 15, 2009, 1:30 p.m.-4:00 p.m.**

**MINUTES**

**ATTENDANCE**

**Members**

Bill Upton/Oregon Department of Transportation, Chair  
Dave Nordberg/Oregon Department of Environmental Quality, Vice-chair  
Dick Walker/Portland Metro  
Susan Payne/Lane Council of Governments  
Mike Jaffe/Mid-Willamette Valley Council of Governments  
Ray Jackson/Mid-Willamette Valley Council of Governments  
Brian Dunn/Oregon Department of Transportation  
Shinwon Kim/Regional Transportation Council  
Satvinder Sandhu/Federal Highway Administration

**Others**

Michal Wert/MW Consulting

**FISCAL YEAR (FY) 2009-2010 OMSC PROGRAM GOALS**

Michal reviewed the program goals recommended by the Long-Range Strategy Subcommittee for FY2009-2010. There were no objections to the program goals as proposed. They are available on the ODOT website at <http://www.oregon.gov/ODOT/TD/TPAU/OMSC.shtml>.

Mike asked whether any research projects for modeling are proposed next year. It was noted that OTREC is trying to align with the ODOT Research process, but everyone has been too busy to talk about preparing research proposals. It was requested that the Applications Subcommittee discuss research topics and schedules at a future meeting.

**SUBCOMMITTEE REPORTS**

**Long-Range Strategy (LRS) Subcommittee – Bill Upton, Chair**

Bill stated that the FY2009-2010 program goals were the most significant issue for the LRS Subcommittee this quarter. An annual report to document and recognize the work of the OMSC and Subcommittees in FY2008-2009 will be presented at the July OMSC meeting.

**Professional Development Subcommittee - Ray Jackson, Chair**

Ray stated that the Oregon Modeling Users Group (OMUG) did not meet this quarter. The next meeting of OMUG is the morning of June 11. Susan noted that this conflicts with ODOT MOVES training and suggested that the meeting be coordinated with that training.

### **Applications Subcommittee - Brian Dunn, Chair**

Brian stated that TPAU staff met with Susan Payne to discuss the LCOG modeling program. Susan stated that LCOG will be developing a land/transport modeling system over the next several years and is working with TPAU to define an approach. The biggest issues in the LCOG area are land use and greenhouse gas emissions (GHG). Three major partners are currently doing long-range plans and integration is important. LCOG does not have a primary modeler right now and is trying to define land use and transportation modeling needs. LCOG intends to use the OMSC to help form technical advisory committee(s) to provide guidance for these issues.

Bill stated that the Subcommittee will be requested to conduct peer view of the Albany model as soon as documentation is complete.

Mike stated that PTV was contracted to do calibration validation of the MWVCOG model. A kick-off meeting will be held in the next six months or so, and TPAU or the OMSC may be asked to conduct a peer review.

Ray noted that ODOT is building a Marion-Polk county model.

### **Modeling Program Coordination (MPC) Subcommittee - Dick Walker, Chair**

Dick stated that a meeting of the OR Household Activity Survey Subcommittee was held in the morning in place of the MPC Subcommittee. The next MPC meeting will be prior to the OMSC meeting on July 15.

## **PROGRAM UPDATES**

### **OR Household Activity Survey (OHAS)**

Dick stated that the consultant team, lead by NuStats, held a four-hour meeting with the OHAS Subcommittee to discuss weighting schemes, non-core survey options, and data processing and analysis efficiencies. They made several recommendations for proceeding with the statewide survey.

Discussion included:

- The team recommended a simplified weighting scheme. It works as well as a more complicated method and is easier to use.
- The core survey includes elements that are relevant for all survey participants and costs are shared by all. There are also non-core elements that are unique to different areas or regions in the state.
- The consultant provided more information on GPS, longitudinal panel surveys, visualization, university surveys, and other special surveys.
- The core cost will include standard questions that are needed to understand the data. There are some additional items that will cost more.
- OHAS has several decisions to make on what is included in the core and non-core surveys. The target is to make decisions by May 1.

A summary of when surveys will be conducted:

- Metro plans to begin its survey in Fall 2010.

- LCOG intends to split the survey between fall 2009 and spring 2010. Lane Transit District is deciding whether to put a fare on the bus rapid transit system and it is not clear whether this will make a difference to the survey.
- MWVCOG will conduct its survey in early spring 2010.
- RTC will contract separately with NuStats and will conduct a survey in fall 2009..
- ODOT Regions 2, 3 and 4 (no MPOs) will be done spring 2009. The survey has already started in Region 2.

Susan stated that LCOG will do transit enrichment and try to recruit 500 transit households. There will be questions about whether there is a transit rider in the household and what day they ride transit. The University is a large special generator and will be addressed in the survey.

Brian stated that ODOT conducted outreach through newspapers for the current surveys. Region staff was notified so they could respond to calls or questions. The intended benefit from publicizing the surveys is to get a higher response. Dick suggested that all public relations agencies in the region should be made aware of the survey.

Susan stated that the National Household Travel Survey (NHTS) rolls over every five years and it might be useful to buy in to part of that to get broader national information. The cost is \$125 per sample and perhaps Oregon could buy a few samples from the NHTS and add some local questions. Mike stated that discussions at the Transportation Research Board were positive and the NHTS survey process is going well. About 200 Oregon households will likely be included so there is not much leverage with such a small sample size. Dick stated that the NHTS surveys provide material for a snapshot of trip rates for the region, but it is not detailed enough for rigorous model building.

## **2009 CONFERENCES**

The following conferences are scheduled for 2009:

- April 21-22 – 4<sup>th</sup> Annual Oregon Bike Summit, Salem, OR - <http://oregonbikesummit.com/>
- April 30-May 1 - 10th Annual PTV Vision Users Group Meeting, Portland, OR - <http://www.ptvamerica.com/usergroup.html>
- May 17-21 - TRB Transportation Planning Applications Conference, Houston, TX - [www.trb-appcon.org](http://www.trb-appcon.org)
- May 19 – Research Workshop on the 2<sup>nd</sup> Strategic Highway Research Program, Portland, OR - [http://www.surveymonkey.com/s.aspx?sm=16wYPBRZ4m3FWeFVS7ukpg\\_3d\\_3d](http://www.surveymonkey.com/s.aspx?sm=16wYPBRZ4m3FWeFVS7ukpg_3d_3d).
- July 28-29 - 2009 Transportation Planning, Land Use, and Air Quality Conference, Ames, Iowa - <http://www.ucs.iastate.edu/mnet/tpluaq/home.html>
- October 19-21, TRB 8th National Conference on Transportation Asset Management, Portland, OR - <http://guest.cvent.com/EVENTS/Info/Summary.aspx?e=82b0cb1d-279e-4586-bfd7-3778382e1b69>

Bill stated that the OMSC was asked to host a forum to discuss a tolling and pricing white paper that was prepared for ODOT on demand projection sufficiency. It is being organized by the Long-Range Planning Manager for ODOT and will include up to 20 people in addition to OMSC

members. Michal will circulate a copy of the white paper and a request for availability to schedule a special meeting of the OMSC.

Brian stated that there is discussion in the Legislature on the potential for tolling. The Oregon Transportation Commission was directed by the 2007 Legislature to develop tolling policy recommendations and white papers are part of the effort to get ahead of the issue. Tolling was discussed for the Newberg-Dundee Bypass and for the Columbia River Crossing projects and there is interest in defining what technical tools are available to do this analysis. The white papers can be reviewed at [http://www.oregon.gov/ODOT/TD/TP/Tolling\\_Background.shtml](http://www.oregon.gov/ODOT/TD/TP/Tolling_Background.shtml).

There were questions on the goal and expected outcome of the forum – is it intended to be educational and informational, or is the OMSC expected to provide critical review? It was agreed that it is important to discuss how models can be adapted to address this emerging issue rather than just list shortcomings of the models to do tolling. There is a lot of work being done on dynamic traffic assignments and this type of activity should be recognized in the white paper. Bill will get clarification on the expectations for OMSC participation in the forum.

Dick noted that expectations continue to rise for modeling capabilities – tolling, GHG analysis, least cost planning, risk analysis. Developing the tools to address these issues will require funding. It was also noted that, even if money is provided, there are limited staff resources skilled to do this work and only a few consultants can help with model development.

Dick stated that OTREC, in cooperation with Metro, the Port of Portland and ODOT, is sponsoring a half day workshop designed to give transportation professionals an understanding of cutting edge research and an opportunity to work with peers on applying those lessons in Oregon. About ten different areas of research will be discussed and Oregon has been involved in many of these research efforts. For more information, contact Deena Platman at 503-797-1754 or [deena.platman@oregonmetro.gov](mailto:deena.platman@oregonmetro.gov). A research proposal is being submitted by Kittelson & Associates, with Metro, PSU, EcoNW and others to tie together several research elements – tolling, reliability, capacity. An advantage to developing this research project in Portland is that Eugene will be a partner to show how data and expertise can be shared among MPOs.

### **CLIMATE CHANGE MODELING: AN OVERVIEW OF THE GreenSTEP MODEL AND ITS APPLICATION**

Brian Gregor, with the ODOT Transportation Planning Analysis unit, has been working with the Land Use & Transportation Subcommittee (LU&TS) of the Oregon Global Warming Commission (GWC) to develop the **Greenhouse gas State Transportation Emissions Planning Model (GreenSTEP)**. The purpose of the model is to help the LU&TS look at how different types of policies affect GHG emissions.

About a year ago, the OMSC talked about GHG and how to address legislative and policy issues. An OMSC Ad Hoc Subcommittee on Climate Change was established to provide peer review and technical support for Brian for this fast-track effort. The GreenSTEP model is now being used to help the LU&TS and the GWC develop and consider statewide scenarios to manage GHG emissions from the transportation sector.

To begin the process, current models and their capabilities were reviewed with the LU&TS relative to analyzing the effects of transportation and land use strategies for reducing GHG emissions statewide. The transportation sector is over one-third of the total GHG emissions in the state. Existing models could not be easily modified because of the statewide scope of analysis required, the wide range of factors that need to be analyzed, and run-time issues. Policy sensitivity was required and information was needed on demographic changes, urban form, mode choices, age and fuel efficiency of vehicles, carbon content of fuel, CO2 production from powering transportation, and more. GreenSTEP was developed to address these issues.

GreenSTEP is predominately a linear process that starts with county level forecasts of population by age cohort, and a statewide forecast of average per capita income. It ends with estimates of CO2 emissions for light vehicles, heavy trucks, buses and light rail systems. It operates at an individual household level and simulates over a million households statewide. Household travel is forecasted on an aggregate basis for daily vehicle miles traveled (VMT) per household. It predicts household vehicle characteristics, including auto vs. light truck, vehicle age, split of daily VMT among vehicles, and electric vehicle (EV) use. It allows sensitivity testing of fleet light truck percentage, fleet age, optimization of household fleet use, and EV range and market penetration.

GreenSTEP has a simple way to deal with travel cost change. The model calculates how much it would cost a household to travel given future cost vs. how much it will travel at base year cost. The model is sensitive to income and the difference in cost is how much poorer the household is.

Income group and age, type of vehicle and other household information is aggregated to the level of county development type – rural, metro or other urban - to do equity analysis. For the metro areas, factors were applied to adjust VMT based on types of demand management programs and the extent of deployment of these programs. Heavy vehicle VMT is not related to households, but is predicted according to growth in the economy. The amount of transit is a policy input.

Jeff Houk with the Federal Highway Administration helped develop miles per gallon (MPG) adjustments and speed to reflect congestion. Data from the Texas Transportation Institute was used to help define the proportion of VMT under different congestion levels.

Instead of defining the proportion of a fleet using different fuels (ethanol, regular gas, etc), it was decided to specify a generic blended fuel with a generic carbon content. The characteristic of the generic fuel can be changed. GreenSTEP includes two fleets – EV and non-EV. Hybrids are considered an efficient regular vehicle. GreenSTEP does not transition the fleet of vehicles overtime.

There is discussion on land use to control GHG, and GreenSTEP defined mixed-use percentages that can be modified. Scenario sensitivity testing looks at the responsiveness to different variables, including fuel efficiency, EV use, low carbon fuels, fuel price, urban density, and transit service.

All standards require 1990 emissions levels and GreenSTEP VMT is backcast to 1990. The reference scenario is for medium light vehicle efficiencies. It looks at forecast vehicle fuel efficiency gains, assumes that urban growth boundaries (UGB) and transit revenue miles grow at the rate of population growth, follows plan forecasts or trends for urban-rural splits, assumes that fuel price climbs to \$5 per gallon in 2010 and is fixed afterward, and assumes arterial road expansion at the rate of population growth but no freeway expansion.

Test scenarios include:

- Vehicle efficiency: light vehicle efficiency continues to increase beyond 2020; plus increased EV driving range by 2040 and increased market share; plus heavy vehicle fuel efficiency increase by 2040
- Lower carbon fuels: full efficiency scenario and increased use of lower carbon fuels.
- Price: different vehicle efficiency scenarios with \$20 per gallon fuel costs by 2040.
- Density: light vehicle efficiency increases beyond 2020 plus UGB increased growth rate; same vehicle efficiency plus increased public transportation revenue miles

The next step is to work with the LU&TS to define and model scenarios and to complete documentation. The results of the model runs for the test scenarios will help inform the LU&TS as they develop their own scenarios. Scenarios will be developed and modeled over the next several months. The impact of the recession can be modeled by changing statewide per capita income and the GWC is discussing whether it wants to model a declining economy.

In response to a question, Brian stated that GreenSTEP works well at the statewide level but urban travel demand models should be used at a smaller scale - there is not the same mix of vehicles. Most models do not specify EVs or deal with electric power generation for EVs. If vehicle mix and percent EVs are assumed, this can be run in a travel model or MOVES. To calculate GHG, information on how much gas is used, and the carbon and BTU content of fuel is needed. Demand management can be assessed off-model.

GreenSTEP includes a model to predict light truck ownership, given characteristics of the household, where it resides, and how many residents. This locks in the fleet characteristics of today. To vary that, a target can be set and the model will rebalance.

Dave stated that MOBILE6 and MOVES allow isolation of fleet changes. They include a detailed description of the fleet age and classes and predict where the changes will be in the future. Some fuel efficiency figures include EVs and there may be double counting. Brian noted that GreenSTEP relates fleet and age to income and this is missed by MOVES and MOBILE6. GreenSTEP can stimulate different fleets and policies. Double or triple counting is a modeling issue and can be minimized.

Brian stated that the average range of EVs for the model year and market penetration must be specified. If the 2030 average range is 200 miles and 50 percent of vehicles are EVs, each household is evaluated and if miles traveled are within that range, the household is an EV candidate. It was noted that General Motors expects the cost of an EV to be \$40,000 per vehicle but future pricing models are not known.

Dave noted that Oregon is a leader in GHG analysis and no other state has a model comparable to GreenSTEP.

### **NEXT MEETING/AGENDA**

The next OMSC quarterly meeting will be on Wednesday, July 15, 2009, from 1:00-4:00 p.m. in Salem.

Suggested future agenda topics include:

- Metro 2040 Growth Concept: *Making the Greatest Place* - July
- A legislative overview and update – July or depending on when the session ends
- An update on MOVES for either the OMSC or MPC
- FHWA (re)organization
- OMUG and what it is doing with bike data
- What is least cost planning?
- Research topics and application schedules

The meeting adjourned at 4:00 p.m.