TMIP Review Panel Meets

Alexandria, Virginia. The TMIP review panel convened for their annual 2-day working meeting on November 20, 2003. The eleven members of the review panel broadly represent the modeling user community including MPOs (large and small), transit operators, state DOTs, air quality agencies, land use interests, and academia. The agenda was ambitious and centered on reviewing and revising TMIP's strategic plan. The meeting was productive, resulting in modifications to the TMIP mission and revisions to TMIP's goals and objectives. New objectives include looking at how analysis results are used in decision making, better communicating those results, facilitating deployment, and implementing new techniques.

A draft of the first TMIP performance report was rolled out at the meeting, designed to build more accountability and transparency into the program. The report was received positively. However, it was noted that the report lacks impact or outcome measures. This issue will be addressed with subsequent year reports as data are gathered to compare with the newly identified benchmarks.

On the second day, the panel vetted the TMIP peer review program. The panel made several recommendations of interest to the TMIP team who are now exploring options to implement them. One such suggestion was to create a part of the program that would provide peer assistance to areas not quite ready to conduct a full peer review, areas without sufficient model documentation, or whose modeling practice doesn't meet professional standards. The TMIP team is currently investigating the feasibility of expanding the peer review program to incorporate a peer assistance component. Other recommendations for the peer review program include raising awareness, implementing protocols to obtain feedback, standardizing results documentation for broad use, and assembling more information on the state of the modeling practice in general. ■

Debra Elston, FHWA, facilitates a discussion on the TMIP Strategic Goals.

Fred Ducca, FHWA, presents the TMIP Performance Report.

Upcoming Events

Conferences

83rd TRB Annual Meeting
Date(s): Janunary 11–15, 2004
Location: Washington, DC
Contact: www4.trb.org/trb/annual.nsf

NARC 2004 Washington Policy Conference
Date(s): February 20–24, 2004
Location: Washington, DC
Contact: www.narc.org

GIS-T 2004
Date(s): March 28–31, 2004
Location: Rapid City, SD
Contact: www.gis-t.org

APA National Planning Conference
Date(s): April 24– 28, 2004
Location: Washington, DC
Contact: www.planning.org/2004conference

Courses

Introduction to Urban Travel Demand Forecasting
March 22–26, 2004 — Springfield, IL
April 19–23, 2004 — Richmond, CA
May 3–7, 2004 — Sacramento, CA
Contact: Michael Culp
Email: michael.culp@fhwa.dot.gov
Cost: $530

Additional offerings may become available; consult the TMIP website http://tmip.fhwa.dot.gov/ for the latest training information.

FHWA-HEP-04-008

Travel Model Improvement Program
c/o Texas Transportation Institute
Gibb Gilchrist Building
2929 Research Pkwy.
TAMU Research Park
College Station, TX 77843-3135

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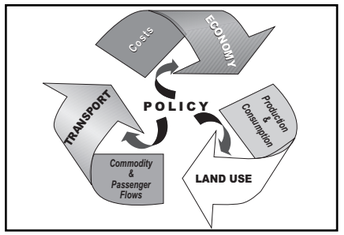

The Oregon Modeling Improvement Program: A model of collaboration and cooperation

By William J. Upton, *Transportation Modeling Program Manager, Oregon Department of Transportation (ODOT)*

In 1995 ODOT initiated the Oregon Model Improvement Program (OMIP) to address the complex relationship between transportation, land use, and economics. Under OMIP, all Oregon cities, counties, metropolitan planning organizations (MPOs), and state agencies work together, using state-of-the-art transportation modeling tools for application in sophisticated statewide, urban, and representative small city model areas. To create a solid statewide program, practitioners, model developers, and users are brought to the same level of understanding and agreement on modeling, technical support and expertise to ensure consistency and advancement in model application. This collaboration is the foundation of the program.

The OMIP drives on five tracks: development, implementation, outreach, data, and resources.

A New Way to Think About Problems

Developing more sophisticated project and policy analysis tools is important. However, developing a new approach to thinking about complex projects and policy issues is just as important. Historically, decisions tended to be made in a linear fashion. Technical analyses and recommendations were often "after-the-fact" to support politically-driven decisions. Now Oregon's process engages technical staff and policy-makers in a collaborative and comprehensive approach to define and resolve complex issues together. As questions and issues arise, technical staff and policy-makers work collaboratively to refine them and to evaluate the results of the modeling efforts. In an iterative process the questions and issues continue to be refined and analyzed until clear results of different policy or project actions are available.

Development Activities Frame the Program

To guide model development in Oregon, the OMIP oversaw preparation of several documents, including *A Strategic Plan for Development of New Modeling Tools*, *Modeling Protocol*, *Model Development and Application Guidelines*, and *Model Documentation Guidelines.*

Joint model development is an on-going activity in Oregon. A prototype model for small cities (population less than 50,000) has been developed using household data collected in Oregon. These models can be adjusted for individual cities without lengthy calibration/validation processes. They provide more demographic and travel behavior information than the typical small city model. This helps small cities balance land use, transport, and other important elements of their community. For MPO areas the unique characteristics of each MPO are combined into data sets that others can use to provide local data on how Oregonians respond in Oregon situations.

A statewide integrated transportation, land use, and economic model for use in transportation planning, policy analyses, and decision-making, The Transport-Land Use Model Integration Program (TLUMIP), covers all of Oregon and complements regionally focused MPO models to allow consideration of the effects on jobs and statewide economic development of different policy or project actions.

It's all About Implementation

If modeling tools are not used effectively, they have little practical value. Consistent and practical application of the modeling tools and decision-making processes are the end result of the development efforts.

Projects implemented using the OMIP tools and processes range from developing transportation system plans for cities and counties throughout Oregon, to evaluating induced demand potential for environmental impact statements, to supporting a regional visioning process for the future of land use and transport in the Willamette Valley. The TLUMIP model was

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U.S. Department of Transportation
Federal Highway Administration

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Meet the TMIP Review Panel

Michael Morris, P.E., Director
North Central Texas Council of Governments in Dallas, Texas

Michael Morris has been on staff in the Transportation Department of the North Central Texas Council of Governments, the Metropolitan Planning Organization for the Dallas-Fort Worth area, since 1979. He became Director in 1990. Michael is responsible for the overall activities of the Transportation Department including the implementation of the Regional Transportation Plan, Mobility 2025 Update, Transportation Improvement Program, and air quality-related Transportation Control Measures of the State Implementation Plan. He received his Masters in Civil Engineering from State University of New York at Buffalo in 1979 and is a registered Professional Engineer in the State of Texas. He has been recognized by several groups, including the Institute of Transportation Engineers and the Texas Transportation Commission. Morris is a member of the National Research Council and works with several committees of the National Academy of Sciences. ■

T. Keith Lawton, Director of Technical Services
Metro Planning Department of Portland, Oregon

Keith Lawton has been active in model development for over 30 years. He is currently involved with the application of TRANSIMS in Portland. Recently, he has led the development of a tour-based activity model set and has been a leader in developing an integrated land-use and transportation model, which has seen project application in Portland. He has also led the move to include the effects of urban design on transport demand, and to embed these model elements in the Portland trip-based models. He has a B.S. in Civil Engineering from the University of Natal (South Africa), and an M.S. in Civil and Environmental Engineering from Duke University. He is a member and past chair of the TRB Committee on Passenger Travel Demand Forecasting. ■

TMIP—An Unwitting but Important Partner in the New Orleans Model Update

By Jim Harvey, *Director of Planning, New Orleans Regional Planning Commission*

It seems highly probable that, like our New Orleans Metropolitan Planning Organization (MPO), many MPOs and other agencies that perform transportation modeling do not take advantage of all that the Transportation Model Improvement Program (TMIP) has to offer. It would be incorrect to assume, however, that TMIP is not having a positive impact.

When the New Orleans Metropolitan Planning Organization began a phased three year update to its existing transportation demand models, TMIP was not consciously designed into the process; but as the effort evolved and various questions and obstacles arose and were dealt with, TMIP short term model improvement publications, web resources, methods reports, and collections of peer review comments began to play an increasingly important role in the progress of model development.

Data

An update of the household survey data for the New Orleans Region concurrent with the 2000 decennial census was the first step in updating the transportation demand model. The study design called for recruiting through a random phone survey that documented several basic household characteristics and solicited participation in completing travel diaries for household members. It was at this point that we encountered a libertarian social revolution.

Louisiana had the lowest census response rate in the country, and New Orleans had the lowest response rate in Louisiana. The constant barrage of radio talk shows espousing privacy rights had a damping effect on not only the census response, but on our survey as well. The few completed travel diaries were excellent products, but participation rates were dismal. In order to generate a statistically significant sample, the project team devised a strategy for capturing travel information from patrons at drivers license and other offices where individuals were captive to long waiting lines. This data, combined with the results of existing on board transit origin destination surveys, began to provide a picture of travel behavior in the New Orleans urbanized area.

It was at this point that TMIP began to positively influence the study. The challenge was how to aggregate the data collected from individuals into something approximating household data. The project team turned to the TMIP reports on constructing synthetic households. By combining individual surveys with those of others from demographically compatible households, synthetic households were constructed for which a complete travel profile could be constructed from the data.

Designing the Components of the Updated Model

The New Orleans area has a complex multi-modal transportation system with heavy port activity, multiple rail to motor carrier freight-intermodal terminals, an international airport, and a substantial urban transit component featuring a 500-bus fleet and three streetcar lines. These elements are combined with multiple special generators, large student populations at public and private universities and colleges and 6 million visitors each year. These characteristics represent a significant challenge when trying to design a model or even scope the update effort.

Once again TMIP resources were used to help define goals and design model components. Review of TMIP publications helped to define best practices and interpret regulatory requirements for each of the anticipated model applications. Even more importantly, the TMIP resource documents helped us to understand the obstacles we should expect to encounter in designing each component, thereby helping to properly scope the project and scale our expectations to our budget.

Due to TMIP influence, the new model features flexible and dynamic time of day models, an air passenger model, an improved mode split model, consistently applied feed back loops, improved integration of transportation model and GIS applications, automated processes for several previously manual and highly labor intensive tasks, such as defining area types from specified land use and activity parameters, constructing transit walk and auto connectors, as well as transfer links, and last, but not least, the incorporation of post processors for refining and formatting model results for specific planning applications, such as air quality conformity or new starts reporting.

I do not mean to imply, of course, that our MPO staff completed the work on this model ourselves. I am a firm believer in the principle that an MPO should never do anything they can underpay someone else to do. The model development team consisted of Parsons Brinkerhoff as the prime, with Alliance Transportation Group as a sub contractor. The outsourcing of this work leads to another role that TMIP is yet to play as a resource for helping the New Orleans MPO staff evaluate project deliverables, diagnose problems, and suggest revisions. Maybe I'll even call this time. ■

Hot Topic: Travel Models' Sensitivity to the Economy

By Ken Cervenka, *North Central Texas Council of Governments*

One of the recent TMIP listserv discussions focused on whether travel demand models are properly sensitive to changes in the economy. For example, the post-911 economic recession has resulted in weekday transit ridership declines for many United States transit agencies—but is this reflected in recent travel model validation runs? And even if ridership losses during recessions aren't being "projected" in models calibrated from survey data collected in normal (or "boom") economic times—is this a serious problem? Here are some of the issues raised in emails prepared by staff from MPOs, state DOTs, U.S. EPA, USDOT, consulting firms, and universities:

- Transit ridership seems to be even more sensitive than auto travel to boom and recession times; many transit services tend to serve a lot of low-income captive riders—and these are the people that get hit especially hard during recessions.
- If we are doing a long term (10 - 25 years) forecast, we are interested in portraying a result assuming "average" economic conditions; consequently, we should be rightly concerned about cross-sectional data calibrated from surveys during times of extraordinary economic performance or nonperformance. Finding convenient "adjustment factors" without an expensive longitudinal survey remains fairly problematic. It's easy to say "past performance is no guarantee of future results," but it's much more challenging to determine where, when, and how much manual adjustment should be applied to "objective" automated or semi-automated forecasting procedures.
- The issue boils down to whether your calibration/validation data (in this case things like workers, employment, and income) match your survey period. If so, and your model is sensitive to these types of variables, then a projection for a future year without a recession should show the appropriate growth. Conversely, does your "old" model show the observed travel reductions when you apply it with current "recession" (e.g. reduced workers, employment, and income) data?
- It is well known that population and other zonal indicators cannot be forecast with any statistical measure of certainty beyond 10 years or so. About all we can say is that it represents our best, informed guess at the moment for making decisions. If one needs to worry about 25 years ahead—then worry about developing an internally consistent model, and just use it as the most "objective" comparison tool available. What matters are not the actual forecasts, but the relative differences in benefits that result from different policies and projects.
- The greatest unknowns in travel forecasting are behavioral and technological rather than economic. A planner forecasting for 1990 in 1965 would likely have missed the change in workforce participation by women, which had a huge impact on transportation. Another missed factor was the impact of telecommunications technology on travel, allowing for telecommuting and for the transfer of many central office functions in CBDs to remote sites in fringe areas. Finally, in the past ten to fifteen years there has been a significant increase in peak spreading, and we don't know how long this will continue or where it will ultimately lead. The state of the economy is a "known" unknown, but what will have the greatest impact on future travel are the "unknown" unknowns, such as basic structural or attitudinal changes.
- The contemporary travel demand forecasting process should be a continuous one, with a monitoring function added to the scheme. Forecasting is a dynamic, ongoing process whereby regional forecasts are supposed to be updated periodically. After all, we are living in an ever-changing world and who knows what is going to happen tomorrow? The reality is that forecasts will be re-done again and again. And concerns/criticisms will come no matter what we (the planners) do.

To see all 23 listserv e-mails on this subject, go to http://tmip.fhwa.dot.gov/ and click on "E-mail List," then click on "September 2003" and "Travel and Recessions." ■

To subscribe to this free newsletter send an e-mail to TMIP@tamu.edu or contact Gary Thomas at (ph.) 979-458-3263, (fax) 979-845-6001, (mail) Gilchrist, Room 112, Texas Transportation Institute, Texas A&M University System, 3135 TAMU, College Station, TX 77843-3135

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recently used to "tell the story" of the effects of weight-limiting bridges on jobs and the Oregon economy, resulting in a $2.5 billion bridge and highway finance package approved by the 2003 Oregon legislature.

Outreach is a Key to Collaboration and Cooperation

Three collaborative and cooperative forums provide direction and facilitate discussion on the OMIP.

- A Modeling User Group provides a forum for technical agency and jurisdiction staff, consultants, and other modelers to exchange information, solve problems, and provide training.
- An International Peer Review Panel, an internationally recognized panel of experts, guides development of TLUMIP.
- The Oregon Modeling Steering Committee (OMSC) provides direction and oversight to the Oregon modeling program. Member agencies include the Governor's Office, six state agencies, the five MPOs in Oregon and SW Washington, the Port of Portland, and the Federal Highway Administration. The OMSC focused on coordination in its formative years. It provides technical advice and expertise and drives consistency and advancement in model applications.

Sharing Data

Collaborative research projects provide the broadest expertise to address emerging issues and to promote cooperation and coordination of efforts. Examples of cooperative research and data collection projects are:

- to obtain data about freight movement and handling and key business factors considered in shipment decisions, and
- the *Urban Design Variables Study* which evaluated variables to make models more sensitive to the effects of urban design.

Scarce Resources are Maximized Through OMIP

Partnership agreements are in place among ODOT and the MPOs to share staff and other resources through innovative intergovernmental agreements. These agreements ensure that even the smallest MPO has access to the most sophisticated tools and staff in the state to develop and apply models. Peer review panels composed of OMSC members are routinely established to review community models and complex model applications.

ODOT coordinates OMIP, but the program is driven by the collaboration of the OMSC members. Agencies and jurisdictions throughout the state work closely together to develop and implement state-of-the-art models that integrate transportation, land use, and economics to provide a reliable way to forecast future growth and to evaluate policy decisions to manage that growth.

Visit the ODOT website for more information: **http://www.odot.state.or.us/tddtpau/modeling.html**

Or contact:

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