Planning Agencies Win Funding for Peer Reviews

By Michael Culp

TMIP recently awarded funding to five planning agencies that applied for support under the TMIP Peer Review Program. The winning agencies are: Ohio–Kentucky–Indiana Regional Council of Governments (OKI), (Cincinnati Area MPO), Atlanta Regional Commission (ARC), (Atlanta, GA Area MPO), Southern California Association of Governments (SCAG)(Los Angeles, CA Area MPO), North Carolina Department of Transportation and Denver Regional Council of Governments (DRCOG), (Denver Area MPO). The awards cover travel and per diem for each peer review panel.

Applying agencies requested peer reviews for a wide variety of data collection and travel modeling issues including transportation and land use interaction, time-of-day modeling, and model validation. Some agencies also requested assistance in documenting their peer review or selecting potential peer review panel members.

The solicitation for the first year of the Peer Review Program was released on April 10, with first round proposals due on May 30. Applications will be accepted on an ongoing basis; however, selection and funding will be based on satisfaction of the selection criteria and the availability of funds. ■

For more info, read the application package on the TMIP Website or contact Michael Culp by email at michael.culp@fhwa.dot.gov, or by phone (202) 366-9229.

Upcoming Events

Seminars

Model Validation, Calibration & Reasonableness Checking
August 26, 2003 – Los Angeles, CA
September 8, 2003 – Orlando, FL
Contact: Penelope Weinberger
Phone: 202-366-4054
Cost: Free. Maximum of 30 participants.

Forecasting Land Use Activities
August 25, 2003 – Los Angeles, CA
September 9, 2003 – Orlando, FL
Contact: Penelope Weinberger
Phone: 202-366-4054
Cost: Free. Maximum of 30 participants.

Conferences

Association of Metropolitan Planning Organizations (AMPO) Annual Conference, October 22–25, 2003 – Washington, DC
Contact http://www.ampo.org

Courses

Introduction to Urban Travel Demand Forecasting
August 25–29, 2003 – Houston, TX
October 20–24, 2003 – Richmond, CA
April 19–23, 2004 – Richmond, CA
Contact: Penelope Weinberger
Phone: 202-366-4054
Cost: $530

Estimating Regional Mobile Source Emissions
September 9–12, 2003 – Evanston, IL
Contact: Penelope Weinberger
Phone: 202-366-4054
Cost: $460

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

If you are interested in hosting a seminar or workshop in your area, please contact Penelope Weinberger 202-366-4054.

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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TMIP
Travel Model Improvement Program

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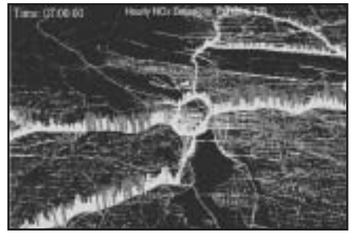
TAMU Research Park
College Station, TX 77843-3135

Help us maintain our database by sending any address corrections to TMIP@tamu.edu.

August 2003

TMIP Connection

The Travel Model Improvement Program Newsletter



TRANSIMS Working Group: Report from the Sidelines

By Joseph L. Schofer, *Professor of Civil Engineering & Transportation, Northwestern University*

The TRANSIMS Technical Working Group (TWG) — in reality the TRANSIMS Watching Group — is a review team that is tracking the Portland implementation of TRANSIMS. TWG members are Ronald Eash (formerly Chicago Area Transportation Study, now visiting scholar at Northwestern University); Eric Miller (University of Toronto); Larry Rilett (Texas A & M University); Thomas Rossi (Cambridge Systematics, Inc.); and Joseph Schofer (Northwestern University). This group of practitioners and researchers has been tracking the Portland TRANSIMS work since the fall of 2002, holding two extended meetings to hear of progress and challenges, discussing the issues and opportunities with the Portland-TRANSIMS team, and offering guidance for the continuing work on this project.

From the perspective of TWG, the Portland TRANSIMS application has three objectives:

1. **Application** of TRANSIMS to Portland. Of course this is the core activity, and the needs for adaptation of the modeling system arise in the context of this application. The intent, however, is to conduct a full application to ensure that the commercialized version of TRANSIMS will meet the needs of other MPOs;
2. **Adaptation** of TRANSIMS to close gaps between the Los Alamos National Laboratory (LANL) version and what is needed for routine and full-scale use, and to deal with the practicalities of a routine field implementation. This includes adding or modifying important and sometimes complicated features, including making key TRANSIMS tools like the router and microsimulator compatible with existing trip tables;
3. **Demonstration** of TRANSIMS applicability in a practical setting and recommendation of priorities for further development and phased implementation.

Keith Lawton and his colleagues at Portland Metro are trailblazers (appropriately!), leading the expedition into a new realm of travel modeling that promises to be more responsive to emerging policy issues. Additional and important technical support comes from LANL staff, members of the IBM commercialization team (including Mike Bridges and Jason Dulnev), and the Parsons Brinkerhoff and AECOM teams (including Bill Davidson and David Roden, respectively).

This is clearly a development and application activity, rather than an online planning project, and the extensive support of a varied team of consultants reflects that. The software is complex and still being refined. The computing environment – particularly the use of high-speed multiprocessors -- is new in general and new to transportation planning in particular.

TWG is tracking this effort, from a distance through documentation and periodically through intensive briefings and discussions. Each TWG session ends with a report on priority recommendations for next steps in the development-application process. Some recommendations focus on short-term actions, and others suggest TRANSIMS trajectories for the long-term future.

In the first phase of the Portland study the TRANSIMS router and microsimulator have been adapted for use with existing trip tables, providing a more realistic alternative to static traffic assignment. This work includes integration of the router and microsimulator, as well as solution of problems such as the loss of trips that could not be completed because simulated drivers could not make critical turns. In this case, the solution came through tweaking model parameters, e.g., providing more time to "look ahead" to anticipate turns.

Portland is working with an all-streets network, as well as more sparse (and commonly-used) networks. This application provides the opportunity to test and compare results as a function of network completeness, which will ultimately provide guidelines to TRANSIMS users about tradeoffs between coding effort and realism of model results.

The second phase of the work in Portland will bring the population synthesizer and activity generator online. As a part of this work, an activity location choice model will be specified and calibrated.

A key challenge faced in Portland is to establish methods to calibrate TRANSIMS for a particular setting. Calibration is dependent on the structure and operation of many feedback cycles in the model, in addition to the more traditional parameter estimation used to fit traditional models. In fact, there are many ways to calibrate TRANSIMS to existing travel data, and the question to be answered is which one (or ones) is best. The complexity increases because there is no simple way to define "best"; fit to the data, theoretical logic, ease of calibration, and other criteria all

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Meet the TMIP Review Panel

Joseph L. Schofer

In the fall of 2002, Joseph Schofer "retired" after a five-year term as chairman of Northwestern University's Civil and Environmental Engineering Department to become Associate Dean for Faculty Affairs of Northwestern's Robert R. McCormick School of Engineering and Applied Science. A thirty-three year veteran of Northwestern's faculty, Schofer is Professor of Civil Engineering and Transportation and on the Executive Committee of the university's Transportation Center.

Schofer's research and teaching focus on transportation planning, evaluation, operations management, and use of technical information in decision making. He has a strong interest in anything mechanical that moves for good purposes, including planes, trains, and bicycles.

Dr. Schofer has made a lifelong commitment to teaching, earned the McCormick School Advisor of the Year Award in 2001, and has just been selected as winner of the 2003 Wilbur S. Smith Distinguished Transportation Educator by the Institute of Transportation Engineers. He is very proud to have been one of Neil Pedersen's (chair of the TMIP Review Panel) teachers at Northwestern.

Schofer earned his B.Eng. degree from Yale University, and both M.S. and Ph.D. from Northwestern, all in Civil Engineering. ■

Meet the TMIP Team

Fred Ducca

Fred Ducca has managed the TMIP team since its inception. In this position he coordinates all of the TMIP activities as well as managing FHWA's research effort in travel forecasting. Dr. Ducca has a BS in Mathematics from St. Peter's College, a Masters in Business Administration from the Wharton School of the University of Pennsylvania and a Ph.D. in City Planning, also from the University of Pennsylvania.

While at FHWA and prior to managing TMIP, Dr. Ducca provided technical assistance to state and local governments and also provided training in the travel forecasting process. While employed by the Urban Land Institute, Dr. Ducca managed the Suburban Mobility Project, an FTA/Urban Land Institute initiative to foster cooperation between developers and the public sector to reduce traffic congestion.

Prior to Graduate School, Dr. Ducca served as an officer in the U.S. Navy with assignments in Da Nang, Viet Nam and Washington, D.C.

Fred's best kept secret is his sense of humor. (Oops.) ■

Hot Topics: Model Boundaries

By Penelope Weinberger

What ever is a modeler to do? We toil along in solitude thinking our problems are unique and wondering who else out there has a situation where the MPO has determined that the modeled area needs to be larger than the Metropolitan Planning Area (MPA). We know there are lots of good modeling reasons why it would be good to have a "buffer" area around an MPA -- to have external stations that are not located at the legal MPA boundary -- but don't know if anyone actually does this. At least this premise was posed to the Listserv recently. Good news! We're not alone. Responses to this plaint were plentiful and varied. Many areas model a region bigger than their MPA boundary and for a slew of interesting reasons. We do it to account for future growth, to be forward thinking, or to get better model results. Sure there are problems. You need more data, more land use information, or sometimes the traffic analysis zones in less urban areas are not adequately defined. This lively discussion took place in the last few months on the TMIP Listserv. The following is a contribution from Paul Hamilton, chief planner of the Tri-County Regional Planning Commission in Lansing, Michigan that reflects the wisdom and consideration that practitioners employ in Listserv responses to their peers.

"1. Prior to ISTEA and the Metropolitan Area Boundary (MAB) requirement, the Tri-County model had always included the entire three county area, as opposed to just the old FAU (Federal Aid Urban) boundary, which was at that time more common practice in Michigan. We had pushed the concept of a regional traffic model historically because we in fact were the Regional Planning Agency, in addition to being the MPO (in Michigan, this is not always the case) and because it generally made more sense from the standpoint of a commuter-shed. So with the MAB requirement, we just pushed the MAB to fit the entire region consistent with how the model had always been. So in some respects I think you always need to be aware of not only what is considered to be metropolitan planning area today, but what is big enough to represent what the metropolitan area will become, what will influence future traffic patterns and/or what areas will take on characteristics which are metropolitan during the period of your planning horizon, and how does that reflect things like commuter-sheds and actual traffic patterns of the area. We could characterize this as the future planning area precept.

2. OK, now my Census urban area boundary and my amended MAB now extends outside of my three counties, was our approach consistent with principle number 1, and did we add the entire County to the model? Well, no, we weren't consistent, since in this case we essentially chose to ignore it for this time around, since that chunk beyond the current model boundary only represented five census blocks and 147 people, and can still be represented by an external station whether that external is placed at my legal boundary or the census boundary (and I actually hope to be long gone from here before we have to actually expand the model beyond that and into any new counties). We could call this a "keep it real" principle, since the exact location of the external was pretty much not relevant to how that particular boundary corner operated or needed to be modeled, so adding in that chunk wasn't necessary to reflect traffic patterns accurately in that area.

3. Now, let me offer one caveat on these two precepts. One thing we have discovered fairly recently is what many folks in many larger metroplex areas had already found out: if you are getting into issues like commuter rail, or other major capital projects which span regional boundaries, then maybe a case should be made now to expand the model further than otherwise may be the case in order to be more consistent with the actual commuter-shed of the projects or alternatives being evaluated. Of course, since we are pretty mid-sized, we really had not anticipated something like the issue of commuter rail coming up here early enough to make the model adjustments necessary to handle it. So, when it came to trying to cobble something together to do alternatives analysis for a new start commuter rail project which involved three different MPO models (each with different model structures, calibration years, capacity calculation procedures, some with mode split and some without, not to mention the vast and substantial inconsistencies between internal-external, external-internal and through trip data assumptions or the numerous different external stations between the three models) at the shared boundaries for the study. Unfortunately, even the statewide model (which essentially showed a drop in trips from 1000 per day on one side of a county line to .01 per day at the same point on the other side of the county line, which of course is completely unrealistic or implausible since in essence they were the same locations, representing a single node, which was split by a jurisdictional boundary) could not address issues like alternatives analysis for new start money. So I think we are getting to a third principle which could be: make sure you have the model infrastructure necessary to do that type of work you are going to be asked to perform. Even the crackerjack consultants we had on this study found the cross boundary issue one a pretty tough nut to crack, and we all finished that one up thinking about the need to consider things like consistency of inputs or procedures with neighboring areas. Mind you, we haven't solved that yet, but we are now in a position where we may have to begin thinking about. So I think that if you generally follow the first two principles you are going to be in good shape on this one. However, if you think you may be getting into things (like rail, new starts, or new air quality boundaries based on the new standards) which span your boundaries and extend into other areas or regions beyond your own, then you probably ought to re-think your model boundary as well. We could characterize this as considering the boundary as if it were based on "need or principle of use." That is, make sure you have the model boundaries and capabilities needed to evaluate the issues you need to evaluate, and/or which is constructed to adequately provide answers for the types of future questions or studies you may need to complete. That's my take from the point of view from a mid-size MPO." ■

To join the TMIP listserv. Go to http://tmip.fhwa.dot.gov/ and click on E-mail list.

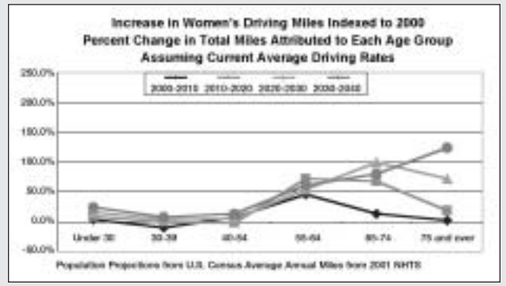
The "Boom" in Older Drivers

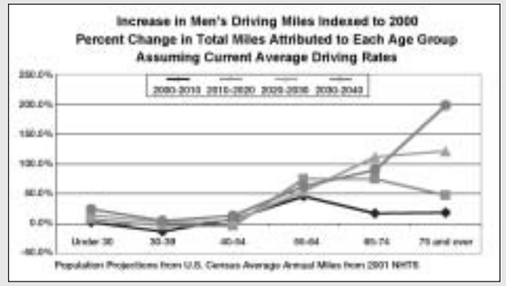
By Nancy McGuckin, *Travel Behavior Analyst,*
and Elaine Murakami, *Community Planner, FHWA Office of Planning*

Current models that include retired households in the category of "zero-worker households" probably do not reflect the fact that baby boomers in retirement will travel more often and farther than does the current retired population. Boomers will accumulate more driving miles, especially women. To improve our forecasts, it would behoove us to know more about the expectations and intentions of this group that makes up nearly thirty percent of the total US population.

By 2010, the first of the baby boom generation will reach traditional retirement age. The generation that overflowed schools in their early years and generated a suburban housing boom in their middle years will undoubtedly change the nature of travel as they age into their retirement years. The National Household Travel Survey (NHTS 2001 http://nhts.ornl.gov) shows that more and more elderly are driving well into their 80s and 90s. Most people retire in their own neighborhood and that means most baby boomers will continue to live in the suburbs and continue to depend on cars for daily mobility.

Many researchers have addressed the issue of how the characteristics of the baby boom generation will affect society in such areas as Social Security solvency, health insurance policy, and the market for education and leisure activities. Fewer researchers are examining the effect on travel. Even assuming that baby boom men and women retire and travel at the same rates as current elderly, their sheer numbers mean the effect on miles traveled by older age groups is significant.





To assume that baby boomers will retire at the traditional age of 65 and decrease travel like today's elderly is probably wrong—this generation delayed most major life events, and we expect that retirement and mobility declines will also be delayed. Currently, about 18 percent of men and nearly 10 percent of women are in the labor force beyond age 65. Total labor force participation by women continues to rise, and men's participation slowly declines.

Baby boomers, especially women, are better educated than previous generations. The nature of work changes with better education, and workers in this generation are less likely to work in physically demanding service or factory jobs and more likely to have professional or technical careers that can be kept into older working years. In addition, changes to Social Security legislate a delay in benefits; about half of this generation will wait until age 67 to obtain "full benefits." Even with a delay in retirement the purpose and time of day of travel will significantly shift as boomers age.

Today, the 2001 NHTS results show that work trips represent only 15 percent of total trips (all person trips for all ages), compared to 1969 when work trips represented nearly 25 percent of total trips. The decline in the proportion of work trips really represents an increase in other types of travel, especially recreation, family and personal errands and shopping. Non-workers, especially retired people, make many more recreational and shopping trips than workers.

Baby boomers, both men and women, are accustomed to driving and most are fully licensed. Because this generation was raised driving they will likely drive for many discretionary trips throughout the rest of their lives, but the spread of trips over the day will differ significantly from today, with the constraints of work removed.

We need to improve the scope of the data used to forecast travel. We need more information about expectations of baby boomers, especially about participation in labor force, and choices for retirement housing and location. By 2030, as the boomers age and reach their late 70's, we need to know more about what baby boomers plan to do when they are unable to drive, and what types of transportation (para-transit, bus, walk) or other services (e.g. home delivery) will assure access to goods/services. Stated Choice surveys are one way to capture future intentions or desires.

Another approach to improving forecasts about behavior of the aging population may be to use the longitudinal travel panels to look specifically at recently retired individuals and to compare their travel behavior before and after retirement. ■

For more information about the National Household Travel Survey, please visit: http://nhts.ornl.gov/2001/

"TRANSIMS" continued from page 1.

need to be considered in the exploration and selection of feedback calibration strategies.

Complexities arise because TRANSIMS models decisions by individual travelers, it simulates second-by-second operation of the transportation system, and it offers extensive flexibility to model patterns of individual travel to produce more realistic results. For example, TRANSIMS can reflect the effects of network congestion by allowing those travelers who experience congestion to shift paths, modes, destinations, and/or activity schedules, each option represented in different feed back cycle.

The Portland team is experimenting with — and documenting – approaches to calibrating the feedback loops, working to select one or more feedback strategies from what is potentially a very large number of calibration options.

After nearly two full days of briefings and discussions, these observations and recommendations came out of the Spring, 2003, TWG meeting:

1. **Unbundling TRANSIMS components** is desirable to bring promising capabilities to practicing planners sooner, and thus to expand the group of professionals testing TRANSIMS. Specifically, the visualizer is an important analysis tool that can give planners a new, graphical way to look at network operations, for validation, diagnosis, and plan evaluation purposes. Similarly, the microsimulator may be useful to agencies interested in exploring congestion and emissions issues in detail, but not yet prepared to go to full-scale implementation of TRANSIMS, particularly the activity model. There are important opportunities for testing early TRANSIMS applications with these unbundled components, including the use of existing, less detailed networks.
2. The TRANSIMS Portland application is a learning process, both in developing the tool and in thinking about travel forecasting in different ways. The **opportunities to learn should be maximized** and carefully documented to provide an informed basis for future applications, as well as to define future research needs.
3. The Portland experience should provide a strategy for calibration to guide the next round of TRANSIMS applications. As a part of this effort, explicit measures of effectiveness of the calibration need to be developed.
4. The goal of TRANSIMS is to develop the capability to answer more questions than can be dealt with by traditional travel models. Therefore, in the Portland application it is important not only to mirror current model results but also to demonstrate that TRANSIMS can address issues current models cannot.
5. Full application of TRANSIMS will include the population synthesizer and activity generator, the latter requiring a local activity survey. TWG members believe that household activities might be sufficiently similar across household types and within regions to permit the development of a national activity database parameterized by demographics and region. This would allow local agencies to combine the results sampled from a national activity survey with local census information to generate both households and travel. USDOT should explore the development of such a database, perhaps under the auspices of its Bureau of Transportation Statistics.

TWG is proving to be another useful way to assess and guide the development of TRANSIMS. The risk, perhaps, is that too many cooks may cause confusion in the kitchen. TWG is set up to look into the kitchen from outside, and to provide feedback on the quality of the menu and the needs and opportunities for new entrees. ■