

The **Travel** Model
Improvement
Program

Annual Report FY04

January 12, 2005

Helping Agencies Improve Their Planning Analysis Techniques

TMIP

Travel Model Improvement Program

Section One: Introduction

Introduction

The Travel Model Improvement Program (TMIP) focuses on outreach and training to the modeling community, research on models and model quality assurance. This FY04 Annual Report aims to document and assess our effort.

According to Federal Highway Administration (FHWA) Associate Administrator for Planning, Environment, and Realty Cynthia Burbank: “better modeling is needed to support effective transportation decision-making, better transportation investments, better operating decisions, improved air quality analysis and much more. Improved modeling will help all levels of government meet large transportation challenges with limited budgets.”

Travel models are key tools for making the decisions that shape our transportation system. Every year the United States invests billions of dollars in highways and transit, relying on travel models to enable transportation officials to make the highest payoff on that investment.

Additionally, modeling plays an important role in emerging priorities such as road pricing, operations, freight, land use-transportation integration, homeland security, safety and suppressed travel. Modeling can increase the power of scenario planning, visualization and communication of results to the public and elected officials.

To improve not only what modeling currently supports but also the emerging issues identified above, TMIP follows a strategic plan that was developed by USDOT staff in consultation with the TMIP Review Panel.

TMIP Review Panel

The TMIP Review Panel consists of transportation planning practitioners, managers and researchers from across the country. They represent planning agencies at both state and regional levels, universities, transit operators, environmental organizations and air quality agencies. The Panel supplies TMIP with input and feedback on program activities.

The TMIP mission and goals were slightly revised based on input from the review panel in FY04. The mission’s new “question and answer” format states the mission more strongly/proactively and still addresses the basic three-goal structure.

The current mission is:

TMIP will...

Do What?

Support and empower planning agencies.

How?

Through leadership, innovation and support of planning analysis improvements.

Why?

To provide better information to support transportation and planning decisions.

In FY04 the Panel met twice to discuss and provide feedback to the program. A summary of those meetings can be found in Appendix A of this document.

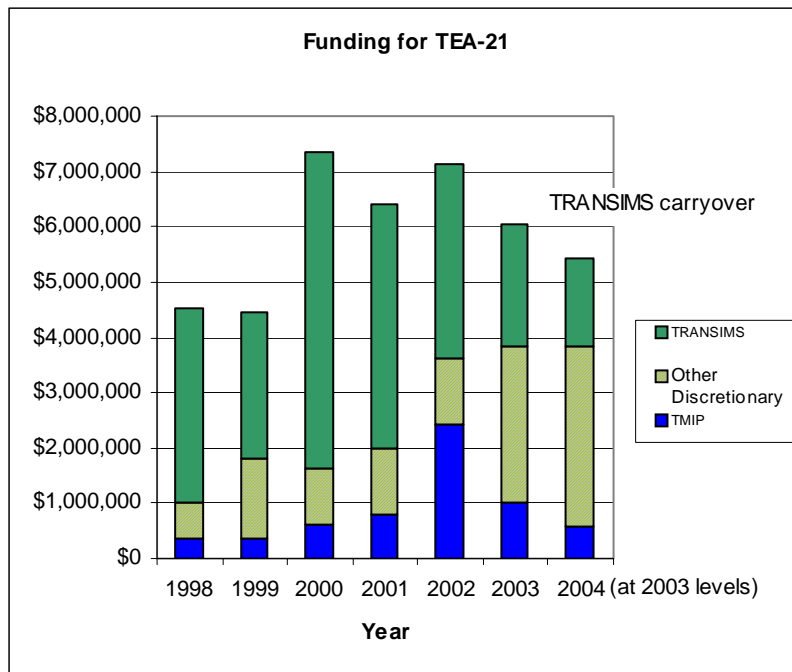
Need for performance measurement

A critical element of program implementation is performance measurement. This ensures that TMIP is accountable for promised products and services and is accomplishing the stated goals of the program. We have written this annual report to assemble and demonstrate accomplishments for each program goal. TMIP performance measurements are both quantitative and qualitative and there is a distinction between outputs and outcomes. Where available, quantitative data are reported, in other areas benchmark development, qualitative analysis and judgment must substitute. In this second annual report we refine some measurements from last year, we switch from a calendar to a fiscal year and we include comparisons, not previously available. In coming years we will continue these comparisons, expecting to exceed performance of past years.

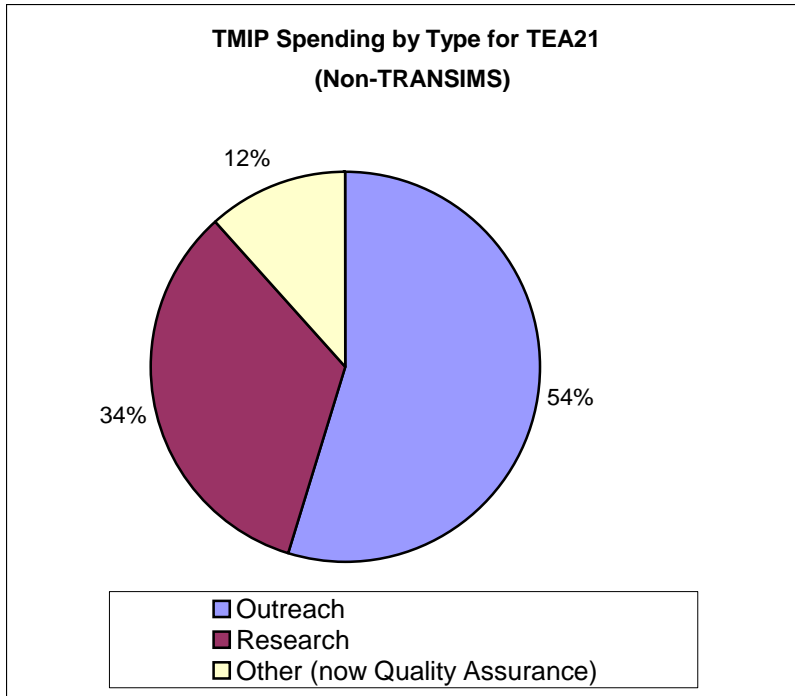
Funding Retrospective

Since its inception in 1994, funding for the TMIP has been drawn primarily from discretionary research funds allocated to the planning offices within FHWA and Federal Transit Administration (FTA). Over the course of the Transportation Equity Act for the 21st Century (TEA-21), FHWA has provided the primary funding for TMIP via allocations of discretionary Research and Technology (R&T) funds, and for the Transportation Analysis and Simulation System (TRANSIMS), which is a line item in TEA-21. TEA-21’s passage in 1998 drastically changed the funding of FHWA’s R&T programs, severely curtailing TMIP activities the first few years of the Act. In 2003, internal reorganization and the reauthorization process again resulted

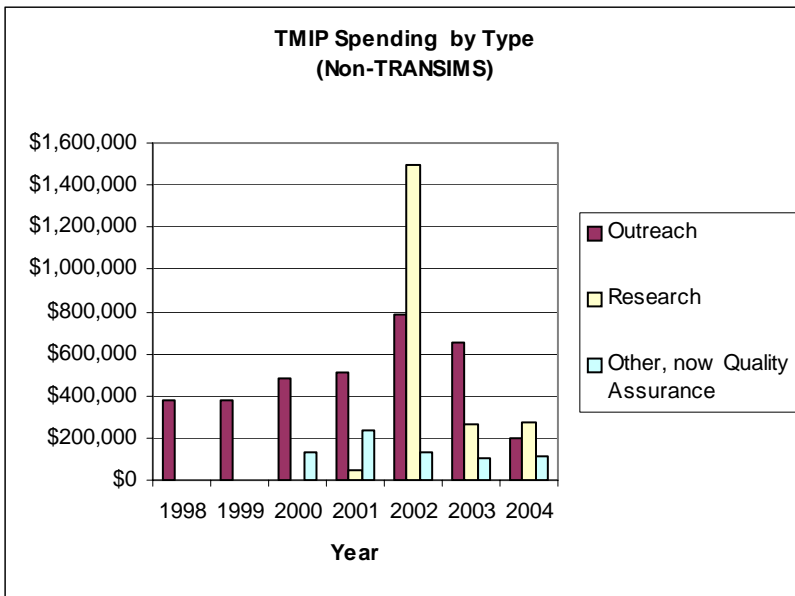
in a relatively restricted funding situation. This trend continued throughout 2004.



Given the initially austere R&T funding environment of TEA-21, TMIP discretionary spending focused on maintaining core outreach services and key product development efforts, such as the Census Transportation Planning Package (CTPP) technical support.



With changes in the TEA-21 R&T funding provisions (notably revenue aligned budget authority) and the advent of the Metropolitan Capacity Building Program (now the Transportation Planning Capacity Building Program) in 2001, TMIP research spending returned to pre-TEA-21 levels. As discussed above, 2003 and 2004 spending levels were curtailed by reorganization and reauthorization with the focus returning to maintenance of core training and outreach efforts.



Training & Outreach as well as Research & Development activities have historically been supported since TMIP's beginning. Quality Assurance efforts are a more recently identified homogenous goal set (those efforts were previously more generically referred to as "other"). Traditionally, the majority of funding has been for Training and Outreach. The successes noted in the peer review segment will likely result in a future funding increase for that area.

Section Two: Performance by Goal

In this section we present accomplishments by goal area. This annual report highlights major activities accomplished in service of the Program goals, it is not an exhaustive list of everything the Program has done over the entire year. In this document the subject headings will generally refer to specific goal objectives as defined in our mission and goals, included for reference in Appendix B. Furthermore, specific projects are referenced by their page in the Project Briefing Book which is included as Appendix C of this document.

Goal One “To help planning agencies build their institutional capacity to develop and deliver travel related information to support transportation and planning decisions.”

Partnerships with AMPO, AASHTO, TRB, NARC,

In October 2003, TMIP sponsored and participated in the AMPO annual conference. Our participation consisted of staffing a booth and distributing marketing materials to attendees, and participating/presenting during the “Tools for Transportation” panel session, where Fred Ducca presented the Certification Checklist on Travel Forecasting Methods.

In January 2004 we staffed a joint booth with the Transportation Planning Capacity Building (TPCB) Program and the Census Transportation Planning Package (CTPP) at the TRB annual conference in Washington, DC. We called ourselves USDOT Planning and Modeling Resources. At TRB we distributed materials, notably, applications for Peer Reviews.

In April 2004 we resurrected the USDOT Planning and Modeling Resources banner for participation in the American Planning Association annual conference, also in DC.

In June 2004 we sponsored, exhibited at and attended the National Association of Regional Councils (NARC) annual conference in Chicago. Michael Culp gave a presentation on new directions in travel model improvement. Maren Outwater of Cambridge Systematics presented results of the TMIP study on Commercial Vehicles in the context of a presentation on freight modeling and Adhish Vyas of New Jersey Institute of Technology (NJIT) presented on TELUS.

In August AASHTO was kind enough to host the Washington area TMIP seminar set (described below, in the training segment) at their headquarters in DC.

In September 2004, TMIP participated in TRB conference Transportation Planning for Small and Medium Sized Communities in Colorado Springs, CO. We staffed a booth and Penelope Weinberger presented Lessons Learned from the TMIP Peer Review program.

Applications partnerships

TRANSIMS, Portland, OR – Portland METRO (Briefing Book 20, 21, 22, 23 and 24)

We continue to fund work with Portland METRO on the implementation of TRANSIMS. Currently METRO staff is refining networks used for TRANSIMS and is calibrating the mode choice and destination choice models. METRO staff also is continuing to test the microsimulator using existing trip tables.

UrbanSim, Salt Lake City, UT (Briefing Book 12)

UrbanSim is a land use forecasting model developed by the University of Washington. The MPO in Salt Lake City, Utah has completed an initial application of the Urbansim model. TMIP supported this effort by providing \$200,000 to the MPO and the University of Washington, to assist in the application and to create a full set of documentation, which includes data collection and assembly, model calibration and validation info, and to support a peer review panel to oversee the work. The documentation is posted on the UrbanSim website:

Oregon Model Improvement Program Symposium 2005 (Briefing Book 7)

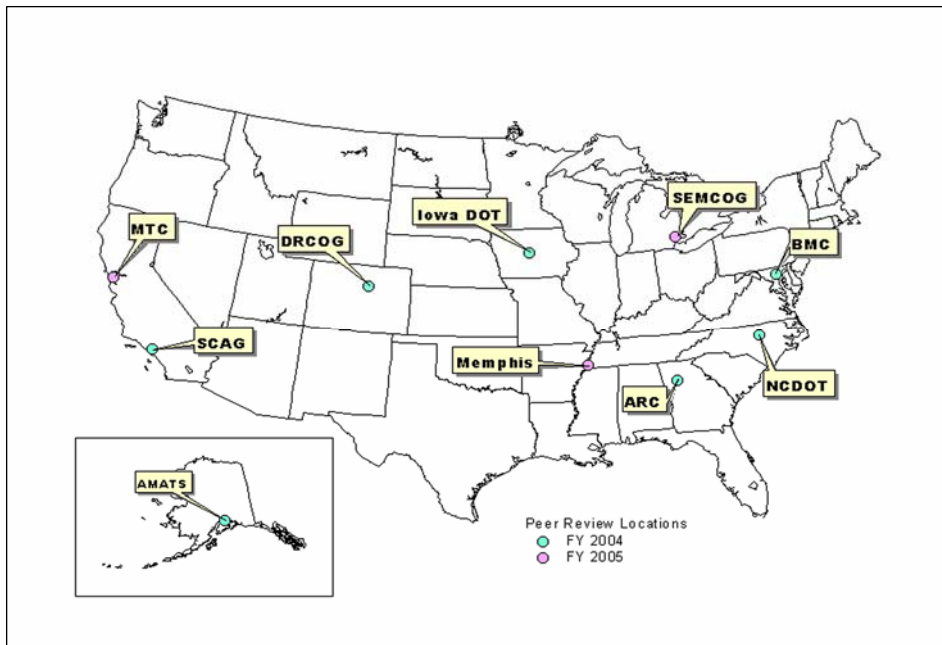
The Oregon Model Improvement Program (OMIP) is creating a new statewide land use and travel demand forecasting model called the Transportation and Land Use Model Integration Program (TLUMIP). To share their results as they build the new model with the wider modeling community, OMIP has held 3 symposia to explain the work being done and to receive input from modelers around the world. TMIP is helping this effort by supplying funding for the conference and the publishing of conference proceedings. The last conference was conducted in July 2002, the proceedings are available through TMIP. The 4th symposium is scheduled for November 2005.

Academic partnerships

We continue our partnerships with NJIT in the development of TELUS and with the Virginia Polytechnic Institute (VPI) for the development and pilot offerings of the TRANSIMS course. Work with the Texas Transportation Institute (TTI), in support of the TMIP program continued throughout FY05. During the last six years we have supported six graduate students at the NJIT, Rutgers University and the University of Pennsylvania on the development and deployment of TELUS. We also supported development and piloting the Introduction to TRANSIMS course at VPI. Finally, TMIP is providing deployment technical assistance to Rutgers University for a two county study in Central New Jersey using TRANSIMS.

Peer Review Program (Briefing Book 27)

The Peer Review Program provides state and local planning agencies the ability to solicit input from experts in the field of travel demand modeling. In FY04 TMIP sponsored nine Peer Review Panels. These Panels occurred across a broad spectrum of MPOs and state DOTs throughout the nation. The following areas have held TMIP Peer Reviews:



- Anchorage Metropolitan Area Transportation Study (AMATS)
- Atlanta Regional Commission (ARC)
- Denver Regional Council of Governments (DRCOG)
- Southern California Association of Governments (SCAG)
- Iowa Department of Transportation (IaDOT)
- North Carolina Department of Transportation (NCDOT)
- Baltimore Metropolitan Council (BMC)

Five of the Panels – two each at DRCOG in Denver and SCAG in Los Angeles, and one at BMC – dealt with large urbanized areas developing innovative techniques to improve their current model program, while the other two dealt with other metropolitan planning issues. Additionally, two of the panels focused on State DOT modeling efforts.

Currently there are three more peer reviews planned, funded and scheduled to take place in FY05. They will be held at:

- Memphis MPO, October, 2004
- South Eastern Michigan Council of Governments (SEMCOG), December, 2004, and
- Metropolitan Transportation Council (MTC), December, 2004

The program anticipates holding future peer reviews as funding permits.

Synthesis and individual reports

Through documenting each peer review, the Program generated both individual reports and a synthesis report that discusses each peer review in detail and synthesizes recommendations for MPOs and DOTs. The synthesis report includes technical recommendations, recommendations for managing the modeling process and results and improvements for conducting peer reviews. Additionally, the report has a section that includes the following three recommendations for TMIP:

- TMIP Peer Review Program should consider awarding a Peer Review Panel to a state or region where the topic focuses exclusively on the issue of the integration of land use and transportation in the modeling process and on the identification of state-of-the-practice techniques for this integration.
- TMIP should consider producing a web-based document that gives guidance to state and regional planning agencies on the most current data sources that are currently available.
- TMIP should consider producing a white paper on the experiences and lessons learned from those MPOs that have completed the migration to an activity based model.

The full set of individual reports and the synthesis are posted on the TMIP website and the synthesis report has been distributed to the panel for review.

Newsletter (Briefing Book 2)

TMIP produced three newsletters in FY04. The TMIP newsletter, *TMIP Connection*, follows a particular format. Each newsletter generally has two feature articles, a discussion of an email

topic that generated considerable interest on our email list, an update on TMIP Review Panel activity and listings of courses and conferences relevant to the planning analysis community. An addition this year was the development of the “model citizen” guest column. Model citizen is designed to engage and include the practitioner community in the technology transfer process of the newsletter. In fact, FY04 saw a transfer of newsletter ownership from the TMIP program to the user community, in that more articles were solicited from the modeling community than were generated by the Program staff. This change from past years is a proud accomplishment that already has been rewarded in positive feedback from the user community.

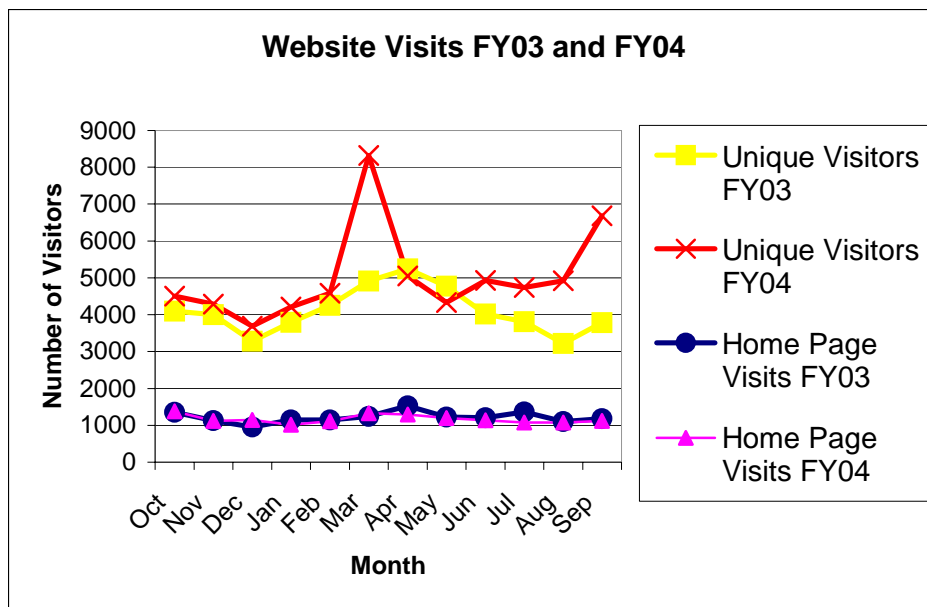
Content and distribution

In FY04 *TMIP Connection* featured GPS; highlighted MPOs or States in various stages of the model process; and was dedicated to technology transfer to the modeling community. The newsletter is distributed both electronically and in hardcopy and is posted on the TMIP Website. Electronic distribution includes a link and announcement to the TMIP Email list, AMPO, AASHTO, TRB, APTA, ARTBA, the FHWA resource centers, the division planners and the FHWA technical service teams for planning and air quality. TMIP also maintains a mailing list of about 1500 who receive the newsletter in hardcopy. Additionally, current and past issues of the newsletter are distributed at conferences we attend.

The three FY04 newsletters constitute Appendix D of this report.

Website (Briefing Book 1)

The TMIP Web Working Group (TWWG) was convened in FY04. The group is a loosely affiliated body of expertise that is charged with maintaining website content, particularly with regard to the robustness of the clearinghouse. The TWWG keeps the pulse of the modeling and planning analysis community to ensure the website and clearinghouse stay up to date and relevant. The TWWG is composed of public agency professionals, academics and consultants versed in modeling and planning analysis, as well as adjunct disciplines.



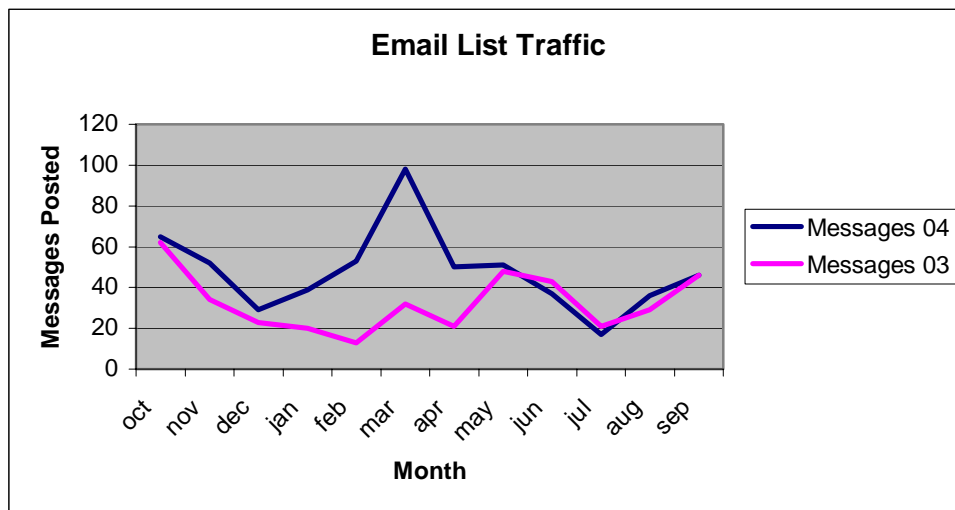
The TMIP website contains the latest information in the TMIP world, highlighting new documents and data, and archiving historical information. From TMIP's website a user can access the latest information on relevant conferences and courses, the national MPO database, the TMIP clearinghouse, information on TRANSIMS, or one may subscribe to the email list

In FY04 the TMIP website received 367,290 page views from 57,423 visitors, representing 29% growth in page views and 14% growth in total visitors. Of those FY04 visitors, 9,769 were return visitors. Interestingly, the 17 percent that makes up return visitors constitutes 54 percent of the site's traffic. In FY03, the same 17 percent (of 49,189 visitors) constituted 49 percent of total traffic; we seem to be 4 percent more useful to our regular visitors. Average length of visit also increased from FY03 to FY04 by just over three and one-half minutes, either we are more robust or harder to navigate. The most requested pages were the clearinghouse (discussed below) portal, the conferences and courses information page, the TRANSIMS page and the links.

Email list

The TMIP email list had an average of 537 subscribers in FY 04. There was a slight change in composition when in December we asked subscribers to "re-up." At that point our subscribers dropped from 780 to 550, unfortunately a software glitch caused the "cleaning" to run again in January, knocking the list down to 404, at which point the cleaning effort was abandoned. Since January the list grew at monthly rate of 1 – 8 percent and in September had 533 subscribers. Subscriptions were not tracked for all of FY03, but for the period tracked the list averaged 748 subscribers.

List traffic in FY 04 averaged about 48 messages per month, original postings made about a third of traffic and replies the other two thirds. In FY 03 the original posting vs. response split was roughly the same but total traffic averaged only about 33 messages per month.



Postings ranged from tech transfer discussions to requests for papers and abstracts to course and conference announcements to job postings. The list can be a hotbed of controversy and each issue of the TMIPConnection summarizes a hot topic that came up since the last issue.

Clearinghouse (Briefing Book 1)

The TMIP clearinghouse is both physical and virtual. There are 35 titles available in both downloadable and order and ship format. Most documents, however, are either one or the other. There are 221 web-only documents and 19 print-only. The sheer numbers represented by electronic hits to electronically available documents dwarf the numbers representing paper copies of documents requested and shipped therefore it is necessary to treat the two subjects separately.

Physical

There are 60 titles physically available from the TMIP Clearinghouse. In FY04 the TMIP Clearinghouse showed 20% growth in demand for printed, mailed material from the previous year. The clearinghouse shipped 966 documents in 131 orders, compared to 771 documents shipped in 109 orders in FY '03. Our biggest customer base was again private/consultant, followed closely by State Governments and Education/Research.

The most popular document remains the Introduction to Travel Demand Forecasting Self Instruction CD-ROM with 82 requests shipped from the clearinghouse in addition to the hundreds dispersed at conferences and meetings throughout the year. In addition, the self instructional CD is mailed to all registered students of Introduction to Travel Demand Forecasting NHI Course and in 2005 we will be sending it to Estimating Regional Mobile Source Emissions registrants as well. The table below shows the top ten most requested documents physically shipped from the TMIP clearinghouse. This information does not reflect the electronic hits or downloads of documents available electronically.

FY04 Top Ten		Number Shipped	Rank FY03
1.	Travel Demand Forecasting Self Instructional CD-ROM	82	2
2.	Travel Survey Manual	38	
3.	Model Validation and Reasonableness Checking Manual	37	1
4.	Incorporating Feedback in Travel Forecasting: Methods, Pitfalls, and Common Concerns	37	7
5.	Integrated Transportation and Land Use Forecasting: Sensitivity Tests of Alternative Model Systems Configuration	34	8
6.	Land Use Forecasting Case Studies: A Synthesis and Summary	31	9
7.	Data Collection and Modeling Requirements for Assessing Transportation Impacts of Micro-Scale Design	29	3
8.	Guidelines for Network Representation of Transit Access, State of the Practice Summary	27	
9.	Activity Based Modeling Systems for Travel Demand Forecasting	27	4
10.	Time-of-Day Modeling Procedures State-of-the-Art, State-of-the-Practice	26	4

Electronic

Of the 256 documents available for downloading or web viewing we have statistics only for the top 18. This is because we collect ranked information on page hits only down to 60th. Our site does not aggregate statistics for multiple page hits within a single document, therefore only 18 documents are represented in the top 60, with the other 42 “top pages” representing chapters within those documents in the top 18.

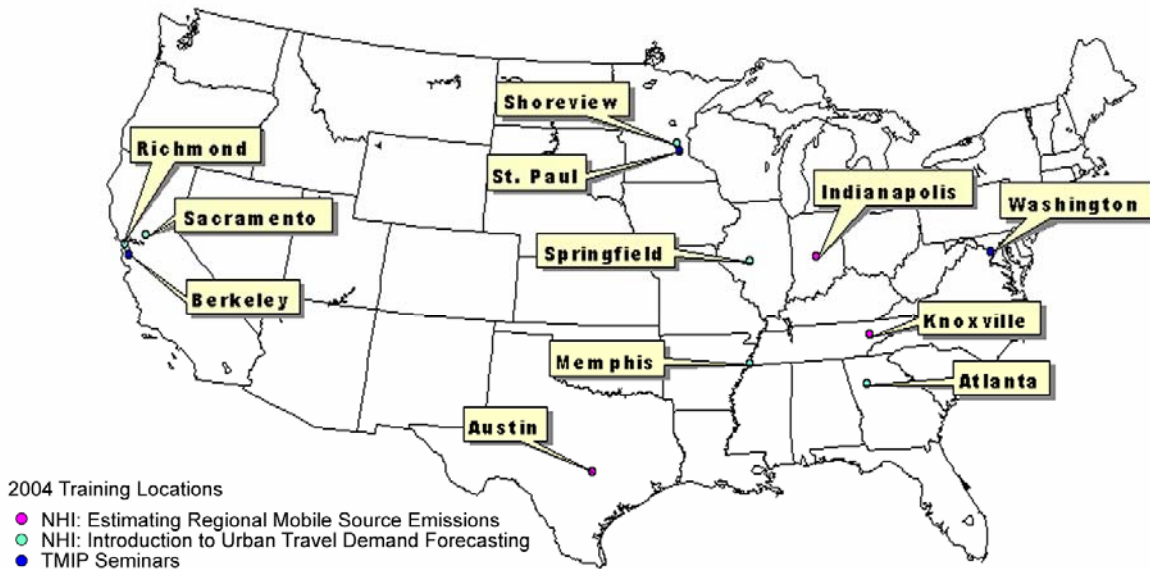
Top Web Documents Viewed (FY03-04)

1. Urban Transportation Planning In the United States: An Historical Overview
2. GIS in Transportation Planning & Case Studies
3. Model Validation and Reasonableness Checking Manual
4. Quick Response Freight Manual: Final Report
5. Considering Safety in the Transportation Planning Process
6. Activity-Based Travel Forecasting Conference Proceedings
7. Manual of Regional Transportation Modeling Practice for Air Quality Analysis
8. Land Use Compendium
9. Calibration of Traffic Forecasting Models in Small Urban Areas
10. Population Forecasting Methods: A Report on Forecasting and Estimating Methods

Top Web Documents Viewed (FY02-03)

1. Urban Transportation Planning In the United States: An Historical Overview
2. GIS in Transportation Planning & Case Studies
3. Considering Safety in the Transportation Planning Process
4. Model Validation and Reasonableness Checking Manual
5. Land Use Compendium
6. Quick Response Freight Manual: Final Report

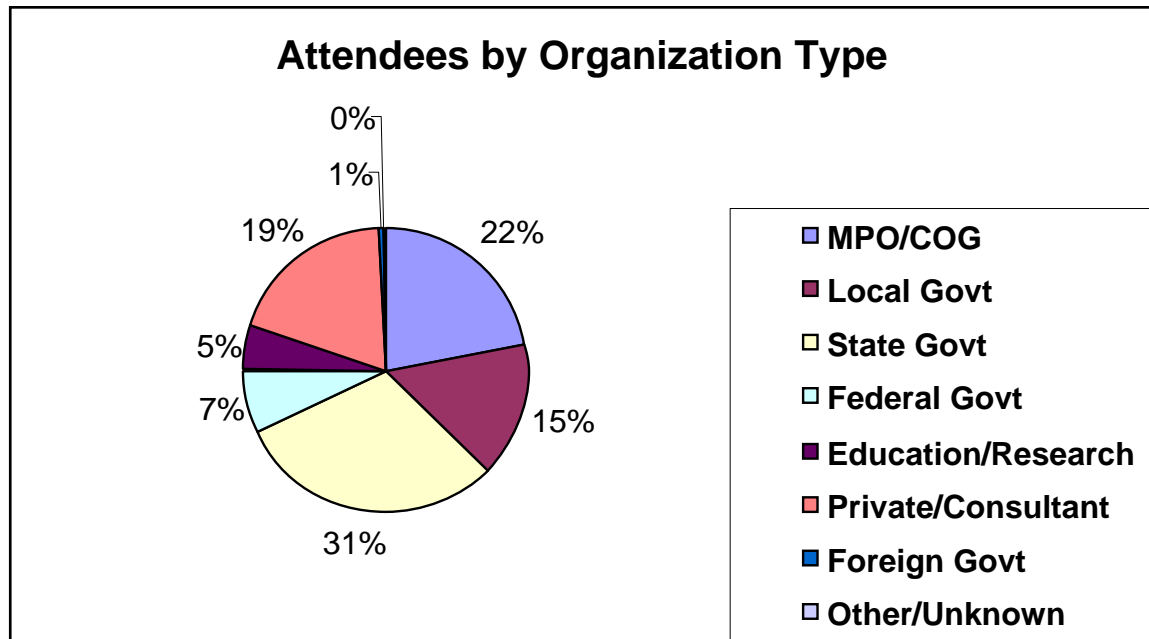
Training



FY04 saw ten TMIP seminars and nine TMIP endorsed NHI courses, delivering training to 419 individuals.

Course or Seminar	Presented FY04	FY03 Presentations	Attendance FY04	FY03 Attendance
Introduction to Travel Demand Forecasting Course	6	7	121	149
Estimating Regional Mobile Source Emissions Course	3	2	51	38
Activity and Tour-Based Modeling Seminar	4	0	103	0
Forecasting Land-use Activities Seminar	3	3	71	85
Travel Model Validation, Calibration and Reasonableness Checking Seminar	3	3	73	85
TOTAL	19	13	419	357

A highlight of FY04 training was the successful launch and delivery of a new seminar, Activity and Tour-Based Modeling. Traditionally the seminars have been sponsored, paid for and presented to the user community by TMIP. Recently there have been requests for more offerings of the seminars than those for which we have programmed funding. These requests led us to develop an “on-demand delivery” capability, not previously conceived, for the seminars. On-demand requests are paid for by the requestors. Work began in FY04 to deliver 3 seminars on demand in FY05, we also anticipate delivering each seminar three times in FY05, beyond any on-demand requests.



TMIP training reaches a wide spectrum of skill levels, agencies and industries.

Peer Exchanges (Briefing Book 26)

Three Peer Exchanges were planned and programmed in FY04 for delivery in FY05. The topics are: Activity Data Transferability, Pricing and Tolling Analysis and Transportation Planning Safety Analysis.

Activity Data Transferability (Scheduled for 12/16/04)

Data requirements to develop and implement activity, tour-based, and micro-simulation modeling approaches can be prohibitively expensive to collect for many planning agencies. These approaches require additional and more specialized data on travel activity patterns. Increasingly, however, peer reviewers and planning agencies themselves are viewing activity and tour-based models as desirable and implementable techniques. To support additional implementations of such models and to be more efficient with data collection funds, it would be desirable to look at ways in which activity patterns could be shared across urban areas. A select number of areas have conducted activity-based surveys, and FHWA continues its NHTS data collection effort. The focus of this forum would be to assemble experts in activity and tour-based modeling and data collection and analysis to discuss and debate the issue of activity data and pattern transferability.

Pricing and Tolling Analysis (Being conducted by USDOT – OST – Scheduled for spring 2005)

Planning agencies face the challenge of incorporating pricing and tolling strategies into their traditional technical planning analyses in order to evaluate potential impacts to the transportation system. The purpose of the Expert Forum is to:

- Identify the current state of technical planning methodologies available to analyze pricing and tolling options
- Identify current gaps in knowledge (including data and research), training, and implementation strategies
- Share best practices and lessons learned from academic institutions, state departments of transportation, metropolitan planning organizations, and other federal and state agencies
- Identify and prioritize research areas that will provide planning agencies with tools for evaluating pricing and tolling policies and programs

The commission of technical papers and subsequent publication will accompany this forum.

Transportation Planning Safety Analysis (Subject to availability of funds)

Planning agencies have continually been developing and refining their role in transportation safety. Several projects completed recently have been focused on the consideration of safety in the transportation planning process, but much work still remains in developing and applying evaluation methods and tools to support this consideration. The focus of this forum will be to:

- Discuss different analysis approaches, what has been tried at planning agencies, academia
- Debate the advantages and disadvantages of the approaches
- Discuss data gaps and needs
- Discuss what needs exist in moving these techniques towards implementation, improvement

This forum will build on the NCHRP project 8-44, “Incorporating Safety into Long-Range Transportation Planning”, and the TMIP projects “Considering Safety in the Transportation Planning Process” and “Tools for Assessing Safety Impact of Long-Range Transportation Plans in Urban Areas.”

In addition to the three programmed exchanges, the TMIP review panel recommended five additional subjects for Peer Exchanges (the panel recommended pricing and tolling analysis, the other two above were generated at other sources). The five topics are:

- *Time of day, peak spreading and over-capacity links*
This exchange will discuss model formulations and approaches that incorporate time-of day choice and peak spreading with traditional models and tour based models with consideration for dynamic assignment methodologies.
- *Transportation Impacts on Development/Land Use*
This exchange will review methods being used to estimate land use impacts of transportation plans or projects.
- *Communication and Use of Travel Models in Decision Making*
This exchange will address how information produced from models is used by decision-makers and will explore ways to improve not only communication of model results but also institutional relationships in communication between technical staff and decision-makers.
- *Issues in Data Collection and Maintenance*
This exchange will focus on sharing best practices in planning analysis data collection and management strategies.
- *Freight/light duty commercial vehicles*
This peer exchange will help identify different methods to incorporate freight and commercial vehicle travel into travel forecasting models.

Goal Two “To develop and improve analytical methods that respond to the needs of planning and environmental decision making processes”

Research needs assessment (Briefing Book 4)

TMIP’s original short-term research needs are complete. New challenges and priorities continue to press the transport profession. Reauthorization discussions are underway with a renewed emphasis on strategic research programs.

This project will evaluate research needs and their contexts identified during recent conferences. An outreach effort to identify current and emerging needs and priorities will be done through partner groups, including the TMIP review panel, the AMPO travel modeling subcommittee, NARC, AASHTO SCOP, and others. Efforts underway and planned by other research programs, notably TCRP and NCHRP, will be considered. Finally, coordination and integration with FSHRP efforts needs to be done.

A draft of the Task 1 practitioner needs is complete and will be presented for discussion at the November 2004 panel meeting. Prioritization of the practitioner needs will be done after the panel meeting and the Task 2 literature review for the high priority needs will begin.

TRANSIMS (Briefing Book 15, 16, 17, 18 and 19)

We continue to work on the implementation of TRANSIMS in Portland, Oregon. We are nearing completion of our testing of the microsimulator and demonstrating the ability to use TRANSIMS

to perform region-wide traffic simulations using traditional MPO networks. We have also made modifications to the software to correct for problems of lost vehicles and have reduced the number of lost vehicles to a reasonable amount. We have specified a complete "Gen2" model which uses TRANSIMS capability to explicitly include time of day within the travel forecasting process. We are now in the process of calibrating the destination choice and mode choice components. We expect to begin testing the entire model set, including feedback of individual travelers, early in 2005.

TELUS (Briefing Book 14)

The TELUS System has been completed and has been made available to MPOs and State DOTs. A web-based version of TELUS has been developed and has been implemented by the Alabama DOT. This provides a methods to compile the TIPs from each MPO in Alabama into a centralized data base using TELUS.

Accounting for Commercial Vehicles in Urban Transportation Models Study (Briefing Book 11)

The first phase of this TMIP-sponsored study was completed in March, and the final summary report along with more detailed task reports, covering literature review, magnitude and distribution, and methods, parameters and data sources, have been posted on the TMIP clearinghouse web site. In addition, a paper discussing the general findings of the study has been accepted for presentation at the TRB Annual Meeting; a second paper, focusing on estimation methods, is being prepared for presentation at the Planning Applications Conference in Portland, OR. No decision has yet been made on funding for the second phase of this study, which would try to implement the methods in one or more specific case study applications.

The American Community Survey Testing Project (Briefing Book 8, 9 and 10)

The American Community Survey (ACS) testing project is evaluating transportation planning issues and opportunities related to replacing the decennial census "point-in-time" data with data collected using a continuous sample.

Two small research projects using microdata from the 1999-2001 ACS were conducted at the Census Bureau Research Data Centers (RDC). The Seasonality report, using data for Hampden County, MA, did not find seasonal variation in the journey-to-work characteristics. The project on Workplace Geocoding met with difficulty and ended with little analysis. Both reports will be posted on the CTPP "products" page: <http://www.fhwa.dot.gov/ctpp/articles.htm>.

This research suggests that the main issue with the ACS is that the samples will be smaller, resulting in lower confidence and reliability, and most importantly, resulting in many fewer home-to-work origin-destination pairs, each with higher weights. The sample sizes in ACS may make TAZ and BG reporting impossible.

As of October 2004, Congress has not yet decided whether or not to fund the ACS for "full implementation." The Census Bureau says they will make a decision by February 2005 of whether to begin implementing a decennial census "long form" for 2010.

Forecasting Person Travel by Time of Day research effort (Briefing Book 13)

This effort will research and document the value structures and decision processes that travelers in the U.S. use to schedule their regular travel and develop forecasting methods based on the research findings. The research will specifically identify trip valuation, prioritization, scheduling and schedule actions in response to changes in transport service availability and quality. This project will:

- Develop a classification structure for the decision processes that travelers use to schedule their regular travel
- Develop innovative aggregate and disaggregate modeling techniques that dynamically adjust person travel by time of day according to changes in transport service availability, quality and policy.
- Demonstrate the techniques using available data
- Develop materials for practitioner implementation and stakeholder information on the research findings

Task 1 - Schedule Research

This task will describe and define the value systems and decision processes that travelers in the U.S. use to schedule their regular travel. The effort will identify trip valuation, prioritization, scheduling and schedule actions in response to changes in transport service availability and quality. This task is complete.

2. Technology Development

This task will develop aggregate and disaggregate forecasting techniques that implement the schedule research findings and are consistent with the classification structure. These techniques will be sensitive to changes in transport service quality, reliability, and appropriate TDM policies. These techniques will be suitable for use in existing and emerging travel forecasting applications. The trip-based approach is complete. The tour-based approach is under review.

3. Technology Demonstration

The aggregate and disaggregate procedures will be demonstrated using existing networks and socio-demographic data for a given region. The demonstration will include tests involving new transport services, transport service degradation, and a policy change. Comparisons will include base year and sensitivity tests consistent with the classification structure developed during schedule research. DRCOG (Denver) is working to help evaluate the trip-based approach. Negotiations with San Francisco County are underway to gain access to their model and databases.

Goal Three “To develop mechanisms to ensure the quality of technical analysis used to support decision-making and to meet local, state, and federal program requirements”

Travel Model Synthesis (NAS)

We have put a cooperative agreement in place with the National Academy of Sciences for the “*Determination of the State of the Practice in Travel Forecasting*”. The study agreement will determine the state of the practice in travel forecasting and address the following issues:

- What models do planning agencies currently have under development?
- Do planning agencies use multiple models for multiple purposes?
- What are key similarities and differences among planning agencies in the development and application of models and what factors are associated with these differences?
- Identification of technical shortcomings in the models for their intended uses such as technical analyses of long range plans, emissions analyses, FTA New Starts analyses and NEPA analyses.
- What are the obstacles to appropriate application of these models?
- Other questions raised by the panel.

Panel members are:

Chair Martin Wachs, UC Berkeley
MPO Michael Morris, NCTCOG Dick Walker, Portland METRO Chuck Purvis, MTC San Francisco Guy Rosseau, Atlanta Regional Commission Ron Eash, CATS/Northwestern University
State DOT Mary Lynn Tischer, VDOT Laura Cove, NCDOT
Academic Bob Johnston, UC Davis Eric Miller, University of Toronto
NAS Tom Deen
Consultant Dick Pratt George Dresser
Advisory Group Bill Davidson, Parson Brinkerhof Bill Woodford, AECOM Tom Rossi, Cambridge Systematics

Certification Checklist for Travel Forecasting Methods

The certification checklist for travel forecasting methods has been posted on the FHWA public website, <http://www.fhwa.dot.gov/planning/certcheck.htm>, and included in the Certification Handbook used by FHWA/FTA field planners for their triennial certification reviews. The primary purpose of the checklist is to identify those MPOs who may be at risk in order to provide them with technical assistance to improve their travel models, and not to cite them as “correctible actions.” Over the summer, FHWA, FTA and the Volpe Center have been conducting regional workshops for our field planners on Certification Reviews, and have stressed the need to address travel forecasting methods as part of the certification review process.

Direct technical assistance

TMIP technical staff, in cooperation with technical staff from FHWA’s Office of Planning and FHWA’s Resource Center’s Planning Technical Service Team, has provided direct technical

assistance in reviewing travel forecasting methods used in Long range Transportation Plans, Conformity Determinations, and Environmental Impact Studies. Requests for technical assistance have come from MPOs, States DOTs, FHWA Division Offices, as well as internally from FHWA's Office of Natural & Human Environment and Office of Project Development & Environmental Review. These requests are typically made in response to a lawsuit in which the plaintiff challenges the validity of travel demand forecasts based on some aspect of the forecasting methods or assumptions used.

During FY 2004, technical assistance was provided for a number of projects, including:

- U.S. 95 highway widening project in Las Vegas, NV
- Prairie Parkway preliminary engineering study in northeastern Illinois
- I-70 Intermountain Corridor programmatic EIS in Colorado
- I-49 highway expansion project in Louisiana
- Tyler McConnell Bridge draft EIS in Wilmington, DE
- Cross-Base Highway preliminary EIS in Pierce County, WA
- Travel model improvements in response to TRB peer review in Washington, DC

Section Three: Lessons learned and future directions

What have we learned?

Based on our activities over the past year, and on input we have received from the TMIP Review Panel and others, it is useful to discuss what lessons we have learned.

Peer Reviews are Important

Our experience with the peer review program has taught us that peer reviews are an excellent new service to the profession and source of programmatic feedback. Agencies have received extremely useful recommendations from peer reviewers. The flexibility built into the program enables the planning agency to focus peer reviewers on a variety of issues, from improvements in their current models, to complete redesigns of their modeling process. Also, TMIP has received valuable feedback from the program synthesis reporting process. Volpe identified several crosscutting areas where TMIP can focus technical assistance, training and research activities. There has been a high level of demand for support for peer reviews, which is anticipated to continue into the next year, with the Baltimore, Detroit and San Francisco MPOs already accepted for participation in the program.

Focus on Model Quality Needed

We have learned this year that we must strengthen our focus on model quality. We have been hearing calls for more attention on model quality for stakeholder groups and the TMIP Panel. TMIP completely agrees and has been initiating and championing efforts to help bring about change in this area. We continue to act as a catalyst for the initiation and conduct of the NAS "Travel Model Synthesis" project, and will be actively engaged with the project as it proceeds (as much as is allowed, per NAS rules). We will also support the implementation of the Certification Checklist into practice by helping provide resources and staff support for the training of Federal field staff. We will also continue our training activities and will attempt to

make more information available to practitioners on modeling methods being used through our peer review reports, newsletter articles and email list.

The Future is Uncertain

The lack of a reauthorization bill has created programmatic and funding uncertainty for TMIP. Reauthorization could provide confirmation of the current TMIP strategic direction, or could significantly alter the focus of TMIP. For example, if reauthorization directs that travel model research be conducted as part of FSHRP, TMIP may need to redefine its role. The funding uncertainties stem from piecemeal funding as a result of the numerous continuing resolutions. We have learned over the past year how to maintain operations in such an environment, however the situation inhibits our ability to initiate significant new activities and plan more than a few months in advance.

Where are we going?

Continue Core Activities

TMIP will continue its core activities including our training, clearinghouse, and research support functions. In addition, should funding be made available, we will continue our support of the Peer Review Program, which has become a critical part of our core activities.

Respond to Emerging Needs

TMIP will seek input on emerging travel model issues from our stakeholder groups and the TMIP Review Panel. In the past year, several issues have been identified and we are now in the process of addressing them. For example, we are working with the USDOT Office of the Secretary on a forum on pricing and tolling analysis, to be held early next year. In addition, several forums are planned to address other needs identified such as Transportation impacts on land development, and communicating modeling results to decision makers and the public.

Build Staff Capacity for Federal Review

As more emphasis is being placed on the quality of modeling in the U.S., FHWA has worked to incorporate modeling issues in the transportation planning certification review process. To make this fully effective, it is crucial to train Federal staff on travel modeling issues. To that end, TMIP will support FHWA in increasing training for Federal field staff, particularly on travel modeling basics and their role in ensuring modeling quality.

Track Reauthorization

We will continue to track the reauthorization process and its implications for TMIP and the travel modeling profession.

Appendix A

TMIP Review Panel Meeting Notes for FY 04

The review panel met twice in FY04. Both meetings were highly productive, as they always are! The first meeting was November 20-21, 2003, at that meeting the panel addressed the following issues:

- 2003 performance report,
 - the panel liked the report overall, requesting that it be formatted and finished. They made some recommendations for change for the '04 report; that the modified goals and objectives be used, that the panel be engaged to establish and improve performance measures, that the program establish benchmarks and performance goals and that the idea of merging the performance report with the TMIP project briefing book be explored.
- TMIP strategic plan,
 - The panel updated the TMIP mission and goals this year, the updated mission is stated above, the new goals are as follows:
 - Goal 1: To help planning agencies build their institutional capacity to develop and deliver travel related information to support transportation and planning decisions.
 - Goal 2: To develop and improve analytical methods that respond to the needs of planning and environmental decision making processes
 - Goal 3: To develop mechanisms to ensure the quality of technical analysis used to support decision-making and to meet local, state, and federal program requirements
- Peer Review program,
 - The discussion generated a lot of ideas to improve and leverage the information resulting from the Peer Reviews including more outreach and bifurcating the program to include a “Peer Assistance” function for areas not yet ready for a full blown peer review.
- TRANSIMS,
 - the discussion centered around TRANSIMS emissions module and its applicability for emissions analysis.
- Certification Checklist for Travel Forecasting Methods
 - The Checklist was presented to the panel for comment.
- Modeling Guidance.
 - The panel thought the guidance should be cast as a handbook, incorporating case studies, best practices and the state-of-the-practice. The modeling community should generate the handbook with the process managed by TRB.

At the May panel meeting there were updates on November issues; the Certification Checklist, TRANSIMS, modeling guidance (recast as Determining the State-of-the-Practice in Travel Forecasting Project, which became the Travel Model Synthesis undertaken by TRB/NAS) and the Peer Review Program. New issues discussed were:

- FHWA Vision of Model Improvement

- Associate Administrator for Planning Environment and Realty Cynthia Burbank presented.
- Reauthorization
 - A speculative discussion was held regarding various components of the, as yet not passed, surface transportation act.
- Research Needs Assessment
 - The panel identified some opportunities for outreach to forward this assessment.
- Accounting for Commercial vehicles in Urban Transportation Models
 - The panel recognized the need (acknowledged the desire) to promote and publicize the results of this study.
- Possible topics for technical roundtables
 - Topics were identified, discussed and ranked as to importance to the travel model/transportation analysis community. A more complete discussion is below, the topics are:
 - Pricing
 - Time of day, peak spreading, over-capacity links, dynamic assignment, Micro-simulation
 - Transportation Impacts on Development/Land Use
 - Communication and Use of Travel Models in Decision Making
 - Data (Socioeconomic, surveys, maintenance)
 - Freight/light duty commercial vehicles

Appendix B – Program Mission and Goals

Travel Model Improvement Program

Mission: The Travel Model Improvement Program will:

Do What? Support and empower planning agencies

How? Through leadership, innovation and support of planning analysis improvements

Why? To provide better information to support transportation and planning decisions

- To help planning agencies build their institutional capacity to develop and deliver travel related information to support transportation and planning
- Provide information to transportation decision-makers, non-technical professionals, and other stakeholders on the value, role, useful applications, and limitations of travel forecasting.
- Develop and cultivate collaborative partnerships with other organizations concerned with improving travel analysis techniques
- Promote organizational structures which support quality travel analysis activities
- Identify and communicate the state of the practice in technical analysis and data collection and associated resource requirements
- Deliver and communicate technical products and services to travel model users
- Promote planning technical analysis as a profession
- Assess goal performance and obtain customer feedback
 - To develop and improve analytical methods that respond to the needs of planning and environmental decision making processes
- Identify current and emerging analytical needs
- Develop tools, techniques, procedures to meet analytical needs
- Conduct basic research to meet analytical needs
- Assess goal performance and obtain customer feedback
 - To develop mechanisms to ensure the quality of technical analysis used to support decision-making and to meet local, state, and federal program requirements
- Compile and clarify federal requirements related to technical analysis
- Provide support for effective federal technical reviews
- Provide an incentives program to encourage and showcase exemplary travel forecasting methods, processes, and professionals in the U.S
- Assess goal performance and obtain customer feedback

Appendix C Briefing Book (see PDF)

Appendix D, Newsletters

18, 19, 20 (see PDFs)