Innovations in Travel Demand Modeling Conference

May 21–23, 2006
Hyatt Regency Austin

Preliminary Agenda
(Revised 5/2/2006 and subject to change)

Sunday, May 21, 2006

10:00am to 6:00pm
Registration

1:30pm to 5:00pm
Workshop 1 – Innovations in Practice
In this workshop we will review a variety of innovations in travel demand forecasting that go beyond the activity-based approaches. The presentations demonstrate a concerted effort to move toward the most elementary decision making units and new modeling directions. One portion of this workshop is dedicated to an open discussion of next steps for the federal travel model improvement program.

Moderator - Kostas Goulias, University of California, Santa Barbara

Speakers
- Rick Donnelly - Implementing and Evaluating a Micro simulation Model of Freight Transportation in Oregon
- Khaled Abdelghany, Hani Mahmassani, Ahmed Abdelghany - Modeling Activity-Based Travel Demand in Intermodal Transportation Networks
- J Douglas Hunt - Levels of Disaggregation and Degrees of Aggregate Constraint in Transportation System Modeling
- Fred Ducca - Linking Tour Based Models with Traffic Simulation : The TRANSIMS Experience in Portland
- Fred Ducca - Listening Session on Next Steps for Deployment

1:30pm to 3:00pm
Workshop 2 – FTA Findings for Meaningful Forecasts
In its continuing efforts to ensure the reliability of travel forecasts for project-level decision-making, FTA sponsors research on travel forecasting methods, reviews the properties of travel models, and applies quality-control checks to travel forecasts. Three findings of general interest have emerged from recent FTA efforts to fulfill these responsibilities. The first presentation summarizes findings from research on ways to predict reliably the differences in highway travel volumes and travel

speeds resulting from alternative transportation investments. The results of this research work shed substantial light on the problems inherent to forecasting changes in highway speeds and some partial solutions to these problems. The second presentation summarizes observations on current practice in travel-model development and suggests that the calibration and validation of the models generally suffers from insufficient attention, particularly relative to the effort invested in the econometric estimation of model parameters and structures. The final presentation suggests that better attention to quality control and interpretation of forecasts should be a priority in efforts to improve the reliability and usefulness of travel forecasting procedures.

Moderator – Ron Fisher, Federal Transit Administration

Speakers
- Bill Woodford
- Ron Fisher

6:00pm to 7:30pm
Reception *(Cash bar)*

Welcoming - Mike Walton, University of Texas, Austin

Monday, May 22, 2006

7:00am to 4:00pm
Registration

7:30am to 8:30am – *Continental Breakfast*

8:30am to 8:45am
Welcome

Moderator – Chandra Bhat, University of Texas, Austin

8:45am to 10:00am
Plenary Session 1 – Overview of the Policy Issues
This plenary session will focus on the emerging transportation-related policy issues of today and tomorrow, and an overview of how these policy issues may affect travel modeling paradigms and the profession in general. Three distinguished leaders, one each from the federal government, state/local government, and academia, will share their perspectives on policy issues and implications. This plenary session will set the stage for the rest of the innovative modeling conference.

Moderator - Chandra Bhat, University of Texas, Austin

Speakers
- Frank Koppelman
- Michael Morris
- Ed Weiner

10:00am to 10:30am - *Break*

10:30am to 12:00pm
Plenary Session 2 – Moving Innovative Models into Practice
This session sets the stage for the rest of the conference by asking a panel of experts (1) why should travel modeling practice move from current trip-based travel forecasting models to more innovative models; (2) what additional research is needed to make innovative models useful for transportation planning; and (3) how can we bridge the gap between current travel model practice and innovative model research?

Moderator – Bruce Spear, Federal Highway Administration

Speakers
- Ron Fisher
- Keith Lawton
- Marty Wachs
- Ed Granzow

12:00pm to 1:30pm – *Lunch* (On Your Own)

1:30pm to 3:00pm
Breakout session 1A – Tour Based Models
This session will begin with an overview of the tour based models developed in the United States. Then MPO and consultant staff will discuss tour based model development, data, staff, and financial requirements, lessons learned, and model implementation examples.

Moderator – Karen Faussett, Michigan Department of Transportation

Speakers
- Mark Bradley and John Bowman - A Summary of Design Features of Activity-Based Micro simulation Models for US MPOs
- Peter Vovsha and Kuo-Ann Chiao **-** NYMTC Model Application and Experiences
- Maren Outwater and Billy Charleton **-** The San Francisco Model in Practice
- Advanced Tour Based Models in Practice – The MORPC Experience - Peter Vovsha, Dave Schmitt, and Rebekah Anderson
  - *Application of Micro-Simulation Model for User Benefit Calculation for Transit Projects (Vovsha)*
  - *Application of the MORPC Micro-Simulation Model: New Starts Review (Schmitt)*

Breakout session 1B – Data and Synthetic Populations
Data is very important to the development of our travel models. Getting the best data possible sometimes takes on innovative approaches. This session begins with an overview on processing travel survey data, then moves to synthesizing population, and finally to microsimulation of residential land use. The session will conclude with time for questions and discussion for the presenters.

Moderator – Bill Upton, Oregon Department of Transportation

Speakers
- Erik Sabina, Gregory Erhardt, Tom Rossi and John Coil - Processing the Denver Travel Survey to Support Tour-Based Modeling: Methods, Data, and Lessons Learned (SRV10)
- Guy Rousseau and John Bowman - The Atlanta (ARC) Population Synthesizer (MIX 6)
- Bin Zhou and Kara Kockelman - Micro simulation of Residential Land Use for Market Equilibrium (MIX 9)

Breakout session 1C – Land Use Forecast
A number of innovative land use-transport models have been developed and implemented in recent years. This session will couple the important lessons learned from recent research and development work with emerging implementations of these models. The speakers will focus on the practical steps necessary to implement and apply integrated land use-transport models, with particular emphasis on recent experiences in North America. The session will include time for discussion and extended questions for the presenters at the end.

Moderator - Eric Miller, University of Toronto, Canada

Speakers
- J Douglas Hunt - The Case for Integrated Land Use-Transport Modeling
- Paul Waddell - What Obstacles make Integrated Modeling Challenging
- Rick Donnelly - The Path to a Staged Implementation of Integrated Models

3:00pm to 3:30pm - *Break*

3:30pm to 5:00pm
Breakout session 2A – Activity Based Models
Several US metropolitan planning organizations are experimenting with tour-based and synthetic schedule generating activity models. Contemporary policy analysis requires methods that use new and better data collection methods, data analysis techniques, and simulation applications at the level of micro-units. This session will expand our horizons and offer a sample of these newer and more advanced types of analyses.

Moderator – Kostas Goulias, University of California, Santa Barbara

Speakers
- Theo Arentze, Harry Timmermans, Davy Janssens, and Geert Wets – Modeling Short-term Dynamics in Activity-Travel Patterns: From Aurora to Feathers
- Chandra Bhat, Jessica Guo, Siva Srinivasan, Abdul Pinjari, Naveen Eluru, Ipek Sener, Rachel Copperman, and Prabuddha Ghosh - Comprehensive Econometric Micro-simulator for Daily Activity-Travel Patterns (CEMDAP): New Developments and Application Results
- Kay Axhausen - MATSIM/planomat - A Microsimulation System of Activity Demand
- Ram Pendyala, Ryuichi Kitamura, and Akira Kikuchi - Recent Developments with PCATS and the Integration with DEBNetS

The major goals of this session are to bring together modelers, practitioners, and survey researchers concerned with travel survey methodology and practice to present, discuss, and debate research papers that: (1) Address new data needs relative to innovative models; (2) Contribute to the science of measuring and/or reducing errors attributable to weaknesses in traditional travel survey design; and (3) Stimulate new ideas for further research and development in travel survey research methods.

Moderator – Johanna Zmud, NuStats Partners, LP

Speakers
- Eric Petersen and Peter Vovsha - Directions for Coordinated Improvement of Travel Survey and Models
- Stacy Bricka and Chandra Bhat - Using GPS Data to Inform Travel Survey Methods
- B Kochan, T Bellemans, D Janssens, and G Wets - Dynamic Activity-Travel Diary Data Collection Using a GPS-enabled Personal Digital Assistant

Response Panel
- Dick Walker
- Becky Knudson

Breakout session 2C – Assignment Advances

Moderator – S Travis Waller, University of Texas, Austin

Speakers
- James Hicks - A Dynamic Traffic Assignment Model Breakdown
- Richard Dowling and Alexander Skarbaronis - Urban Arterial Speed-Flow Equations For Travel Demand Models
- Stephen Boyles, Satish Ukkusuri, S Travis Waller, and Kara Kockelman - A Comparison of Static and Dynamic Traffic Assignment Under Tolls in the Dallas-Fort Worth Regions

Tuesday, May 23, 2006

7:00am to 12pm
Registration

7:30am to 8:30am – *Continental Breakfast*

8:30am to 10:00am
Breakout session 3A – Education and Outreach
This session will explore two issues critical to the success of efforts to improve the practice of travel demand modeling: the education of modelers, and outreach to the public. How can we ensure that modelers receive the on-going training they need to understand, evaluate, and implement new innovations in modeling? How can we avoid exacerbating the "black box" problem and instead use new innovations to join modeling with public involvement in the planning process?

Moderator – Susan Handy, University of California, Davis

Speakers
- Rick Donnelly - Lifelong Education as a Necessary Foundation for Success in Travel Modeling
- Donald Hubbard - Traffic Forecasting in a Workshop Setting

Respondent
- Marty Wachs

Breakout session 3B – Emerging Modeling Considerations

This session will focus on the critical policy issues that current models do not adequately address. Participants will identify and discuss the critical policy issues as well as the model improvements needed to respond to these important questions. Examples of the critical policy issues include:
- Pricing and tolls,
- Joint household interactions,
- Environmental justice and equity, and
- Transit-oriented development and smart growth.

This session will also focus on model options for addressing particular problems in different regions. For example, in some areas, a good 4-step model may be all that is required to respond to questions within that region. In other areas, more advanced modeling systems must be developed to address questions posed by planners, decision makers, and the public.

Moderator – Rachel Gossen, Oakland Metropolitan Transportation Commission

Speaker
- Sivaramakrishnan Srinivasan and Chandra Bhat - Companionship for Leisure Activities: An Empirical Analysis Using the American Time Use Survey
- Chandra Bhat and Jessica Guo - An Innovative Methodological Framework to Analyze the Impact of Built Environment Characteristics on Activity
- Arun Kuppam, Maren Outwater, and Rob Hranac - Innovative Methods for Pricing Studies

Breakout session 3C – Validation

Validation is a critical component of any successful model development effort. Activity-based models should be held to validation standards at least as high as those for conventional travel models, including ability to match observed conditions, sensitivity analysis, validation of all model components, and validation of forecasts as well as existing conditions. Activity-based models need not do a better job than conventional models at replicating existing conditions, nor should they do significantly worse. But their superior analytical capabilities should be able to be shown through sensitivity tests. In this sense, comparisons between activity-based and conventional models would be extremely valuable.

Moderator – Tom Rossi, Cambridge Systematics, Inc.

Speakers
- David Kurth, Suzanne Childress, Eric Sabina, Tom Rossi - Proposed Validation and Sensitivity Testing of Denver Region Activity-Based Models
- Ram Pendyala and Chandra Bhat - Validation and Assessment of Activity-Based Travel Demand Modeling Systems

- Rebekah Anderson, Robert Donnelly - Modeling of Peak hour Spreading with an Activity-Based Micro-Simulation Model

10:00am to 10:30am - *Break*

10:30am to 12:00pm
Breakout session 4A – The Secret is in the Segue…Transitioning to a New Model Framework
Once the decision has been made to move into Tour/Activity Based Modeling, the transition can be challenging. Issues related to staffing and hardware constraints, policy decision needs, software development, model implementation and training can all become overwhelming to the project leaders at the MPO. In this session, representatives from MPOs at various stages of this transition will present some of their experiences with this important segue.

Moderator – Julie Dunbar, Dunbar Transportation Consulting

Speakers - Panel of people who have considered a transition
- Kuo-Ann Chiao, Sangeeta Bhowmick, and Ali Mohseni - Lessons Learned form the Implementation of NY Activity-Based Travel Models
- Erik Sabina and Tom Rossi - Using Activity Based Models for Policy Decision Making
- Rebekah Anderson, Zhuojun Jiang, and Chandra Parasa - Hardware Requirements and Running Time for the MORPC Travel Forecasting Model

Breakout session 4B – The Future of Travel Behavior and Data Collection
The only thing certain about travel behavior is that it is constantly changing. How is travel behavior evolving and what are the demographic, socio-economic, and technological trends that will shape the future of travel?   This session aims to provide a peek into the future of travel behavior and the data that will be needed to address emerging trends and model travel demand in the future. The session includes short invited presentations on demographic and travel trends in the United States and Europe and a paper presentation describing an innovative technology for recording activity and travel behavior. Most of the session will be conducted in an interactive discussion format to provide attendees the opportunity to debate and identify the key behavioral trends and data needs that will define the travel modeling arena of tomorrow.

Moderators
Ram Pendyala, University of South Florida
Kay Axhausen, Swiss Federal Institute of Technology

Speakers
- Larry Blain, Konstadinos G. Goulias, Neil Kilgren, T. Michalowski, and Elaine Murakami, - Catching the Next Big Wave: Are the Baby Boomers Forcing us to Change our Regional Travel Demand Forecasts?
- Kay Axhausen - New Survey Items for a Fuller Description of Traveler Behavior: Biographies and Social Networks
- Eiji Hato and Ryuichi Kitamura - Data Oriented Activity Analysis Based on Behavioral Context Addressable Loggers in the Shell

12:00pm to 2:30pm
<u>Lunch and Plenary Session – Next Steps: Institutional Issues</u>
A round table discussion by MPO model practitioners, who will comment on "so what will it take" for their agencies to move to more advanced land use and travel modeling procedures. Time will be allowed for an interactive audience discussion with the round table participants, as well as for audience discussions on what was learned from this Conference and the "next steps" for moving forward.

Moderator – Ken Cervenka, North Central Texas Council of Governments

Speakers
- Larry Blain (Puget Sound Regional Council—Seattle)
- Salvador Gonzalez (El Paso MPO)
- Ron Milone (MWCOG--Washington D.C.)
- Chuck Purvis (MTC--San Francisco area)
- Chris van Slyke (Houston-Galveston Area Council)
- Aichong Sun (PIMA--Tucson)
- Dick Walker (Portland Metro)
- Kermit Wies (CATS--Chicago)