

TRIENNIAL STRATEGIC PLAN (TSP), 2013-2016

Transportation Demand Forecasting (ADB40)

Committee Chair: Joan Walker

DRAFT December 22, 2016

Committee Future Outlook Statement

Current Committee Scope

The focus of this committee includes the development, application, and dissemination of improved demand forecasting techniques, within the integrated context of the interaction of transportation demand with the land-use form, demographic composition, and technological state of the activity-travel environment. All aspects related to theory, data estimation, and application are of direct interest to the committee, with an emphasis on research developments that have the potential to be implemented in the near future.

Factors and Influences That Will Shape Committee Activities

Future committee activities will be guided by four main factors influencing the transportation community.

1. The emergence of **disruptive technologies** will have tremendous implications for transportation planning and demand forecasting and will require the development of new methodologies. This includes:
 - a. Shared mobility and autonomous vehicles: Shared modes and services (car and bike sharing, new taxi models such as Uber and Lyft, mobility as a service packages, etc.) have been gaining significant market share over the last few years. At the same time, rapid developments and testing of autonomous vehicle technology means that they might become mainstream over the next 20-30 years, a timeframe which coincides with that of long-range transportation planning. The implications of these transformative mobility models and technologies on both the passenger and freight sides are most likely to be enormous in terms of travel demand and behavior, travel trends and vehicle-miles traveled, household expenditures, residential and work location choices. Yet, the transportation planning processes on all levels have been slow to catch up with these ground breaking technologies. It is imperative to align planning and forecasting tools with the emergence of shared mobility services and autonomous vehicle technology such that relevant scenarios can be effectively modeled and the necessary information can be provided for planning decisions.
 - b. Big data: The wide availability and deployment of sensing technologies, such as Smartphone apps, telecom data, and social media, that enable further understanding of travel and activity patterns may obviate or complement the need for static or tailored data that transportation demand forecasting has traditionally relied on (such as survey and census data). These new big data sources will require methodologies that bridge the gap between “classical” (e.g. Discrete Choice Modeling) and “big data driven” (e.g. Machine Learning) approaches for travel demand modeling. Furthermore, new open

research trends (open source, open data) promise to not only increase data availability but also transparency and model comparability.

2. Changing land-use and energy consumption implications of emerging transportation technologies:

Land-use and travel demand patterns have significant implications to energy consumption and air quality in the short-term and climate change in the long-term. While some headway has been made in the context of developing integrated travel demand and air pollution models for air quality planning purposes, significant scope exists for addressing issues at the nexus of land-use, travel demand and energy demand patterns. Emerging transportation technologies make it even more important to identify and address research and practical issues such as the implications of energy demand from electric vehicles on the integration of transportation and electric grids or the implications of connected and automated vehicles on land-use/travel demand patterns and corresponding energy needs. There are many benefits of bringing together the land-use/travel demand modeling and energy modeling communities to address issues at the nexus of these fields.

- 3. Growing gap between the demand forecasting community and relevance to practice:** Neither researchers nor practitioners have been robustly demonstrating the value of travel forecasting innovation. Investment has grown inefficient, guided by reputation, instinct, and relationships. All the while, data, analytics, and models have grown more important to the decision-making process. To provide useful insights to decision makers, travel forecasting must adjust to make progress along a demonstrably valuable arc. The current level of investment in travel behavior is unlikely to sustain without demonstrable progress.
- 4. Insufficient levels of outreach to students and young professionals:** It is essential to develop the next generation of travel demand forecasters. Most students (whether in middle, high-school, or college) know very little about transportation engineering or planning, let alone the specific field of travel demand forecasting. Educating and inspiring students to go into the field of transportation is an important step to attracting the best people into the profession. Engaging young professionals into committee activities is essential for ensuring that the next generation of professionals has the best tools and skills available to lead the community years later.

Committee Future Outlook

The committee has embarked on five strategic initiatives to address the cross-cutting issues and challenges mentioned above. The goals of these initiatives are outlined briefly below.

- 1. Transformative Mobility:** The objective of this strategic initiative is to provide and disseminate innovative, research-based solutions to forecast the short-term (travel patterns and mode choice) and long-term (e.g. car ownership) impacts of transformative mobility technological changes on passenger and freight travel demand and transportation services.
- 2. Big Data:** The main objectives of this strategic initiative are to (i) bridge the gap between classical and big data driven approaches for travel demand modeling; (ii) understand the research and practice needs towards a unified set of tools and methodologies, that substantially

advances the field; (iii) aggregate (and possibly coordinate) open source and open data initiatives, towards better research and practice of travel demand modeling; and (iv) discuss the educational foundations for professional and academic exploration of Big Data in travel demand modeling.

3. **Interface with Energy:** The objectives of this strategic initiative are to: (i) provide a platform and create impetus to bring together key participants from land-use/travel demand modeling and energy communities into an *integrated land-use, travel demand, and energy modeling (ILUTEM)* community; (ii) identify, understand, and address the research gaps and practice needs at the nexus of land-use/travel demand modeling and energy demand analysis; and (iii) promote the development of integrated land-use/travel demand and energy consumption model systems for use by metropolitan organizations and other agencies.
4. **Advancing the Science:** The main objectives of this strategic initiative are to: (i) highlight the need for travel forecasting to progress via the scientific method; (ii) create opportunities for researchers and practitioners to carry out experiments that demonstrate that proposed methods, techniques, and data are useful; (iii) encourage the creation of standards and test beds to facilitate reproducible experimentation; and (iv) reconnect the academic and practitioner communities.
5. **Outreach:** The main objectives of this strategic initiative are to: (i) primarily reach out to groups beyond the Transportation Forecasting community to educate, expose, and engage on the topic of travel demand forecasting, planning, modeling, and transportation in general. Primary groups to focus on would include middle and high-school students to introduce them to the field of Transportation as well as college-aged students who are exploring different career fields and options; and (ii) reach out to members of the Transportation Forecasting community who are less engaged in (ADB40) TRB activities but would be interested in becoming more engaged or would benefit from greater interaction with other professionals in their field. A primary focus would be on TRB young attendees (either in graduate school or beginning their professional career) who are interested in becoming more involved in committee activities and interacting with committee members and Friends.

Committee Plan Projects

Various activities are foreseen to provide a forum for the research and discussions directly related to the strategic initiatives of the committee. The ADB40 sub-committees are positioned to support these initiatives, in particular the Emerging Methods sub-committee focusing its initiatives on Transformative Mobility and Big Data issues, and the Integrated Models sub-committee supporting the activities of the Interface with Energy initiative. The activities include:

- Calls for papers
- Workshops in TRB (in collaboration with other committees or organizations such as Zephyr for “Advancing the Science” initiative) and specially organized seminars/workshops outside of the annual meeting framework (e.g. planned NSF-funded workshop on “Advancing the Science of Transportation Demand Modeling” at the University of California, Berkeley, in April 2017 which will be closely related to 3 of the proposed strategic initiatives of the committee; or workshops at TRB Planning Applications and Innovations conferences)

- Distribution of best practice materials through webinars or other available TRB venues as well as white papers
- Possibly a yearly challenge (e.g. allowing comparison on how different model camps (behavior, unsupervised learning, cluster) bring together insights from a multifaceted data and either predict better or have ‘better’ behavioral explanations or integration of insights (smart-phone traces, choices, ratings, etc.))
- Research needs statements: We produced a research needs statement focused on suggesting theoretical concepts and practical ways of incorporating passenger autonomous vehicles and corresponding changes in travel behavior in the travel forecasting models that, if gets funded, can significantly contribute towards promoting relevant travel demand forecasting and modeling practices. In a few years, a summary of the best practices in forecasting and modeling that addresses development of future scenarios with transformative mobility options, might be considered. Other research needs statements may also be developed such as those related to big data and integrated transportation-energy modeling.
- Support for the Zephyr Foundation for Improving Travel Analysis Methods
- Outreach activities within the Outreach strategic initiative including partnership with universities to increase students’ awareness about the field of transportation demand forecasting, sponsoring data and research competitions to give young professionals the opportunity to engage in research promoted by the professional community, utilizing technology to engage members of the travel demand forecasting community, and formalizing committee tasks and sub-committee participation that can be taken on by non-members (i.e. friends of the committee) so that friends (especially young professionals) have a means of participating in the committee.

Collaborations and Liaisons

There are various foreseen collaborations/liaisons with committees inside TRB and organizations outside TRB to achieve the goals of the strategic initiatives. Within TRB, we foresee close collaborations with committees including:

- ABJ30 “Urban Transportation Data and Information Systems”
- ABJ40 “Travel Survey Methods”
- ABJ50 “Transportation Information Systems and Technology”
- ABJ60 “Geographic Information Science and Applications”
- ABJ70 “Artificial Intelligence and Advanced Computing Applications”
- ABJ90 “Freight Transportation Data”
- ADB10 “Travel Behavior and Values”
- ADC70 “Transportation and Energy”
- ADD20 “Social and Economic Factors of Transportation”
- ADD30 “Transportation and Land Development”
- AP020 “Emerging and Innovative Public Transport and Technologies”
- AT025 “Urban Freight Transportation”

Also, as the chair of the Section Research Committee, the lead of the Transformative Mobility initiative is coordinating with other committee research coordinators to develop a coherent research agenda for the section that reflects the importance of this strategic research direction in particular.

Outside TRB, we foresee (i) interactions with similar initiatives with the IEEE ITSC (Intelligent Transport Systems Conference) and other conferences; (ii) engaging with the US Department of Energy (DOE) on identifying and addressing research needs in the integrated land-use, travel demand, and energy modeling arena; (iii) learning from and coordinating with other fields interested in reproducible research; (iv) partnering with journals seeking to publish and highlight reproducible research; (v) learning from and coordinating with other fields that more routinely use non-profit foundations to support initiatives; (vi) partnering with universities which will involve participation from committee members and friends, universities, non-profit organizations, and school systems; and (vii) partnering with other committees and companies on data and research competitions.

Membership Strategies

The committee's strategy for membership will be primarily based on recruiting new members that will advance the strategic initiatives outlined above. In addition, diversity criteria will be considered within the overall membership portfolio, including proper balance by gender, age, geographic location (within and outside the US), and professional affiliation (academia, industry, government, etc.). Special emphasis will be placed on recruiting young members and ensuring that there is good representation of state DOT's.

Proposed Changes in Scope

No proposed changes in the committee's name and/or scope are foreseen.

Committee History

Membership Statistics

Currently, ADB40 is composed of 33 regular members and 3 emeritus members. The 33 regular members are distributed as follows (there is no data on race):

- By gender: 9 female, 24 male
- By age: 4 designated as young members; 29 non-young members
- By geographic location: 28 US-based; 5 international. Of those based in the US:
 - North West US: 3 members
 - South West US: 7 members
 - Central US: 4 members
 - North East US: 7 members
 - South East US: 7 members
- By professional status:
 - State DOT: 3 members
 - Federal government: 3 members
 - Local: 6 members
 - Education: 12 members
 - Private sector: 7 members
 - Research lab: 2 members

Thus, strategies for new members recruited to the committee will focus on increasing the proportion of members that are female, young, and/or from central US, in addition to expertise that is congruent with the strategic initiatives of the committee.

Subcommittees

ADB40 has five subcommittees related to research and technology transfer facilitation as follows:

- Paper review, *chaired by Joshua Auld*
- Research needs, *chaired by Vladimir Livshits*
- Strategic planning, *chaired by Maya Abou Zeid*
- Communication, *chaired by Suzanne Childress*
- Outreach, *chaired by Rachel Copperman*

ADB40 also has the following three technical subcommittees:

- Statewide Travel Demand Forecasting (joint with ADA10), *chaired by Rob Bostrom and Phil Mescher*: This subcommittee is responsible for addressing statewide travel demand forecasting issues.
- Emerging Methods (joint with ADB10), *chaired by Amanda Stathopoulos and Aruna Sivakumar*: The charge of this subcommittee is to foster innovations on emerging methods and methodological issues in activity and travel demand analysis. As methods become more mainstream, they are transferred under the domain of the parent committee of passenger travel demand forecasting to allow this subcommittee to focus on stimulating emerging developments. The primary activities of the subcommittee are to lead discussions at TRB of emerging methodological developments, recommend calls for papers for TRB sessions to the Research Agenda Subcommittee, and work with all research and technology transfer facilitation subcommittees of the ADB40 committee to foster and support activities aimed at furthering the development and application of emerging methods in the travel demand analysis field.
- Integrated Models (joint with ADD30), *chaired by Abdul Pinjari and Anand Gopal*: This subcommittee was previously called “Integrated Transportation and Land Use Modeling (ITLUM)”. The scope of this subcommittee will however be expanded to a broader theme of integrated modeling, including elements of energy, air quality, and health outcomes. The idea is not to dilute the current focus on integrated land-use and transportation modeling, but to generalize the concept of integration. Moreover, under the new scope, this subcommittee will have 3 parent committees: ADB40 (Transportation Demand Forecasting), ADD30 (Transportation and Land Development), and ADC70 (Transportation and Energy).

The scope of the original subcommittee on ITLUM is described below:

The subcommittee on Integrated Transportation and Land Use Modeling is interested in the development and application of integrated models of both urban and regional systems that include substantial representation of the transportation and broader land use components of these systems and the nature of the interactions between and within these components. In this case, the term ‘land use’ is used to refer to elements of the quantity and distribution of population and employment and related economic activities, the built form and the environment.

The subcommittee seeks to bring together researchers and practitioners from a diverse array of subject fields, including transportation engineering and planning, economics, geography, urban planning, geomatics, econometrics, statistics and market research (among others) in order to exchange information, ideas and techniques concerning the integrated modeling of urban and

regional systems. More specifically, the subcommittee is concerned with the identification, development, application and dissemination of state-of-the-art methods for the representation of urban and regional systems and their evolution over space and time for use in both policy development and forecasting. The subcommittee intends to serve as a leading forum for disseminating scholarly work in this area.

This subcommittee belongs to two committees: the ADB40 Committee on Passenger Travel Demand Forecasting; and the ADD30 Committee on Transportation and Land Development. The subcommittee will work with all research and technology transfer facilitation subcommittees of the ADB40 and ADD30 committees to foster and support activities aimed at furthering the development of improved transportation and land use analysis and forecasting tools.

Research Needs Statements

Currently, the committee has one research needs statement entitled “Forecasting New Driverless Reality – Will Our Current Modeling Paradigms Hold Water?” that supports the Transformative Mobility initiative (<https://rns.trb.org/dproject.asp?n=40424>). This RNS is not yet funded. Other RNS’ are planned over the next three years to support the strategic initiatives of the committee.

Annual Meeting Activities (2013-2017)

Includes activities by the Parent Committee as well as the Technical Subcommittees

	2013	2014	2015	2016	2017
Number of papers reviewed during the last year	75	113	137	156	147
Number of papers recommended for publication	15	19	23	25	22
Number of paper or conference sessions at the last annual meeting	4	8	4	8	8
Number of workshop sessions at the last annual meeting	2	0	2	3	4
Number of poster sessions at the last annual meeting	1	1	1	2	4
Number of co-sponsored sessions at the last annual meeting	6	5	6	2	4
Number of published meetings at the last annual meeting	3	3	3	4	4
Number of unpublished meetings at the last annual meeting	0	0	0	0	0

ADB40 Cosponsored Sessions (only editable by the primary committee sponsor)

CGW15-010

Sunday, January 11, 2015, 9:00am-12:00pm, Convention Center, 146A

Integrated Land-use, Travel Demand, Air Quality, and Exposure Modeling: the Future of Regional Transportation Planning?

Gregory Rowangould, University of New Mexico; Marianne Hatzopoulou, McGill University, Canada, presiding

Sponsored by Committee on Transportation and Air Quality; Committee on Transportation Demand Forecasting; Committee on Environmental Analysis in Transportation

Exciting advances in land-use, travel demand, and air quality modeling provide new methods to assess the air quality and health effects of regional transportation plans. Integrated systems of these models are sensitive to a wide range of contemporary land-use and transportation policies and provide spatially resolved output but will this help us make more sustainable and health protective planning decisions? Experts and participants will explore the potential, limitations and challenges.

Introduction to Integrated Modeling and Workshop Goals (P15-5928)

Gregory Rowangould, University of New Mexico
Marianne Hatzopoulou, McGill University, Canada

Accommodating the multidimensional nature of integrated models: emerging methods and challenges in capturing cause-effect relationships (P15-5929)

Chandra R. Bhat, University of Texas, Austin

Activity-Travel Scripts as Linking Pin Between Land Use, Transportation, Energy Consumption, Air Quality, Exposure and Health: Theoretical Considerations and Selected Empirical Evidence (P15-5930)

Soora Rasouli, Eindhoven University of Technology, Netherlands
Harry J. P. Timmermans, Eindhoven University of Technology, Netherlands
Dajuan Yang, Eindhoven University of Technology, Netherlands

What do we need for our benefit assessments? Three levels of modeling (P15-5931)

Kay W. Axhausen, Swiss Federal Institute of Technology, Zurich

Challenges in modeling health effects in land use transportation interaction models (P15-5932)

Dick Ettema, Utrecht University, Netherlands

Effects of Scale and Scope in Modeling and Decision Making (P15-5933)

Alex Karner, Arizona State University
Deborah Niemeier, University of California, Davis

A New Model for Models: Thinking Differently about Forecasting and Policymaking (P15-5934)

Martin Wachs, University of California, Los Angeles

Panel Discussion (P15-5935)

Chandra R. Bhat, University of Texas, Austin
Harry J. P. Timmermans, Eindhoven University of Technology, Netherlands
Dajuan Yang, Eindhoven University of Technology, Netherlands
Kay W. Axhausen, Swiss Federal Institute of Technology, Zurich

Dick Ettema, Utrecht University, Netherlands
Alex Karner, Arizona State University
Deborah Niemeier, University of California, Davis
Martin Wachs, University of California, Los Angeles

KFP15-002

Monday, January 12, 2015, 4:15pm- 6:00pm, Convention Center, Hall E

Innovations in Statewide Transportation Planning

Jerri Bohard, Oregon Department of Transportation; Phillip J. Mescher, Iowa Department of Transportation, presiding

Econometric Approach to Forecasting Vehicle Miles Traveled in Wisconsin (15-3197)

Mike Sillence, Cambridge Systematics, Inc.
Jennifer Murray, Wisconsin Department of Transportation

State Role in Fostering Regional Transportation Planning (15-3422)

Ruth L. Steiner, University of Florida
Kathryn I. Frank, University of Florida
James Ronald Ratliff, University of Florida

Transportation System Health Analysis: Corridor-Level Study of Georgia's State Routes (15-3448)

Richard Sarpong Boadi, Georgia Institute of Technology
Stephanie Amoaning-Yankson, Georgia Institute of Technology
Margaret-Avis Akofio-Sowah, Georgia Institute of Technology
Stefanie Brodie, Georgia Institute of Technology
Adjo A. Amekudzi, Georgia Institute of Technology

Integrated Fuzzy Technique for Order Preference by Similarity to Ideal Solution Framework for Evaluating High-Speed Passenger Rail Corridor Alternatives (15-3641)

Sunil Kumar Madanu, University of Texas, Arlington
Stephen P. Mattingly, University of Texas, Arlington
Katie A. Larsen, University of Texas, Austin
Siamak A. Ardekani, University of Texas, Arlington

National Travel Demand Model for the United States: Person-Based Microsimulation Approach (15-4416)

Yijing Lu, University of Maryland, College Park
Xiqun (Michael) Chen, Zhejiang University
Lei Zhang, University of Maryland, College Park

Statewide Dynamic Traffic Routing for Transportation Planning: Maryland Case (15-4429)

Sevgi Erdogan, University of Maryland, College Park
Krishna Patnam, AECOM
Frederick Ducca, University of Maryland, College Park
Zuxuan Deng, University of Maryland, College Park
Di Yang, University of Maryland, College Park
Xiang Wang, Tongji University, China

Subrat Mahapatra, Maryland State Highway Administration
Evaluation of Reliability Estimation Based on Regression Models for Use in Planning Applications (15-4476)

Jianmin Jia, Florida International University
Yan Xiao, Florida International University
Mohammed Hadi, Florida International University

Maintaining Project Consistency Throughout the Project Development Process (15-4732)

Megan Kenney, Texas A&M Transportation Institute
Mohamadreza Farzaneh, Texas A&M Transportation Institute
Jolanda P. Prozzi, Texas A&M Transportation Institute

Residence and Job Location Change Choice Behavior Under Flooding and Cyclone Impacts in Bangladesh (15-5272)

Qing-Chang Lu, Jiaotong University, China
Zhang Junyi, Hiroshima University, Japan
Zhong-Ren Peng, University of Florida

Simplified Dynamic Traffic Assignment Framework for Statewide Traffic Modeling (15-6090)

Sevgi Erdogan, University of Maryland, College Park
Xuesong Zhou, Arizona State University
Jiangtao Liu, Arizona State University

KFS15-012

Tuesday, January 13, 2015, 10:15am-12:00pm, Convention Center, 145A

Developing Truck Origin-Destination Flows from GPS Data

Gregory Giaimo, Ohio Department of Transportation, presiding

This session presents advances in understanding of recently available truck GPS location data from secondary sources. Presentations show how to process and expand those data to obtain temporally and spatially precise origin-destination flows as well as routing, speeds, tour patterns, and so forth.

Estimation of Statewide Origin-Destination Truck Flows from Large Streams of GPS Data: Application for Florida Statewide Model (15-5463)

Akbar Bakhshi Zanjani, University of South Florida
Abdul Rawoof Pinjari, University of South Florida
Mohammadreza Kamali, University of South Florida
Aayush Thakur, Cambridge Systematics, Inc.
Jeffrey Bradford Short, American Transportation Research Institute
Vidya Mysore, Federal Highway Administration
Frank Tabatabaee, Florida Department of Transportation

Expanding Truck GPS-Based Passive Origin-Destination Data in Iowa and Tennessee (15-4687)

Vincent L. Bernardin, RSG
Steven Trevino, RSG
Jeffrey Bradford Short, American Transportation Research Institute

Analysis of Freight Corridors Using GPS Data on Trucks (15-2244)

Mania Flaskou, University of Memphis
Maxim A Dulebenets, University of Memphis
Mihalis M. Golias, University of Memphis
Sabyasachee Mishra, University of Memphis
Robert Rock, Tennessee Department of Transportation

Global Positioning System-Based Truck Modeling for Regional Travel Demand Forecasting (15-4658)

David Jung-Hwi Lee, Georgia Institute of Technology
Catherine Ross, Georgia Institute of Technology

KFW15-001

Sunday, January 11, 2015, 1:30pm- 5:00pm, Convention Center, 145A

Doctoral Student Research in Transportation Modeling

Ram M. Pendyala, Georgia Institute of Technology, presiding

This workshop features presentations of recently completed or nearly completed doctoral student research in transportation modeling and travel behavior. The workshop includes 20 to 25 presentations by doctoral candidates and graduates, offering highlights of the latest research in transportation modeling undertaken at institutes around the world.

Planning Infrastructure for Electric Vehicles (P15-6868)

Mehrnaz Ghamami, Northwestern University

Segmented Bicyclist Route Choice Models Based on Revealed Preference Crowdsourced Data: An Attitudinal Perspective (P15-6869)

Aditi Misra, Georgia Institute of Technology

On the Relationships Among Land-use, Walking, and Health (P15-6870)

Miguel Lugo, University of Florida

User-Driven Demand Adaptive Transit: Enhancing the User Experience Through Flexible Transit for Low-Density Communities (P15-6871)

Charlotte Frei, Northwestern University

Route Choice Analysis Using GPS Data (P15-6872)

Alessandro Vacca, University of Cagliari, Italy

Adaptive Route Choice Analysis: Algorithms, Model Specifications and Estimations with Revealed Preference Data (P15-6873)

Jing Ding-Mastera, University of Massachusetts, Amherst

Strategic Traffic Assignment: Models and Applications to Capture Day-to-Day Flow Volatility (P15-6874)

Melissa Duell, University of New South Wales, Australia

Application of a Subnetwork Characterization Methodology for Dynamic Traffic Assignment (P15-6875)

Jack W. Bringardner, University of Texas, Austin

Discrete Choice Modeling with Interdependencies: A Spatial Binary Probit Model with Endogenous Weight Matrix (P15-6876)

- Yiwei Zhou, Rensselaer Polytechnic Institute
Empirical Comparison of the Construction of Confidence Intervals for Willingness-to-Pay (P15-6877)
Esther Chiew, Cornell University
- The Value of Travel Time Changes: Theoretical and Empirical Issues** (P15-6878)
Manuel Ojeda Cabral, University of Leeds, United Kingdom
- The Impact of Advance Purchase Deadlines on Airline Customers' Search and Purchase Behaviors** (P15-6879)
Susan L. Hotle, Georgia Institute of Technology
- Bridging the Gap between Social Networks and Transportation Networks: An Integrated Comprehensive Evacuation Decision Making Model** (P15-6880)
Justin Philip Schorr, George Washington University
- Assessment of Commercial Vehicle Emissions and Vehicle Routing of Fleets Using Simulated Driving Cycles** (P15-6881)
Glareh Amirjamshidi, University of Toronto, Canada
- Algorithms for Bundling and Pricing Trucking Services: Deterministic and Stochastic Approaches** (P15-6882)
Rodrigo Arango, Purdue University
- Behavioral Analysis of Containerized Freight Shipments into the US: An Extension of FAME (Freight Activity Micro-simulation Estimator) Model** (P15-6884)
Sanghyeon Ko, University of Illinois, Chicago
- Scheduling and Routing of Service Trucks and Planning of Resource Replenishment Locations for Winter Roadway Maintenance** (P15-6885)
Leila Hajibabai, University of Illinois, Urbana-Champaign
- Network Routing and Equilibrium Models for Urban Parking Search** (P15-6886)
Shoupeng Tang, University of Texas, Austin
- Transit Network Assignment, Simulation and Frequency Setting: Integrated Approaches and Large Scale Application** (P15-6887)
Ismail Omer Verbas, Northwestern University
- Optimizing Public Transportation Network Design for Equity** (P15-6888)
Kelly Layne Bertolaccini, University of Connecticut
- Social Influences on Transportation Mode Choice within Ego-Networks of University Students** (P15-6890)
Susan Pike, University of California, Davis
- The Behavioral Framework and Mathematical Representation of Electric Vehicle Smart Grid Charging Behavior Considering Utility Maximization, Game-Theory and Psychological Biases** (P15-6891)
Gebeyehu Manie Fetene, Technical University of Denmark
- A New Approach Towards Sustainability of Retail Trips** (P15-6892)
Maryam Shobeirinejad, Griffith University, Australia
- Linking Perceived Mode Choice Options to Travel Behavior Change: The Relative Impact of Carrots Versus Sticks in Encouraging Active Transportation** (P15-6893)
Daniel P. Piatkowski, Savannah State University

KFW15-005

Sunday, January 11, 2015, 9:00am-12:00pm, Convention Center, 145A

Advancing the Statewide Transportation Planning and Analysis: Statewide Dynamic Traffic Assignment (DTA) and Agent-Based Models (ABM)

Sevgi Erdogan, University of Maryland, College Park; Xuesong Zhou, Arizona State University, presiding

The aim of this workshop is to help practitioners and researchers in applying advanced supply and demand models with emphasis on applications of DTA methodology and ABM to statewide modeling and planning focusing on challenges specific to statewide models such as model building, methodological, computational, calibration, validation, visualization and implications on application. It will be of interest to audience from academia, government agencies, industry and to the TRB audience in general.

DTA in Statewide Models: Motives, Means, and Opportunity (P15-6299)

Brian Gardner, Federal Highway Administration

Implementation of Large Scale DTA (P15-7099)

Natarajan Janarthanan, Washington State Department of Transportation

Estimating and Forecasting Truck Trip Tables for Statewide Analyses (P15-6304)

George F. List, North Carolina State University, Raleigh

Processes to Support the Application of Dynamic Traffic Assignment by Transportation Agencies (P15-6301)

Mohammed Hadi, Florida International University

Challenges and Opportunities with Statewide DTA for Integrated Planning and Operations – The Maryland Experience (P15-6302)

Subrat Mahapatra, Maryland State Highway Administration

Deploying ABM with DTA Methods for a Large & Congested Urban Regional Network: The Atlanta Regional Commission Case Study (P15-6306)

Guy Rousseau, Atlanta Regional Commission

Microsimulation Approaches for Statewide Modeling – Pushing the Boundaries (P15-6307)

Ram M. Pendyala, Georgia Institute of Technology

Panel Discussion on “Statewide Modeling Needs and Research Paths” (P15-6316)

Frederick Duca, University of Maryland, College Park

Brian Gardner, Federal Highway Administration

Gregory Giaimo, Ohio Department of Transportation

Mohammed Hadi, Florida International University

Natarajan Janarthanan, Washington Department of Transportation

Keith L. Killough, Arizona Department of Transportation

George F. List, North Carolina State University, Raleigh

Subrat Mahapatra, Maryland State Highway Administration

Ram M. Pendyala, Georgia Institute of Technology

Guy Rousseau, Atlanta Regional Commission

TPW15-005

Sunday, January 11, 2015, 1:30pm- 4:30pm, Convention Center, 152A

Data Analysis Contest Results Presentation and Awards

Linda Ng Boyle, University of Washington, presiding

This workshop reveals the results of a competition to evaluate the accuracy of various data analytic methodologies for forecasting trends in safety analyses and mobility. This data analysis competition was open to all areas of statistics, econometrics, evolutionary and genetic algorithms, decision and regression trees, support vector regression, computational intelligence, and more.

DRAFT

560 (JWLS17-0014)

Machine Learning Is from Venus, Econometric Modeling Is from Mars: Two Different Travel Forecasting Perspectives

Event Description

Machine learning has evolved into a powerful and popular approach to analyzing the massive amounts of data generated by internet and other electronic activity. These approaches are now being used in travel forecasting. Please join us for a session that strives to move us toward a travel forecasting future that integrates machine learning and more typical econometric modeling.

David Ory, Metropolitan Transportation Commission (MTC), presiding

Sponsored by Standing Committee on Transportation Demand Forecasting (ADB40)

Introduction (P17-21875)

David Ory, Metropolitan Transportation Commission (MTC)

Discussant (P17-21876)

Alexei Pozdnukov, University of California, Berkeley

Discussant (P17-21877)

Josephine Kressner, Transport Foundry

Discussant (P17-21878)

Eric Miller, University of Toronto

Discussant (P17-21879)

Joel Freedman, RSG



Exciting New Applications in Transport Demand Modeling

Event Description

This session focuses on new and nontraditional applications in travel demand modeling, including those for energy use analysis, land use and network planning, and autonomous vehicle analysis. This session is organized as a lightning session with eight short presentations, an organized Q&A session by theme following the presentations, and an opportunity for each author to also present in the ADB40 Poster Mega-session.

Joshua Auld, Argonne National Laboratory, presiding

Sponsored by Standing Committee on Transportation Demand Forecasting (ADB40)

Transportation Planning to Accommodate Needs of Wind Energy Projects (17-05309)

Sebastian Astroza, University of Texas, Austin

Priyadarshan Patil, University of Texas, Austin

Katherine Smith, University of Texas, Austin

Chandra Bhat, University of Texas, Austin

Estimating Household Travel Energy Consumption in Conjunction with a Travel Demand Forecasting Model (17-04855)

Venu Garikapati, Arizona State University

Daehyun You, Maricopa Association of Governments

Wenwen Zhang, Georgia Institute of Technology (Georgia Tech)

Ram Pendyala, Arizona State University

Subhrajit Guhathakurta,

Marilyn Brown, Georgia Institute of Technology (Georgia Tech)

Bistra Dilikina, Georgia Institute of Technology (Georgia Tech)

Dynamic Passenger Assignment Challenges (17-05722)

Lisa Zorn, Metropolitan Transportation Commission (MTC)

Elizabeth Sall, UrbanLabs LLC

Activity-Related Land Use Mix Construct and Its Connection to Pedestrian Travel (17-00787)

Steven Gehrke, Portland State University

Kelly Clifton, Portland State University

What If the Network Was Designed by the Demand and How Much Does It Comply with the Supply? (17-06443)

Kinan Bahbouh, Ecole Polytechnique de Montreal

Catherine Morency, Ecole Polytechnique de Montreal

Chantal Berdier,

Embedding Autonomous Vehicle Sharing in a Public Transit System: Example of Last-Mile Problem (17-04041)

Yu Shen, Singapore-MIT Alliance for Research and Technology

Hongmou Zhang, Massachusetts Institute of Technology

Jinhua Zhao, Massachusetts Institute of Technology

Fully Autonomous Vehicles: Analyzing Transportation Network Performance and Operating Scenarios in the Greater Toronto Area, Canada (17-00418)

Bradley Kloostra, University of Toronto

Matthew Roorda, University of Toronto

Anticipating the Regional Impacts of Connected and Automated Vehicle Travel in Austin, Texas (17-02218)

Yong Zhao, University of Texas, Austin

Kara Kockelman, University of Texas, Austin

DRAFT

Transforming Approaches to Address Transformative Mobility

Event Description

Through an innovative format of brief but targeted presentations by practitioners and academics, this "lightening session" provides attendees with a wealth of information about how to integrate and consider the implications of transformative technology on transportation planning and modelling. Included are discussions related to shared mobility - bike, car and ride sharing services, automated and connected vehicles, and the travel choices of the highly connected and tech savvy Millennial generation.

Amanda Stathopoulos, Northwestern University, presiding

Sponsored by Standing Committee on Transportation Demand Forecasting (ADB40); Standing Committee on Social and Economic Factors of Transportation (ADD20)

Shared Mobility: Current Adoption, Use, and Potential Impacts on Travel Behavior (17-05729)

Regina Clewlow, UC Davis/ moovel

Gouri Shankar Mishra, Dept. of Civil and Environmental Engineering University of California, Davis

Impacts of a Multimodal Mobility Offer on Travel Behavior and Preferences: Insights from a Survey Among Users of the First Mobility Station in Munich, Germany (17-00137)

Montserrat Miramontes, Technische Universitaet Muenchen

Maximilian Pfertner, Technical University of Munich

Hema Sharanya Rayaprolu, Technical University of Munich

Martin Schreiner, Landeshauptstadt München

Gebhard Wulfhorst,

Assessing Public Opinions on Uber as a Ridesharing Transportation System: Explanatory Analysis and Results of a Survey in the Chicago, Illinois, Area (17-01198)

Seyed Mahmoudifard, University of Illinois, Chicago

Amirhassan Kermanshah, University of Illinois, Chicago

Ramin Shabanpour, University of Illinois, Chicago

Abolfazl Mohammadian, University of Illinois, Chicago

Can Autonomous Vehicles Reduce Car Mobility? Evidence from a Stated Adaptation Experiment in Belgium (17-06847)

Mario Cools, University of Liege

Caroline Rongy, University of Liege

Sabine Limbourg, University of Liege

Modeling Preferences for Smart Modes and Services: Case Study in Lisbon, Portugal (17-05568)

Charisma Choudhury, University of Leeds
Lang Yang,
João de Abreu e Silva, Instituto Superior Tecnico
Moshe Ben-Akiva, Massachusetts Institute of Technology

Behavioral Choice Model of the Use of Carsharing and Ride-Sourcing Services (17-06359)

Felipe Dias, University of Texas, Austin
Patricia Lavieri, University of Texas, Austin
Venu Garikapati, Arizona State University
Sebastian Astroza, University of Texas, Austin
Ram Pendyala, Arizona State University
Chandra Bhat, University of Texas, Austin

Estimating the Trip Generation Impacts of Autonomous Vehicles on Car Travel in Victoria, Australia (17-00317)

Long Truong, Monash University
Chris De Gruyter, Monash University
Graham Currie, Monash University
Alexa Delbosc, Monash University

Tracking a System of Shared Autonomous Vehicles Across the Austin, Texas, Network Using Agent-Based Simulation (17-00469)

Jun Liu, Virginia Department of Transportation
Kara Kockelman, University of Texas, Austin
Patrick Boesch, ETHZ - Swiss Federal Institute of Technology
Francesco Ciari, ETHZ - Swiss Federal Institute of Technology

Are We Ready to Embrace Connected and Self-Driving Vehicles? A Case Study of Texans (P17-21423)

Kara Kockelman, University of Texas, Austin
Prateek Bansal, Cornell University

Review of Changing Prices and Tax Levels for Neighborhood Car Sharing in the United States: 2011-2016 (P17-21582)

Joseph Schwieterman, Depaul University

What Drives Millennials: Comparison of Vehicle Miles Traveled Between Millennials and Generation X in California (P17-21584)

Kate Tiedeman, University of California, Davis
Giovanni Circella, Georgia Institute of Technology (Georgia Tech)
Farzad Alemi, University of California, Davis
Rosaria Berliner, University of California, Davis

Big Data Innovations for Big Decisions

Event Description

As new transportation data sources become available, such as mobile phone data, GPS data, and more, application of big data technology to process and combine these new data sources is key to solving urban transportation challenges. This session highlights innovative approaches to collecting and utilizing urban big data for transportation system analysis, planning, and forecasting including data fusion, innovative data analytics, and crowdsourced data.

Kristin Tufte, Portland State University, presiding

Sponsored by Standing Committee on Urban Transportation Data and Information Systems (ABJ30); Subcommittee on Urban Big Data (ABJ30(2)); Standing Committee on Information Systems and Technology (ABJ50); Standing Committee on Artificial Intelligence and Advanced Computing Applications (ABJ70); Standing Committee on Transportation Demand Forecasting (ADB40)

Using Google's Aggregate and Anonymized Trip Data to Support Freeway Corridor Management Planning in San Francisco (17-00437)

Bhargava Sana, San Francisco County Transportation Authority (SFCTA)

Joseph Castiglione, San Francisco County Transportation Authority (SFCTA)

Drew Cooper,

Daniel Tischler, San Francisco County Transportation Authority (SFCTA)

Real-Time Piecewise Regression and Its Application in Effective and Economical GPS Trajectory Data Collection (17-03680)

Yang Zhang, University of Tennessee, Knoxville

Yuandong Liu, University of Tennessee, Knoxville

Lee Han, University of Tennessee, Knoxville

Short-Term Taxi Demand Forecasting Using Gaussian Conditional Random Field Model (17-02470)

Xinwu Qian, Purdue University

Satish Ukkusuri, Purdue University

Chao Yang, Tongji University

fenfan yan, Tongji University

Multisensor Fusion Based on Data from Bus GPS, Mobile Phone, and Loop Detectors in Travel Time Estimation (17-03472)

Lin Zhu, Imperial College London

Fangce Guo, Imperial College London

John Polak, Imperial College London

Rajesh Krishnan, Imperial College London

Innovative Big Data Solutions for Transportation Challenges

Event Description

Proliferation of the urban big data sets has made them a data source of choice for many travel demand forecasting, transportation, system analysis, and improvements tasks. This session highlights innovative big data solutions for improving traffic operations, safety, and travel demand forecasting.

Vladimir Livshits, Maricopa Association of Governments; Katy Salamati, SAS Institute, presiding

Sponsored by Standing Committee on Urban Transportation Data and Information Systems (ABJ30); Subcommittee on Urban Big Data (ABJ30(2)); Standing Committee on Information Systems and Technology (ABJ50); Standing Committee on Artificial Intelligence and Advanced Computing Applications (ABJ70); Standing Committee on Transportation Demand Forecasting (ADB40)

State of Transportation in a Day Without Metro in Washington, D.C., Region (17-00132)

Wenjing Pu, Federal Highway Administration (FHWA)

Nicole McCall, Metropolitan Washington Council of Governments

Meseret Seifu, Metropolitan Washington Council of Governments

Benjamin Hampton, Metropolitan Washington Council of Governments

Ronald Milone, Metropolitan Washington Council of Governments

Robert Griffiths, Metropolitan Washington Council of Governments

Andrew Meese, Metropolitan Washington Council of Governments

Evolution of Spatiotemporal Patterns of Taxi Operations (17-02473)

Wenbo Zhang, Purdue University

Satish Ukkusuri, Purdue University

Xinwu Qian, Purdue University

Spatial Autoregressive Simultaneous Equations Model for Daily Taxi and Uber Ridership (17-02475)

Wenbo Zhang, Purdue University

Satish Ukkusuri, Purdue University

Tho Le, Purdue University

Understanding Spatial and Temporal Patterns of Urban Travel Demand with Call Detail Record Data (17-04534)

Honghui Dong, Beijing Jiaotong University

kai liu, Beijing Jiaotong University

Yang Zhenyu, Beijing Jiaotong University

Zhibin Li, University of Washington

Limin Jia, Beijing Jiaotong University

Yong Qin, Beijing Jiaotong University
Yinhai Wang, University of Washington

Classification of Vehicle Users' Travel Patterns Using Automatic License-Plate Recognition Data (17-04574)

Yujiao Chang, Tongji University
Dongyuan Yang,
Zhengyu Duan, Tongji University

Real-Time Data Fusion Framework for Corridor Travel Time Estimation with Multiple Data Sources (17-04974)

Xuechi Zhang, University of Maryland, College Park
Masoud Hamed, University of Maryland, College Park
Ali Haghani, University of Maryland, College Park

Route-Based Mobility Performance Metrics Using Probe Vehicle Travel Times (17-05076)

Md Abu Sufian Talukder, University of Alabama
Alexander Hainen, University of Alabama
Stephen Remias, Wayne State University
Darcy Bullock, Purdue University

Big Data Analysis-Based Decision-Making Tool for Applying Adaptive Traffic Control Systems (17-05734)

Wan Li, University of Washington
Xuegang Ban, Rensselaer Polytechnic Institute (RPI)

Outlier Mining-Based Traffic Incident Detection Using Big Data Analytics (17-05869)

Pranamesh Chakraborty, Iowa State University
Jacob Robert Hess, Iowa State University
Anuj Sharma, Iowa State University
Skylar Knickerbocker, Iowa State University

Scalable Agent-Based Multimodal Modeling Framework Using Real-Time Big Data Sources for Cities (17-05941)

Gerard Casey, University of Cambridge
Kenichi Soga, University of California, Berkeley
Elisabete Silva, University of Cambridge
Peter Guthrie, University of Cambridge
Krishna Kumar, University of Cambridge



New Developments in Social and Economic Factors of Transportation

Event Description

Mark Horner, Florida State University, presiding

Sponsored by Standing Committee on Social and Economic Factors of Transportation (ADD20); Standing Committee on Transportation Demand Forecasting (ADB40); Standing Committee on Transportation and Land Development (ADD30)

What Drives Millennials: Comparison of Vehicle Miles Traveled Between Millennials and Generation X in California (17-06044)

Kate Tiedeman, University of California, Davis

Giovanni Circella, Georgia Institute of Technology (Georgia Tech)

Farzad Alemi, University of California, Davis

Rosaria Berliner, University of California, Davis

Unsatisfactory Transportation and Its Effects in Social Exclusion: The Case of the Elderly in a Developing Country (17-02962)

Tithiwach Tansawat, Hokkaido University

Kunihiro Kishi, Hokkaido University

Kasem Choocharukul, Chulalongkorn University

Kunnawee Kanitpong, Asian Institute of Technology (AIT)

Understanding Relationship Between Travel Satisfaction and Subjective Well-being (17-03194)

Yanan Gao, Eindhoven University of Technology

Soora Rasouli, Eindhoven University of Technology

Harry Timmermans, Eindhoven University of Technology

Yuanqing Wang, Chang'an University

Social Norms as Incentives to Nonautomotive Travel Behavior (17-01010)

William Riggs, California Polytechnic State University

Impact of Great Recession on Transportation Spending Distribution of Poor and Middle-Income Households: Gender Analysis (17-06722)

Yaye Keita, University of Illinois, Chicago

Nebiyou Tilahun, University of Illinois, Chicago

Immigration, Income, and Public Transit Perceptions: Findings from an Intercept Survey (17-02241)

Jesus Barajas, University of California, Berkeley

Asha Agrawal, San Jose State University
Daniel Chatman, University of California, Berkeley

Examining How Residents Are Affected by Runway Infrastructure and Arrival Reliability in Fly-in-Only Communities in Northern Canada(17-02132)

Michael Widener, University of Toronto
Shoshanna Saxe, University of Toronto
Tracey Galloway, University of Toronto

Are We Ready to Embrace Connected and Self-Driving Vehicles? Case Study of Texans (17-00474)

Prateek Bansal, Cornell University
Kara Kockelman, University of Texas, Austin

Accessibility and Poverty: Assessing Public Transport Subsidies in Bogotá, Colombia (17-01180)

Luis Guzman, Universidad de Los Andes
Daniel Oviedo Hernandez, University College London
Carlos Iván Rivera, Universidad de Los Andes
Camila Rodriguez Hernandez,
Tatiana Peralta, The World Bank

Review of Changing Prices and Tax Levels for Neighborhood Carsharing in the United States: 2011-2016 (17-05888)

Joseph Schwieterman, Depaul University

Framework for Joint Modeling of Travel Time Use and Its Productivity (17-00554)

Jacek Pawlak, Imperial College London
John Polak, Imperial College London
Aruna Sivakumar, Imperial College London



Transportation Demand Forecasting Poster Mega-session, Part 1 (Part 2, Session 830)

Jeremy Raw, Federal Highway Administration (FHWA), presiding

Sponsored by Standing Committee on Transportation Demand Forecasting (ADB40)

Mode Choice and Travel Distance Joint Models for School Trips (17-06797)

Alireza Ermagun, University of Minnesota, Twin Cities

Amir Samimi, Sharif University of Technology

Conceptual Framework for Understanding Latent Demand: Accounting for Unrealized Activities and Travel (17-06869)

Kelly Clifton, Portland State University

Filipe Moura,

Sketch-Level Methods for Quantifying Vehicle Miles Traveled (17-06879)

Amy Lee, University of California, Davis

Kevin Fang, University of California, Davis

Susan Handy, University of California, Davis

Tour Complexity and Transportation Demand Management: A Focus on Central Business District Work Tours (17-06887)

moein khaloei, Amirkabir University of Technology

Meeghat Habibiyan, Amirkabir University of Technology

Shared Mobility: Current Adoption, Use, and Potential Impacts on Travel Behavior (P17-20860)

Regina Clewlow, UC Davis/ moovel

Gouri Shankar Mishra, Dept. of Civil and Environmental Engineering University of California, Davis

Impacts of a Multimodal Mobility Offer on Travel Behavior and Preferences: Insights from a Survey Among Users of the First Mobility Station in Munich, Germany (P17-20861)

Montserrat Miramontes, Technische Universitaet Muenchen

Maximilian Pfertner, Technical University of Munich

Hema Sharanya Rayaprolu, Technical University of Munich

Martin Schreiner, Landeshauptstadt München

Gebhard Wulfhorst

Can Autonomous Vehicles Reduce Car Mobility? Evidence from a Stated Adaptation Experiment in Belgium (P17-20865)

Mario Cools, University of Liege

Caroline Rongy, University of Liege

Sabine Limbourg, University of Liege

Modeling Preferences for Smart Modes and Services: Case Study in Lisbon, Portugal (P17-20867)

Charisma Choudhury, University of Leeds

Lang Yang

João de Abreu e Silva, Instituto Superior Tecnico
Moshe Ben-Akiva, Massachusetts Institute of Technology

Behavioral Choice Model of Use of Carsharing and Ride-Sourcing Services (P17-20868)

Chandra Bhat, University of Texas, Austin
Felipe Dias, University of Texas, Austin
Patricia Lavieri, University of Texas, Austin
Venu Garikapati, Arizona State University
Sebastian Astroza, University of Texas, Austin
Ram Pendyala, Arizona State University

Estimating the Trip Generation Impacts of Autonomous Vehicles on Car Travel in Victoria, Australia (P17-20870)

Long Truong, Monash University
Chris De Gruyter, Monash University
Graham Currie, Monash University
Alexa Delbosc, Monash University

Tracking a System of Shared Autonomous Vehicles Across the Austin, Texas, Network Using Agent-Based Simulation (P17-20871)

Jun Liu, Virginia Department of Transportation
Kara Kockelman, University of Texas, Austin
Patrick Boesch, ETHZ - Swiss Federal Institute of Technology
Francesco Ciari, ETHZ - Swiss Federal Institute of Technology

Fully Autonomous Vehicles: Simulating Transportation System Performance and Operating Scenarios in the Greater Toronto Area, Canada (P17-20872)

Bradley Kloostra, University of Toronto
Matthew Roorda, University of Toronto

Activity-Related Land Use Mix Construct and Its Connection to Pedestrian Travel (P17-20873)

Steven Gehrke, Portland State University
Kelly Clifton, Portland State University

Anticipating Regional Impacts of Connected and Automated Vehicle Travel in Austin, Texas (P17-20874)

Yong Zhao, University of Texas, Austin
Kara Kockelman, University of Texas, Austin

Embedding Autonomous Vehicle Sharing in Public Transit System: Example of-Last Mile Problem (P17-20875)

Jinhua Zhao, Massachusetts Institute of Technology
Yu Shen, Singapore-MIT Alliance for Research and Technology
Hongmou Zhang, Massachusetts Institute of Technology

Estimating Household Travel Energy Consumption in Conjunction with a Travel Demand Forecasting Model (P17-20876)

Venu Garikapati, Arizona State University
Daehyun You, Maricopa Association of Governments
Wenwen Zhang, Georgia Institute of Technology (Georgia Tech)

Ram Pendyala, Arizona State University
Subhrajit Guhathakurta
Marilyn Brown, Georgia Institute of Technology (Georgia Tech)
Bistra Dilikina, Georgia Institute of Technology (Georgia Tech)

Transportation Planning to Accommodate Needs of Wind Energy Projects (P17-20877)

Chandra Bhat, University of Texas, Austin
Sebastian Astroza, University of Texas, Austin
Priyadarshan Patil, University of Texas, Austin
Katherine Smith, University of Texas, Austin

Dynamic Passenger Assignment Challenges (P17-20878)

Lisa Zorn, Metropolitan Transportation Commission (MTC)
Elizabeth Sall, UrbanLabs LLC

What If the Network Was Designed by the Demand and How Much Does It Comply with the Supply? (P17-20879)

Kinan Bahbouh, Ecole Polytechnique de Montreal
Catherine Morency, Ecole Polytechnique de Montreal
Chantal Berdier

Assessing Public Opinion on Uber as a Ridesharing Transportation System: Explanatory Analysis and Results of a Survey in Chicago Area (P17-20863)

Seyed Mahmoudifard, University of Illinois, Chicago
Amirhassan Kermanshah, University of Illinois, Chicago
Ramin Shabanpour, University of Illinois, Chicago
Abolfazl Mohammadian, University of Illinois, Chicago

Exploring the Role of Activity Time Use Frontiers on Emotional Well Being: An Evidence from Disability and Use of Time Survey (17-05781)

Srinath Ravulaparthi, Cambridge Systematics, Inc.
Karthik Konduri, University of Connecticut
Konstadinos Goulias, University of California, Santa Barbara

Exploratory Analysis of Crowdsourced Delivery Service Through a Stated Preference Experiment (17-05574)

Aymeric Punel, Northwestern University
Amanda Stathopoulos, Northwestern University

De-Transformation Bias in Non-Linear Trip Generation Models (17-03592)

Liming Wang, Transportation Research and Education Consortium
Kristina Currans, Portland State University

Transportation Demand Forecasting Poster Mega-session, Part 2 (Part 1, Session 829)

Jeremy Raw, Federal Highway Administration (FHWA), presiding

Sponsored by Standing Committee on Transportation Demand Forecasting (ADB40)

Investigating the Scalability in Population Synthesis: Comparative Approach (17-00012)

Ismail Saadi, University of Liege

Hamed Eftekhari, University of Liege

Jacques Teller, University of Liege

Mario Cools, University of Liege

Stable Matching and Price of Stability in Real-Time Ridesharing Systems (17-00580)

PENGYU YAN, University of Electronic and Science Technology of China

Cynthia Chen, University of Washington

Zhiqin Luo, University of Electronic and Science Technology of China

Comparison of Artificial Neural Networks and Statistical Copula-Based Joint Models (17-01202)

Nima Golshani, University of Illinois, Chicago

Ramin Shabanpour, University of Illinois, Chicago

Seyed Mahmoudifard, University of Illinois, Chicago

Sybil Derrible, University of Illinois, Chicago

Abolfazl Mohammadian, University of Illinois, Chicago

Cluster-Based Joint Model of Travel Mode and Departure Time Choices (17-01203)

Ramin Shabanpour, University of Illinois, Chicago

Nima Golshani, University of Illinois, Chicago

Sybil Derrible, University of Illinois, Chicago

Abolfazl Mohammadian, University of Illinois, Chicago

Mohammad Miralinaghi, Purdue University

Travel Demand Model Evaluation: Graph-Theoretic Approach (17-01302)

Meead Saberi, Monash University

Taha Rashidi, University of New South Wales

Milad Ghasri, University of New South Wales

Kenneth Ewe, Monash University

Econometric Investigation of the Influence of Transit Passes on Transit Users' Behavior in Toronto, Canada (17-01480)

Khandker Nurul Habib, University of Toronto

MD SAMI HASNINE, University of Toronto

Retrospective Evaluation of Traffic Forecasting Accuracy: Lessons Learned from Virginia (17-01499)

Salwa Anam, Virginia Transportation Research Council

John Miller, Virginia Department of Transportation

Jasmine Amanin, Virginia Department of Transportation

Comparison of Reliability Valuation Methods for the Ranking of Transport Projects (17-01531)

Helene Le Maitre, Ministry of Transport, France

Charlotte Coupe, Ministry of Transport, France

A Finite Mixture Modeling Approach to Examine New York City Bicycle Sharing System (CitiBike) Users' Destination Preferences (17-01731)

Ahmadreza Faghih-Imani, McGill University

Naveen Eluru, University of Central Florida

Refueling Station Location Problem with Traffic Deviation Considering Route Choice and Demand Uncertainty (17-01745)

Mohammad Miralinaghi, Purdue University

Yingyan Lou, Arizona State University

Burcu B. Keskin, University of Alabama

Yu-Ting Hsu, National Taiwan University

Ramin Shabanpour, University of Illinois, Chicago

On the Heterogeneity and Substitution Patterns in Mobility Tool Ownership Choices of Post-secondary Students: The Case of Toronto(17-01879)

Khandker Nurul Habib, University of Toronto

Adam Weiss, University of Toronto

MD SAMI HASNINE, University of Toronto

Two-Stage Bicycle Origin Destination Demand Matrix Estimation (17-01910)

Seungkyu Ryu, Ajou University

Anthony Chen, Hong Kong Polytechnic University

Jacqueline Su, University of California, Los Angeles

Keechoo Choi, Ajou University

Considering Dynamic Knowledge Updating in Bounded Rationality-Based Route Choice Modeling (17-01962)

Xiaowei Jiang, Southeast University

Muqing Du, Hohai University

Wei Deng, Southeast University

A Multi-criteria Bus Demand Assignment based on Minimizing Total System Costs (17-02272)

Ali Gholami, University of Nevada, Reno

Maysam Ziaee, Mashhad Traffic and Transportation Organization

Tian Zong, University of Nevada, Reno

Activity Rescheduling within a Multi Agent Transport Simulation Framework (MATSim) (17-02394)

Milos Balac, ETHZ - Swiss Federal Institute of Technology

Kay Axhausen, ETHZ - Swiss Federal Institute of Technology

A Random Utility Based Estimation Framework for the Household Activity Pattern Problem (17-02416)

Zhiheng Xu, University at Buffalo

Jee Eun Kang, University at Buffalo

Roger Chen, Rochester Institute of Technology (RIT)

A Vehicle Ownership Model for Conventional Four-Step Travel Models (17-02633)

Guang Tian, University of Utah
Reid Ewing, University of Utah
Jon Larsen, Wasatch Front Regional Council

Robust Evaluation for Transportation Network Capacity under Demand Uncertainty (17-02707)

Muqing Du, Hohai University
Xiaowei Jiang, Southeast University
Lin Cheng, Southeast University
Changjiang Zheng, Hohai University

Biased Standard Errors in Transport Model Calibrations Due to Heteroscedasticity Arising from Linear Data Projection (17-02882)

Wai Wong, University of Hong Kong
S.C. Wong, University of Hong Kong

A Fleet Sizing Algorithm for Autonomous Car Sharing (17-02884)

Renos Karamanis, Imperial College London
Ali Niknejad, Imperial College London
Panagiotis Angeloudis, Imperial College London

Incorporating Land Use in Synthetic Population Generation Methods and Transfer of Behavioral Data (17-02892)

Konstadinos Goulias, University of California, Santa Barbara
Elizabeth McBride, University of California, Santa Barbara
Jae Hyun Lee, University of Washington
Adam Davis, University of California, Santa Barbara

Testing Spatial Transferability of Activity-Based Travel Forecasting Models (17-02964)

John Bowman, Bowman Research and Consulting
Mark Bradley, RSG

A Sensitivity-Based Linear Approximation Method to Estimate Time-Dependent Origin-Destination Demand in Congested Networks (17-02976)

Sajjad Shafiei, Monash University
Meead Saberi, Monash University
Ali Zockaie, Michigan State University
Majid Sarvi, University of Melbourne

Latest Urban Rail Demand Forecast Model System in the Tokyo Metropolitan Area (17-03038)

Hironori Kato, University of Tokyo
Daisuke Fukuda, Tokyo Institute of Technology
Yoshihisa Yamashita, Creative Research and Planning
Seiji Iwakura, Shibaura Institute of Technology
Tetsuo Yai, Tokyo Institute of Technology

Misclassification in Travel Surveys and Implications to Choice Modeling: Application to Household Auto Ownership Decisions (17-03163)

Rajesh Paleti, Old Dominion University
Lacramioara Balan, No Organization

On the Variance of Recurrent Traffic Flow for Statistical Traffic Assignment (17-03213)

Wei Ma, Carnegie Mellon University
Zhen Qian, Carnegie Mellon University

Who Will Buy Alternative Fueled or Automatic Vehicles: A Modular, Behavioral Modelling Approach (17-03219)

Ioannis Tsouros, University of the Aegean
Amalia Polydoropoulou, University of the Aegean

Explicit or Implicit Accommodation of Residential Self-Selection in Modeling Vehicle Ownership: The Right Approach (17-03430)

Sabreena Anowar, University of Toronto
Naveen Eluru, University of Central Florida

High-Granularity Dynamic Traffic Flow Prediction Model Based on Artificial Neural Network (17-03672)

Zhihong Yao, Southwest Jiaotong University
Peng Han, Southwest Jiaotong University
Bin Zhao, Southwest Jiaotong University
Yangsheng Jiang, Southwest Jiaotong University
Bo Liu, Southwest Jiaotong University
Mengqiu Du, Southwest Jiaotong University

Using Work Location and Industry Classification Information in the Weighting of Household Surveys using Open Source Frameworks (17-03722)

Anurag Komanduri, Cambridge Systematics, Inc.
Karthik Konduri, University of Connecticut

A Spatial Linear Programming Method for Estimating Zonal Space Use Coefficients and its Application for Integrated Land Use Transport Modeling (17-03819)

Bilin Yu, Wuhan University of Technology
Ming Zhong, Wuhan University of Technology
John Hunt, University of Calgary
Huini Wang, Wuhan University of Technology

Empirical Demonstration of Traffic Flow Estimates from Repeated Passes of a Mobile Sensing Platform (17-03835)

Mark McCord, Ohio State University
Rabi Mishalani, Ohio State University
Benjamin Coifman, Ohio State University

Discrete-time Autoregressive Continuous Logit: Formulation and Application to Time of day choice modeling (17-03914)

Carlos Carrion, University of Maryland, College Park
Sephehr Ghader, University of Maryland, College Park
Lei Zhang, University of Maryland, College Park

A Novel Model Updating Method: Updating Function Model with Gross Domestic Product Per Capita (17-03923)

Nobuhiro Sanko, Kobe University

Modelling User Adaptation to a Campus Bicycle Share System (17-04112)

Gen Zhang, Kyoto University

Jan-Dirk Schmoecker, Kyoto University

Mobility as a Language: Predicting Individual Mobility in Public Transportation using N-Gram Models (17-04435)

Zhan Zhao, Massachusetts Institute of Technology

Haris Koutsopoulos, Northeastern University

Jinhua Zhao, Massachusetts Institute of Technology

An Early Look into Spectral Techniques for Travel Demand Modeling (17-04679)

Joseph Flood, Indianapolis Metropolitan Planning Organization

Catherine Kostyn, Indianapolis Metropolitan Planning Organization

Suzanne Childress, Puget Sound Regional Council (PSRC)

Andrew Swenson, Indianapolis Metropolitan Planning Organization

Large-Scale Application of a Combined Destination and Mode Choice Model Estimated with Mixed Stated and Revealed Preference Data(17-04732)

Michael Heilig, Karlsruhe Institute of Technology (KIT)

Nicolai Mallig, Karlsruhe Institute of Technology (KIT)

Tim Hilgert, Karlsruhe Institute of Technology (KIT)

Martin Kagerbauer, Karlsruhe Institute of Technology (KIT)

Peter Vortisch, Karlsruhe Institute of Technology (KIT)

Understanding Early Adopters of Carsharing and Expansion to the Whole Population (17-04885)

Michiko Namazu, University of British Columbia

Don MacKenzie, University of Washington

Hisham Zerriffi, University of British Columbia

Hadi Dowlatabadi, University of British Columbia

Modelling Trip Generation Using Mobile Phone Data: A Latent Demographics Approach (17-04998)

Andrew Bwambale, University of Leeds

Charisma Choudhury, University of Leeds

Stephane Hess, University of Leeds

Who Is Picking Up the Kid from Daycare? Understanding the Intra Household Dynamics in Drop Off and Pick Up Task Allocation for Households with Dependent Children (17-05008)

Adam Weiss, University of Toronto

Khandker Nurul Habib, University of Toronto

Mitigating the Error Rate of an IPF-Based Population Synthesis Approach by Incorporating More Heterogeneity into the Initial Seed (17-05014)

Ismail Saadi, University of Liege

Ahmed Mohamed El Saeid Mustafa, University of Liege

Jacques Teller, University of Liege
Mario Cools, University of Liege

Discrete Choice Models with Dynamic Effects: Estimation and Application in Activity-Based Travel Demand Framework (17-05024)

Gaurav Vyas, WSPIParsons Brinckerhoff
Peter Vovsha, WSPIParsons Brinckerhoff
Danny Givon,
Yehoshua Birotker,
Amir Mossek,
Eitan Bluer,

Impact of Site-Specific Data on the Accuracy of Volume Delay Functions (17-05161)

Ryley Stevens, Virginia Department of Transportation
Aidan Barkley, Virginia Department of Transportation
John Miller, Virginia Department of Transportation

A Copula-Based Continuous Cross-Nested Logit Model for Tour Scheduling In Activity-Based Travel Demand Models (17-05165)

Sepehr Ghader, University of Maryland, College Park
Carlos Carrion, University of Maryland, College Park
Liang Tang, University of Maryland, College Park
Arash Asadabadi, University of Maryland, College Park
Lei Zhang, University of Maryland, College Park

Lane Group Based Mesoscopic Dynamic Network Loading Model for Congested Urban Network (17-05192)

Zongzhi Li, Illinois Institute of Technology
Xi Lu, Illinois Institute of Technology

Dummy Coding vs Effects Coding for Categorical Variables in Choice Models: Clarifications and Extensions (17-05203)

Andrew Daly, University of Leeds
Thijs Dekker, University of Leeds
Stephane Hess, University of Leeds

Development of External and Truck Components for a Regional Travel Model (17-05304)

Matthew Stratton, WSPIParsons Brinckerhoff
Christina Bernardo,
Ashish Kulshrestha, WSPIParsons Brinckerhoff
Gaurav Vyas, WSPIParsons Brinckerhoff
Peter Vovsha, WSPIParsons Brinckerhoff
Rebekah Straub Anderson, Ohio Department of Transportation
Gregory Giaimo, Ohio Department of Transportation

Pricing and Reliability Enhancement in the San Diego Activity-Based Travel Model (17-05385)

Nagendra Dhakar, Resource Systems Group, Inc.
Joel Freedman, RSG
Mark Bradley, RSG
Wu Sun, San Diego Association of Governments (SANDAG)

A Practical Method to Test the Validity of the Standard Gumbel Distribution in Logit-Based Multinomial Choice Models of Human Travel Behavior (17-05407)

Xin Ye, Tongji University
Venu Garikapati, Arizona State University
Daehyun You, Maricopa Association of Governments
Ram Pendyala, Arizona State University

Can a Better Model Specification Avoid the Need to Move Away from Random Utility Maximisation? (17-05499)

Stephane Hess, University of Leeds
Matthew Beck, University of Sydney
Romain Crastes dit Sourd, University of Leeds

A Multimodal Trip Generation Model to Assess Travel Impacts of Urban Developments in District of Columbia (17-05534)

Ryan Westrom, District Department of Transportation (DDOT)
Stephanie Dock, District Department of Transportation (DDOT)
Jamie Henson, District Department of Transportation (DDOT)
Mackenzie Watten, Fehr & Peers
Anjali Bakhru, Fehr & Peers DC
Matthew Ridgway, Fehr & Peers
Jennifer Ziebarth, Fehr & Peers
Niranjani Prabhakar, Fehr & Peers DC
Nazneen Ferdous, CH2MHILL
Giri Kilim, CH2M
Raj Paradkar, CH2M

Identification of Representative Time-Use Activity Patterns Using Fuzzy C-Means Clustering (17-05558)

Mohammad Hesam Hafezi, Dalhousie University
Lei Liu, Dalhousie University
Hugh Millward, Saint Mary's University

Does Compact Development Increase or Reduce Traffic Congestion? (17-05728)

Reid Ewing, University of Utah
Guang Tian, University of Utah
Torrey Lyons, University of Utah
Kathryn Terzano, University of Utah

Modeling Workers' Daily Out-of-Home Maintenance Activity Participation and Duration (17-05740)

You-Lian Chu, Parsons

Temporal Origin-Destination Matrix Estimation of Passenger Car Trips in Medellin, Colombia (17-05849)

Carlos Gonzalez-Calderon, Rensselaer Polytechnic Institute (RPI)
John Posada-Henao, Universidad Nacional de Colombia
Susana Restrepo-Morantes, National University of Colombia

Development of a Future Year Large-Scale Microscopic Traffic Simulation Model (17-05850)

Craig Jordan, Old Dominion University
Peter Foytik, Old Dominion University
Andrew Collins, Old Dominion University
R. Michael Robinson, Old Dominion University

Spatiotemporal Traffic Forecasting: Review and Proposed Directions (17-05855)

Alireza Ermagun, University of Minnesota, Twin Cities
David Levinson, University of Minnesota, Twin Cities

Combinatorial Tour Mode Choice (17-05951)

Peter Vovsha, WSPIParsons Brinckerhoff
James Hicks, WSPIParsons Brinckerhoff
Gaurav Vyas, WSPIParsons Brinckerhoff
Vladimir Livshits, Maricopa Association of Governments
Rebekah Straub Anderson, Ohio Department of Transportation
Gregory Giaimo, Ohio Department of Transportation

Travel Time Reliability with Boundedly Rational Travelers (17-06218)

Chao Sun,
Lin Cheng, Southeast University
Wenyun Tang, Southeast University
Jie Ma, Southeast University
Senlai Zhu, Southeast University

Complement or Competitor? Comparing car2go and Transit Travel Times, Prices, and Usage Patterns in Seattle (17-06234)

Xiasen Wang,
Don MacKenzie, University of Washington
Zhiyong Cui, University of Washington

P2p Ridesharing with Ride-Back on Hov Lanes: Towards a Practical Alternative Mode for Daily Commuting (17-06253)

Roger Lloret-Batlle, University of California, Irvine
Neda Masoud, University of California, Irvine
Daisik Nam, University of California, Irvine

Endogeneity Due to Missing Observations in a Learning Model For Travel Choice (17-06323)

Yue Tang, University of Massachusetts, Amherst
Cristian Guevara, Universidad de Los Andes
Song Gao, University of Massachusetts, Amherst

Latent Class Analysis of Residential and Work Location Choices (17-06430)

Rajesh Paleti, Old Dominion University
Sabyasachee Mishra, University of Memphis
Khademul Haque, University of Memphis
Afrid Sarker, University of Memphis
Mihalis Gkolas, University of Memphis
Chin-Cheng Chen, Tennessee Department of Transportation

Choice Set Formation Behaviour in Selecting Travel Routes: Application of an Interactive Online Suvery Platform (17-06692)

Kiran Shakeel, University of New South Wales

Taha Rashidi, University of New South Wales

S. Travis Waller, University of New South Wales

Paradigms for Integrated Modeling of Activity-Travel Demand and Network Dynamics in an Era of Dynamic Mobility Management (17-06747)

Ram Pendyala, Arizona State University

Daehyun You, Maricopa Association of Governments

Venu Garikapati, Arizona State University

Karthik Konduri,

Xuesong Zhou, Arizona State University

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From Ad Hoc to Organized: Writing the Road Map for Improving Travel Analysis Methods

Event Description

This workshop represents the next step in establishing a rigorous, community-wide framework for improving travel analysis methods. Attendees will work in teams to develop scopes for specific projects that improve travel analysis in order to support better decision making and the public good.

David Ory, Metropolitan Transportation Commission (MTC); Elizabeth Sall, UrbanLabs LLC; Gregory Erhardt, University of Kentucky; William Charlton, Because LLC; Joan Walker, University of California, Berkeley; Brian Gardner, Federal Highway Administration (FHWA), presiding

Sponsored by Standing Committee on Transportation Demand Forecasting (ADB40); Standing Committee on Transportation Planning Applications (ADB50)

Agenda

This interactive workshop represents the next step in establishing the Zephyr Foundation, a rigorous, community-wide framework for improving travel analysis methods. Attendees will work in teams to develop scopes for specific projects that improve travel analysis in order to support better decision-making and the public good. More information about Zephyr and the workshop can be found at zephyrtransport.org.

Session Type: Workshop (JWW17-0003)

Subject Areas: Planning and Forecasting



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