CITSM

The Transporter

A Newsletter From The Center For Integrated Transportation Systems Management

University of Maryland 1856

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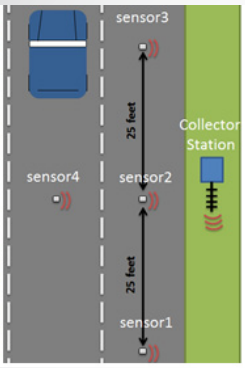


CUTC Student of the Year Award Ceremony

Modeling Violations in High-Occupancy Toll Lane Studies

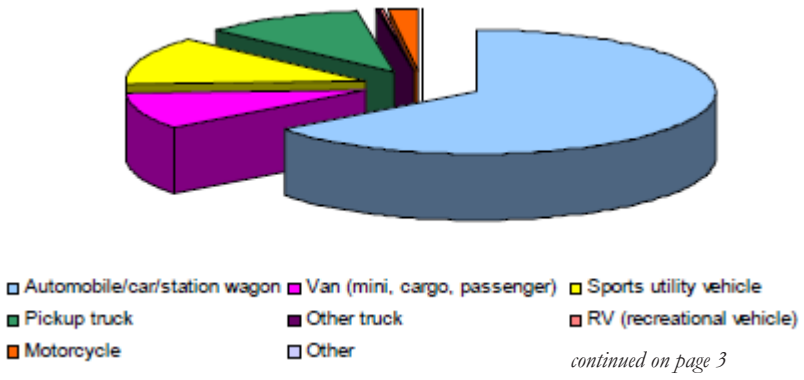
Dr. Elise Miller-Hooks

To mitigate congestion along freeways, managed lanes, e.g. high occupancy vehicle (HOV) or high occupancy toll (HOT) lanes, operating concurrently with general purpose (GP) lanes have gained popularity across the nation. Among the construction options to separate managed and GP lanes, non-barrier separation techniques, which use only solid pavement markings, are increasingly employed. These techniques inform drivers that crossing between GP and managed lanes is prohibited; however, they permit nearly unlimited improper ingress/egress to/from the managed lanes. Even with significant enforcement, violation rates related to non-barrier separated managed lanes in the U.S. are considerable. In fact, the national average annual managed lane violation rate, which includes both occupancy- and access-type violations, was estimated in 2005 to involve between 10 and 15 percent of all vehicles using managed lanes. These violations negatively impact mobility, safety and revenue. Despite this, no prior model developed for the purpose of predicting improvements in traffic performance metrics and the potential revenue that can be raised through the introduction of a new HOT lane facility within an existing roadway or to assess potential practicable operational strategies and facility designs has incorporated this violation behavior. Nor has any prior study systematically considered the impact of violation on the performance of these facilities orquantified the impact of violations on safety. This study sought to assess the importance of these omissions.

Modeling Vehicle Ownership Decisions for the State of Maryland

Dr. Cinzia Cirillo

Different car ownership models are being used for a wide variety of purposes. National governments (notably the Ministries of Finance) make use of car ownership models for forecasting tax revenues and the regulatory impact of changes in the level of taxation. National, regional and local governments (particularly traffic and environment departments) use car ownership models to forecast transport demand, energy consumption and emission levels, as well as the likely impact on this of policy measures. Car manufacturers apply models on the consumer valuation of attributes of cars that are not yet on the market. Oil companies want to predict the future demand for their products and might benefit from car ownership models. International organizations, such as the World Bank, use aggregate models for car ownership by country to assist investment decision-making. This project develops a modeling framework for vehicle ownership in the State of Maryland. The modeling system aims to produce the tools needed to understand and predict consumers' preferences on vehicle ownership, as a function of socio-demographic, economic, transportation system, and land development characteristics.



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CUTC Student of the Year Award

Kaveh Farokhi Sadabadi, a PhD Candidate in the field of transportation at the civil and environmental engineering department of the University of Maryland won the Student of the Year award.
For the past 20 years, the U.S. Department of Transportation (USDOT) has honored an outstanding student from each UTC at a special ceremony held during the TRB Annual Meeting. Each student is recognized during the ceremony by a Departmental official. The 21st Annual Outstanding Student of the Year Awards ceremony took place as part of the Council of University Transportation Centers (CUTC) annual banquet on Saturday, January 21, 2012. Each student awardee received $1,000 plus the cost of attendance (conference registration, and travel/lodging expenses) to the 2012 91st TRB Annual Meeting.

Kaveh holds two Master of Science degrees from University of Texas at Arlington and Sharif University of Technology in transportation planning and engineering. His main areas of interest are vehicular traffic operations, freeway and arterial traffic monitoring and control. He has had several presentations during the TRB annual meetings and his work has been published in the TRR journal. His dissertation title is Vehicular Traffic Modeling, Data Fusion, Estimation and Short Term Travel Time Prediction.

BIOGRAPHY

Masoud Hamedi

Dr. Masoud Hamedi has more than a decade of experience in the fields of transportation systems management with an emphasis on information technology. Before receiving his PhD in civil engineering from the University of Maryland, he got a BSc in computer engineering from the Sharif University of Technology, Tehran, followed by MSc in systems engineering. His experience includes data collection and processing, algorithm and software development, large scale optimization and simulation. During his years at the University of Maryland, he has been involved in many research projects mainly in the area of Intelligent Transportation Systems. Most recently, as a co-investigator he developed guidelines for nationwide validation of private sector travel time data for Federal Highway Administration. Masoud has designed and implemented data filtering algorithms and an automatic evaluator tool for validation and quality control of the real-time vehicle probe data provided to I-95 Corridor Coalition. Bluetooth traffic detectors are being used to establish ground-truth for travel time data in this ongoing project. Dr. Hamedi received a grant from the Maryland Technology Development Corporation (TEDCO) to develop a proof of concept for traffic data collection and anonymous vehicle detection using wireless sensor networks.

He is an instructor in the Masters in Telecommunications program, University of Maryland. He has authored a patent and several papers and has given presentations at national and international conferences.

Modeling Interdependencies Among Infrastructure Systems

UMD Transportation Seminar Series
Wednesday, May 18, 2011, from 2:30 to 3:30 pm
Pepco Room (1105), Kim Engineering Building

Speaker: Dr. Srinivas Peeta is a Professor of Civil Engineering at Purdue University, and the Director of the NEXTRANS Center, USDOT's Region V Regional University Transportation Center. He chairs the Transportation Network Modeling Committee (ADB30) of the Transportation Research Board (TRB) of the National Academies. He is a member of the International Federation of Automatic Control (IFAC) Technical Committee on Transportation Systems. He received his M.S. and Ph.D. in Civil Engineering from Caltech and The University of Texas at Austin, respectively. Dr. Peeta is a recipient of an NSF CAREER award in 1997, ASCE Walter Huber Award for outstanding research contributions to the advancement of transportation network modeling in 2009, and many other distinguished awards.

Summary: Extreme events over the past decade in the USA, ranging from the 9/11 terror attacks to the 2003 Northeast power blackout to the 2005 hurricanes, have highlighted the urgent need to understand the interdependencies among civil infrastructure systems (transportation, telecommunications, power, energy, water, etc.) for more effective and efficient planning, design and operations. The need is further highlighted by the challenges arising from the capacity needs of rapid urbanization and the need to renew aging infrastructure.

ABOUT CITSM

The Center for Integrated Transportation Systems Management (CITSM) at the University of Maryland College Park was established as a tier I university transportation center in 2008. The goal of the center is the Development of Advanced Technology, Improved Processes, and Enhanced Organizational Structures for the Integrated Management and Operation of Transportation Facilities and Corridors.

The CITSM focuses on the development of tools, processes and institutional relations that foster seamless management and operations of today's transportation infrastructure. Such seamless operations will be derived from concentrating on the overall mission of transportation agencies rather than the narrower objectives of individual institutions and facilities. Integrated operation of the transportation infrastructure as a system rather than a collection of individual resources, offers the potential for significant improvements in system efficiency as measured by reductions in travel time and congestion along with improvements in travel reliability. Integrated system operation will have a positive impact on the nation's economy, safety, air quality and energy consumption.

The theme of the Center is "Integrated Transportation Systems Management." The Center conducts research and provides education and technology transfer related to this theme. The objective of this research is to provide improved mobility and reduced congestion for travelers and shippers using the nation's transportation infrastructure. The emphasis of this work is on the integrated management of the transportation systems at all levels including planning, engineering, and operations. The University of Maryland has selected this theme because of its potential for significantly improving transportation system mobility and reliability, as demonstrated by numerous prior research projects conducted by its faculty and staff. A second, but equally important, objective of the Center is to educate the next generation of transportation engineers and planners with the tools needed for seamless management and operations of today's transportation infrastructure and the deep understanding of the benefits of such a fully integrated system.

CITSM

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