Student Research Featured at TRB Annual Meeting

The Larson Institute at Penn State and the Mid-Atlantic Universities Transportation Center will host their annual Student Showcase on Tuesday, January 25, 2011, from 6-7:30 p.m. at the Marriott Wardman Hotel. More than 25 students from Penn State, University of Virginia and Virginia Tech will display posters summarizing their research.

In addition, several researchers will be presenting papers at TRB on MAUTC research projects:

- **IntelliDrive Application in Traffic-Responsive Control (11-3903)** Pooja Dwivedi and Montasir M. Abbas, Virginia Polytechnic Institute and State University

- **Simple Comprehensive Fuel Consumption and CO2 Emissions Model Based on Instantaneous Vehicle Power (11-1009)** - J11 Hesham Rakha and Kyoung Soo Ahn, Virginia Polytechnic Institute and State University; Kevin Moran, NAVTEQ; Bart Saerens and Eric Van den Bulck, Catholic University Leuven, Belgium

- **Dynamic Traffic Assignment Under Uncertainty: Distributional Robust Chance-Constrained Approach (11-3261)** Byung Do Chung, Tao Yao, and Bo Zhang, Penn State

- **Robust Congestion Pricing Under Demand Uncertainty (11-3538)** - C08 Byung Do Chung, Terry L. Friesz, Taeil Kim and Tao Yao, Penn State

- **Real-Time Dispatching Control to Alleviate Schedule Disruptions at Intermodal Freight Transfer Terminals (11-2268)** Cheng-Chieh Chen and Paul Schonfeld, University of Maryland, College Park

Penn State and University of Virginia Collaborate on New Regional Research Project

Researchers from Penn State and the University of Virginia (U.Va.) are collaborating on the regional project, **Infrastructure Management**. This research will develop a prioritization and funding framework to adequately address critical freight infrastructure needs to maintain economic vitality.

The framework will be developed for prioritizing and funding infrastructure investments for highways critical to freight-based factors such as their age and design life, design load, total volume, freight volume, projected freight volume, economics costs and benefits, every usage, sustainability, safety and mobility. The goal of the research is to provide adequate knowledge for decision makers to make sustainable, informed decisions to support freight and economic activity.

The framework is divided into two projects: In project A, **Developing a Framework for Prioritizing Infrastructure Improvements on Critical Freight Corridors**, U.Va. will develop performance measures to prioritize infrastructure investments. In project B, Penn State researchers will link fee mechanisms, taxes and other revenue-generating mechanisms and associated institutional structures for varying funding arrangements to the performance measures.
New Research Projects

Evaluation of Special Surface Treatment Using Accelerated Testing
Phase I, PSU-2010-01, Angelica Palomino, Principal Investigator

The objective of this study is to validate methods with which to characterize binder and asphalt concrete specimens with and without a polymer cement slurry coating that have been aged with UV radiation.

Large Scale Evacuation Transportation Systems: Robust Modules and Real Time Operations
PSU-2010-02, Tao Yao, Principal Investigator

Researchers at Penn State will investigate new robust optimization (RO) methods and novel applications to evacuation transportation by integrating human behavior, online information, dynamics and uncertainty. The goal is to improve the understanding of evacuation transportation management, producing results that will be translated into educational materials that cover broad fields including transportation engineering, emergency management, social science, and operations research.

Evaluation of the Use of Registration Stickers
PSU-2010-03, Philip Garvey, Principal Investigator

The issuance of motor vehicle license plate registration stickers is a costly and potentially flawed component of the vehicle registration renewal process. The goal of this research is to evaluate the potential cost and benefits (financial and law enforcement-related) of doing away with license plate registration stickers as part of the registration renewal process for Pennsylvania.

Enhancement of Freeway Incident Traffic Management (FITM) Plans and Assessment of the Resulting Benefit
UMD-2009-08, G. L. Chang, Principal Investigator

Although CHART has been well recognized nationwide as one of the top efficient incident response programs, the priority of CHART operators in response to detected incidents has been mainly on managing traffic at the incident scene and providing assists to drivers. This study explores some potential areas for CHART to enhance its management of traffic during major incidents, especially during the implementation of the FITM plan. Various critical issues, ranging from minimizing the network-wide traffic impact from the operational side (i.e., reducing the clearance time) to detouring incoming demand with timely information and control strategies, will be investigated. Most importantly, this study will develop a procedure for identifying and computing the benefits to both drivers and the entire society resulting from a well-executed management plan during major traffic accidents.

University of Maryland Launches New Website

Students, faculty, researchers and transportation practitioners can now find all things transportation at the University of Maryland in one easily accessible website at http://www.tep.umd.edu/

The new website provides links to four transportation centers:  
- CATT, Center for Advanced Transportation Technology  
- CITSM, Center for Integrated Transportation Systems Management  
- MAUTC, Mid-Atlantic Universities Transportation Center, and  
- NCSG, National Center for Smart Growth Research and Education.

Students can find the requirements for an M.S. or Ph.D. in Transportation Engineering and course descriptions as well as a list of transportation-related special events such as seminars, workshops and conferences.

16th Annual Transportation Engineering and Safety Conference

Penn State’s Larson Institute hosted the 16th annual transportation conference December 8-10 at The Penn Stater Hotel & Conference Center on the University Park Campus.


Jeannette Quirus, of McCormick Taylor, served as program chair. David Wormley, dean of the College of Engineering at Penn State, was on hand at Wednesday’s lunch to welcome attendees.

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The keynote speaker, Susan Herbel, principal, Cambridge Systematics, spoke about the importance of safety workforce development. In 2009, there were 33,808 fatalities—the lowest number since 1950—yet still an unacceptable number. Three programs in SAFETEA-LU have been instrumental in the decrease: Highway Safety Improvement Program, Strategic Highway Safety Plans, and High Risk Rural Roads Program. Improvements in data collection and analysis and research into countermeasure effectiveness have also contributed to the decrease in fatalities.

Herbel emphasized that there is still more to be done to improve transportation safety, such as forming a national alliance to promote science-based road safety training and education and identifying institutions capable of delivering multidisciplinary, multi-modal training and education. She encouraged participants to self-educate, attend and organize peer exchanges and conferences and promote the science of safety.


In addition to MAUTC, major sponsors included Parsons Brinckerhoff, Michael Baker, and Jacobs Engineering Group.

The full program is available online at www.conferences.psu.edu/transportation

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**Anne Canby Delivers 2010 Larson Transportation Lecture**

The 2010 Thomas D. Larson Distinguished Transportation Lecture was given by Anne P. Canby, project director for the OneRail Coalition and past president of the Surface Transportation Policy Partnership, on December 7 at Penn State, in conjunction with the Transportation Engineering and Safety Conference.

Readers can view the lecture at http://cnet.pegcentral.com/player.php?video=b4569fb4f2a8c71e5b413509a8e855.

Canby recognized that today our nation’s transportation system is at a critical crossroads, not least due to the current global economic situation, new demands, and a funding structure that is not keeping pace with the system’s most fundamental needs. “Rethinking how we come at the transportation issues that are challenging us today would be very timely.”

Major changes in trade volumes and demographics must be accounted for: In the next 20 years, U.S. imports and exports will more than double, and in the next 32 years, the U.S. population will grow by more than 100 million. Today, two-thirds of American households have no one under age 18 living there. On average, American households spend 18% of their income on transportation, and half of all households earn less than $50,000 a year. And analysts needs to refocus: Most operations research has focused on work trips, yet they account for only 20% of all trips. Canby also characterized our current fiscal climate as “toxic,” citing lack of consensus on the role of government; whether there will be more stimulus funding; the unlikely prospect of an increase in the gas tax; how to find new sources of funding to support transportation investment; and addressing the issues of energy security and global warming.

For Canby, a vigorous call to action and a systemic approach will be vital to getting the nationwide transportation system back on track. Key aspects could include system-wide decision making to reduce congestion and optimize efficiency; linking of metropolitan fare systems to simplify travel; wiser use of rail and roadway networks; renewed fostering of innovation; an outcomes-based decision-making process on transportation modalities; use of both discretionary and formulary programs; focusing of user fees on ensuring a system that is in good repair; and applying new funding sources (such as a portion of PA’s oil franchise fee) to new capacities. Canby said we’ve become spoiled by the low price of transportation, when we should view it more as a utility and charge accordingly.

“Now is the time for strong federal leadership that gets us out of coasting on our past successes,” Canby observed.

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The MAUTC Partners:

- Penn State (lead)
- University of Maryland
- University of Virginia
- Virginia Polytechnic Institute and State University
- West Virginia University

Strategic Alliances:

- University of Delaware
- Morgan State University
- University of Pennsylvania

Canby (from page 3)

“If we can pull these things together, we can really restart the innovation engine.

“I just wish Tom Larson were here to have this discussion, because he would be a fabulous person to engage in these issues today.”

In addition to numerous other posts across the nation, Anne Canby served as Delaware’s transportation secretary from 1993 to 2001. She is recognized nationally as a progressive leader in the transportation field for transforming a traditional highway agency into a multimodal mobility provider and as an advocate for integrating land-use and transportation planning. She received the 2006 Carey Distinguished Service Award for outstanding leadership and service to transportation research and to the Transportation Research Board.

The 16th Transportation Engineering and Safety Conference brought together over 500 professionals from government, industry and academia.