



Research News

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Region 2 University Transportation Research Center www.utrc2.org

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UPCOMING EVENTS

September 16, 2009 – North American Freight Flows Conference: Understanding Changes and Improving Data Sources. Location: Arnold and Mabel Beckman Center of the National Academies, Irvine, California

November 12, 2009 – Developing a Research Agenda for Transportation Infrastructure Preservation and Renewal. Location: Keck Center of the National Academies, Washington, DC

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Director's Letter

From June 30 through July 2, 2009, the Directors of all of the nation's transportation centers will gather in Amherst, Mass. for our annual meeting. One part of the meeting will address the activities of the federally supported University Transportation Centers, with UTRC representing USDOT Region 2.

The meeting shows clearly how academically based transportation centers have added much value to our transportation centers. Certainly, at the foundation of all of our activities, are the undergraduate and graduate students we train and prepare for work in an increasingly complex environment. The complexity comes from trying to restore our infrastructure to its design standards, building the next generation of infrastructure, and working towards this meeting's goal of sustainability in fiscally uncertain times. How are Universities different? They represent the continuing quest for advancing knowledge and pushing the envelope; while doing so, they must also educate the students under strict accreditation guidelines. UTRC fills some of this gap with the NYMTC sponsored September 11 program, a competitive program where teams of faculty and professionals work on regional problems with a select group of our region's best students. On our many research projects, initiatives and training programs we try to fill the gap between agency needs and those finishing their studies. For information on our education and research programs, try us online at www.utrc2.org.



New Paradigm for Transportation Planning Paper and Presentation

Robert Paaswell, Ph.D. was invited by the American Planning Association to develop and present a paper discussing past trends and current limitations in the transportation planning process. The paper concludes with Dr. Paaswell's proposal for needed reforms to usher in a new paradigm for transportation planning. Dr. Paaswell presented his paper in April at the national conference of the American Planning Association in Minneapolis, MN. The paper will be published in APA's Planning Advisory Service. In short the paper presents the following:

growing congestion, rapid increases in goods movement, sustained problems with air quality, and rapidly rising energy costs have made concerns of the future of our infrastructure extremely pressing. Exacerbated by the price tag of infrastructure improvements and additions, coupled with the growing inability to find adequate funds has sharpened the need for new discussions on how to plan for and invest in our critical transportation infrastructure. Dr. Paaswell's paper addresses the transportation planning process and its current limitations for tackling such a complex discussion. It also brings to the table new thoughts on institutions, funding and applications of new technology that must be applied towards understanding and planning for 21st century transportation investments. For a more thorough discussion, the APA paper can be viewed [here](#).

Capturing Wider Economic Benefits PANYNJ Study and Workshop

UTRC completes study and conducts Workshop for PANYNJ

On May 13, 2009, a UTRC team including Robert Paaswell, Joseph Berechman and Harold Stolper from the City College of New York, presented the findings of their study "The Wider Economic Benefits of Transportation Investment: Theory and Practical Guidance" to the Port Authority of New York and New Jersey's regional planning department at their downtown offices. The project aimed to review the relevant theory on benefit-cost analysis (BCA), to assess the validity of arguments for wider economic benefits and their applicability to the Port Authority, and to review quantitative methods for capturing any wider benefits. The morning workshop included a presentation with questions and feedback throughout from Port Authority staff as the merits of different arguments and methods were discussed in the context of specific capital projects.

One of the overarching findings of the study is that there is no single, recommended approach for incorporating wider benefits, as the appropriate methods will depend on the availability of data and regionally calibrated models, and the nature of the project in question and its likely impact on the transportation network and broader regional economy. Wider benefits are highly context-dependent, and may vary substantially across project in terms of their sign (i.e. there may be wider economic costs) as well as magnitude. Private consultants often apply adjustment factors to estimate wider benefits and tout the multiplier effects of transportation investments, but when the context in which these parameters are applied differs markedly from the conditions under which they were estimated, this can lead to biased estimates of project benefits.

A second overarching conclusion of the study is that wider economic benefits are likely only significant for larger projects that significantly impact business and household decisions at the margin. Adding capacity to a highway that is otherwise expected to remain under-capacity into the future, for example, cannot be reasonably expected to alter the distribution of traffic on the regional transportation network nor trigger major economic impacts. So while there may be clear risks associated with omitting wider economic benefits from BCA, to incorporate them requires an assessment of the expected impacts of specific projects on both the transportation network and regional economy; this is a resource-intensive exercise that is likely only warranted for larger projects with impacts that extend beyond the facility in question. Moreover, to avoid the double-counting of benefits in non-transportation markets with transportation benefits requires a careful treatment of induced travel and household and business travel decisions at the margin.

The study and accompanying workshop also reviewed specific arguments for wider benefits, including agglomeration economies, logistical reorganization, and labor and property market impacts, among others. One of the recurring themes of the study is that induced travel is the key link between the transportation market and the broader economy, and there are prospects for omitted benefits because of the limitations of conventional travel demand models in considering induced travel.

The final recommendations stressed the importance of data collection at a spatially disaggregated level, improving the treatment of induced travel in conventional analysis—possibly by using travel elasticities—and considering a battery of separate models focusing on non-transportation markets to compliment conventional BCA focusing on the transportation market.



Cycling and Walking for All New Yorkers

Professor John Pucher Gives Keynote Address

Dr. John Pucher, Professor at the Bloustein School of Planning & Public Policy, Rutgers University delivered the keynote address at the June 8th "[Fit City 4 Promoting Physical Activity Through Design](#)". Professor Pucher's address, "[Cycling and Walking for All New Yorkers: Path to Improved Public Health](#)" was presented to public officials, health professionals, architects and designers. Fit City is a group which explores how buildings and urban design can increase physical activity and improve public health. The meeting was organized by the New York chapter of the American Institute of Architects and the NYC Department of Health. Other publications and presentations developed through Professor Pucher's UTRC sponsored research, "Bicycling Trends and Policies in Large American Cities: Lessons for New York," can be found below.

"Bike-Transit Integration in North America," *Journal of Public Transportation*, 2009, forthcoming (with Ralph Buehler).

"[Sustainable Transport that Works: Lessons from Germany](#)," *World Transport Policy and Practice*, Vol. 15, No. 1, May 2009, pp. 13-46 (with Ralph Buehler).

"[Cycling for a Few or for Everyone: The Importance of Social Justice in Cycling Policy](#)," *World Transport Policy and Practice*, Vol. 15, No. 1, May 2009, pp. 57-64 (with Ralph Buehler).

2009 Spring Visiting Scholars Seminar

May 1st, 2009: Prof. Randall Crane, Director of the Institute of Transportation Studies at UCLA

On May 1st Prof. Randall Crane, Director of the Institute of Transportation Studies at the UCLA School of Public Affairs presented "Sex Changes Everything: On the Demographic Determinants of the U.S. Commute, 1985-2007." The average U.S. male historically commutes further and longer than his female counterpart. Yet pivotal changes at home, as younger women especially increase their influence on household location and work decisions, and in the labor market, and as women's participation rates and profiles approach men's, both strongly suggest that gender's influence on travel might be changing as well. Further, the independent and interactive influence of other demographic factors, not least age and race, remain unclear. However, gendered elements of travel demand are indeed evolving, if not always in predictable directions.



June 12th, 2009: Prof. Daniel Sperling, *Director of the Institute of Transportation Studies at the University of California, Davis*

On June 12th, 2009: Prof. Daniel Sperling, Director of the Institute of Transportation Studies at the University of California, Davis, presented "Two Billion Cars and the Transformation of Transportation." The world is headed toward two billion vehicles. Is this sustainable? Not without transforming vehicles, fuels, and transportation—not only in the U.S., but virtually everywhere. Professor Sperling examined the roots of the problem: the resistant auto industry, dysfunctional oil markets, shortsighted government policies, and unmotivated consumers. He focused on the role of innovation and policy in bringing about low carbon fuels, electric-drive vehicles, socially-responsible behavior, enhanced mobility services, and low-carbon cities.



Videos of both of these presentations are available from UTRC upon request.

Reindustrialization Workshop

UTRC Hosts Reindustrialization Workshop

On June 17th, UTRC hosted the Workshop on Mass Transit Reindustrialization. This meeting, spearheaded by Jonathan Feldman, Michael Locker, Robert Paaswell and Jon Rynn, brought together some 20 experts from around the country, the region and overseas. Participants spent the day debating the potential for and impediments to subway car manufacturing in and for America. Issues explored included demand, supply, policy and finance. The group then worked to develop a detailed agenda for a larger meeting that will include labor unions, companies, transit suppliers, innovation groups, financiers, government officials, political leaders, academic and policy experts and environmental groups. Overall, the group is interested in several outcomes including: the design and passage of federal legislation supporting demand and supply side components of a mass transit reindustrialization policy; the creation of new policies whereby mass transit agencies facilitate domestic-based innovation and production of mass transit goods; and to constitute a network among diverse and regionally dispersed constituency groups to promote education and action in support of domestically-rooted innovation and production in mass transit. More information regarding the Fall meeting designed to advance these goals will be posted on UTRC's website as it becomes available.



NYU's Rudin Center and UTRC to Co-host New Seminar Series

Recognizing the significance of public outreach as one of the most effective ways to increase dialogue on the transportation community and thus contribute to the overall development of the field; UTRC and the [NYU Wagner Rudin Center for Transportation Policy and Management](#) have joined efforts to develop, host and sponsor two different series of public events: the Urban Transportation and Planning Doctoral Series and From Policy to Practice: Debating Tomorrow's Critical Concerns with Today's Policy Makers.

The goal of the *Urban Transportation and Planning Doctoral Series* is to provide an informal setting

in which some of the region's leading young scholars, as nominated by their faculty advisors, will have an opportunity to present their current dissertation research on cutting-edge transportation planning matters and engage other doctoral and masters students, as well as faculty and alumni, in a meaningful discussion.

The policy makers' breakfasts, ***From Policy to Practice: Debating Tomorrow's Critical Concerns with Today's Policy Makers*** are conversations from two different perspectives on a single, current transportation issue. In this series, speakers will discuss current pressing transportation topics with a moderator aiming to bridge theory with transportation practice.

Both of these public outreach transportation series will highlight the practical use of transportation for answering real world questions as well as provide an important venue for an intellectual community of researchers working in related fields. The series will take place at New York University's Robert F. Wagner School of Public Services, approximately once per month during the academic year 2009-10. Check UTRC's website for upcoming topics and dates.

Dr. Kamga Elected to ITS - NY Board of Directors

The University Transportation Research Center would like to congratulate our Associate Director of Administration and IT, Camille Kamga, for his election to the board of directors of the Intelligent Transportation Society of New York (ITS-NY). This position will be for a three year term commencing July 1, 2009. Camille has been affiliated with ITS-New York for over 10 years, volunteering his services to foster the work of the organization including education and outreach of ITS applications and technology, sponsorship of forums, professional networking and conferences, and participation in national ITS events.

At UTRC, Camille is invaluable, overseeing administration and budgeting of a 12-university consortium and about 50 active research projects. Dr. Kamga received his PhD in ITS from the City College of New York. He is also the 2006 recipient of the National Pikarsky Award for Outstanding Dissertation in Science and Technology from the Council of University Transportation Center for his thesis, "Estimation of Network Based Incident Delay in a Transportation Network Using Dynamic Traffic Assignment."

Please join us in wishing Camille all the best in his new role.



Dr. Geddes Awarded Fulbright

Professor Rick Geddes Awarded 2009 Fulbright Postgraduate Scholar

Rick Geddes, Associate Professor and Director of Undergraduate Studies in the Department of Policy Analysis and Management at Cornell University, has won a Fulbright Senior Scholarship from the Australian-American Fulbright Commission. Rick will be conducting economic research for six months at the Australian National University. His research will focus on the economics of contracting and, more specifically, two key contract award mechanisms, negotiation versus auction. "The negotiation-versus-auction question is critical in contemporary public procurement – the sheer size of public procurement suggests its importance for public policy", said Rick. Rick will examine an area where Australia is a world leader, the public private partnership and how they provide a vehicle for private investors to channel capital into critical transportation facilities, including highways, bridges, tunnels, light-rail systems, ports and inter-modal connectors.

UTRC Research Project Gains National Recognition

UTRC's joint research project with NYC DOT gained national recognition as it was selected for the June 2009 UTC Spotlight. The project, led by Matthew Roe Spatial Analysis for Pedestrian Safety in New York City, analyzed and mapped "hot spots." The GIS-driven investigation of the geography of senior pedestrian safety and the causes of pedestrian-vehicular crashes in New York City resulted in new and improved designs implemented for certain pilot intersections. The work involved closely related tasks of pedestrian safety, traffic calming, and urban design.

Research Grants News

UTRC Administers NYSDOT Research Projects

Recent NYS DOT projects awarded to UTRC faculty include the following:

Climate Change Adaptation Strategies (David C. Major, Columbia University)

Effects of Overweight Vehicles on NYSDOT's Infrastructure (Michel Ghosn, Neville Parker and Kolluru Subramanian, The City College of New York / CUNY)

Field Methods for Determining Lead Content in Bridge Paint Removal Waste (Lisa Axe, New Jersey Institute of Technology)

Using Lighting to Alter Driver Behavior (John D. Bullough, RPI)

Determining Binder Flushing Causes in NYS (Thomas Bennert, Rutgers University)

NJDOT Distributes Final Reports

NJ DOT through its NJ university partners completed a number of research projects in the first half of 2009. Final reports which were distributed include the following:

- Salt Runoff Collection System
- Self Consolidating Concrete
- Stability and Accuracy of HCM Level of Service
- Manual of Guidelines for Inspection of ITS Equipment and Facilities
- Inorganic Protective Coatings and Fiber Reinforced Polymers Demonstration Project
- Laboratory Information Management System
- Alternative Performance Measures for Evaluation of Congestion – Congestion Analysis Model Update
- Evaluation of Poisson's Ratio for Use in the Mechanistic Empirical Pavement Design Guide
- Analysis of Fatal Accidents in New Jersey

RPI Lighting Center Conducts Several Transportation Projects and Presentations

Lighting and Vegetation for Energy-Efficient and Safe Roadway Travel

The Lighting Research Center (www.lrc.rpi.edu) at Rensselaer Polytechnic Institute completed a project for the New York State Department of Transportation and the New York State Energy Research and Development Authority. The objective was to identify and evaluate promising approaches to incorporating lighting and vegetation along roadways with the purpose of determining the most promising application that could be incorporated into a demonstration project. Based on the results of the analyses, the project

team recommended implementing a demonstration project to integrate lighting and vegetation approaches to providing visual information at roundabouts. The project report includes a work plan and schedule for conducting such a demonstration project, and is available at:

www.nysdot.gov/divisions/engineering/technical-services/trans-r-and-d-repository/LightingVegetation-C-08-03-10628.pdf.

Design and Evaluation of Effective Crosswalk Illumination

Through the Region II University Transportation Research Center, the Lighting Research Center (www.lrc.rpi.edu) at Rensselaer Polytechnic Institute completed a project for the New Jersey Department of Transportation to systematically evaluate different approaches to lighting at pedestrian crosswalks for improving pedestrian visibility and detection. The project team conducted a series of photometrically accurate lighting simulations in order to assess the visual conditions resulting from different lighting configurations, and assessed the economics (initial cost, and electricity and maintenance costs) of each system evaluated. The most promising lighting configuration was field tested during a demonstration at an intersection in New Jersey. The project report is available at:

www.state.nj.us/transportation/refdata/research/reports/FHWA-NJ-2009-003.pdf.

Unified System of Photometry for Remote Airfield Lighting

A consortium of American universities (Embry-Riddle Aeronautical University, University of North Dakota – Aerospace, University of Alaska, and Rensselaer Polytechnic Institute) was sponsored by the Federal Aviation Administration to develop technical specifications for remote airfield lighting systems that will be used for nighttime operations by general (noncommercial) aircraft. As part of this project, Rensselaer's Lighting Research Center (www.lrc.rpi.edu) conducted three psychophysical experiments dealing specifically with the effects of light source intensity, color and flash frequency on both objective and subjective measures of behavior under simulated flight conditions. Of special significance, this study showed for the first time that the unified system of photometry developed by the Lighting Research Center to model the relative contributions of rods and cones for a given visual task could also be used to model the relative contributions of rods and cones for sequential visual tasks. The Lighting Research Center's proposed unified system of photometry was designed to characterize light at any level including mesopic levels, bridging the photopic and scotopic luminous efficacy functions. The full details of the psychophysical experiments can be read in the paper, "Unified System of Photometry Applied to Remote Airfield Lighting," by MS Rea PhD, Z Yuan MS and A Bierman MS LC, recently published in *Lighting Research & Technology* 2009; 41: 50-70.

Lighting Presentations at SAE World Congress

Rensselaer Polytechnic Institute's Lighting Research Center (www.lrc.rpi.edu) presented three papers at the recent [Society of Automotive Engineers \(SAE\) 2009 World Congress](http://www.sae.org/technical/papers/2009-01-0544) in Detroit, Michigan, each detailing research results on projects examining vehicle headlamp performance and visibility. Summaries of each project follow and information for obtaining the papers can be found on the SAE website with links listed below.

Effect of Dynamic Lighting Conditions on Visual Detection:

www.sae.org/technical/papers/2009-01-0544

Influence of Foreground Illumination from Headlamps on Visibility and Preference:

www.sae.org/technical/papers/2009-01-0336

Visual Recovery and Discomfort Following Exposure to Oncoming Headlamps:

www.sae.org/technical/papers/2009-01-0546

Region 2 University Transportation Research Center

(Serving New Jersey, New York, Puerto Rico, and U.S. Virgin Islands)

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