

RESEARCH NEWS

SUMMER 2012

REGION II—UNIVERSITY TRANSPORTATION RESEARCH CENTER



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WEBSITE: WWW.UTRC2.ORG

SEPTEMBER 11TH 2011-12 INTERNS PRESENT AT THE NYMTC BROWN BAG PROGRAM

On September 19, 2012, the three NYMTC/UTRC September 11th Memorial Program Academic Initiative participants from this past year discussed their research in final presentations at a NYMTC Brown Bag lunch program. The three speakers were former UTRC students Cyrus Naheedy, Shuai Ren, and Maxwell Sokol.

CYRUS NAHEEDY interned at the Port Authority of New York and New Jersey in the Office of Planning and Regional Development. Under the supervision of Nichola Angel, Sr. Transportation Planner/Modeler, his work assisted the LaGuardia Airport Access Alternatives Analysis that was co-sponsored by several transportation agencies in the Region. Cyrus's research contributed to the modeling effort for ground access and mode choice to help gain a clearer picture of ridership analysis and travel times. His work also included expansion and development of the consultant's modeling data of LaGuardia Airport to apply the analysis to the other Port Authority Airports - Newark Liberty, John F. Kennedy, and Stewart.

Cyrus graduated in May 2012 from Polytechnic Institute of New York University with a master's of science degree in transportation planning and engineering and recently started working at Sam Schwartz Engineering as a transportation engineer.

SHUAI REN presented the results of her research with the New York City Department of Transportation's Traffic and Planning Division on a pilot curbside space program known as the Pop-up Café project. Shuai's NYCDOT supervisor was Ed Janoff, Public Spaces Operations Manager. Her Pop-up Café work led to an evaluation report, which will ultimately be distributed by NYCDOT staff to community boards for further reference regarding a permanent program to be launched in the spring of 2013.

Shuai is currently employed by the World Bank's Beijing office as a consultant in the Urban Transport Group and will focus on introducing global best practices of non-motorized transport and transit oriented development to Chinese cities. She graduated from NYU's Wagner School of Public Service in May 2012 with a master's of urban planning degree.

MAXWELL SOKOL presented his research, which was undertaken at NYMTC's office under the direction of Jan Khan, Manager, Regional Planning. Max's work focused on developing a guidebook for NYMTC that provides step-by-step instructions for conducting the infrastructure needs assessment of



the Regional Transportation Plan (RTP). This process involved collaboration with the NYMTC members. The primary objectives of the project were to enhance the NYMTC data collection process for and to assist with the development of the financial analysis for the 2015-2040 RTP. His presentation highlighted his efforts, which included the development of an inventory of transportation system components under the member agencies' jurisdiction; discussion of member agencies' methodologies for forecasting the needs for transit, pavement, bridges, and non-motorized transportation infrastructure; and the collection of cost estimates and documentation of assumptions from member agencies for the needs forecast of the 2015-2040 RTP.

Max graduated with a master's of science in urban planning degree in May 2012 from the Graduate School of Architecture, Planning and Preservation at Columbia University. He is now working at Parsons Brinckerhoff (PB) as a planner in their New York City office.

To review the final presentations, please visit the website at: <http://www.utrc2.org/education/september-11th-memorial-program>.

2012 AITE SCHOLARSHIP RECIPIENTS

UTRC proudly announces the 2012 recipients of its distinguished scholarship program series. Advanced Institute of Transportation Education (AITE)'s purpose is to increase the knowledge and capabilities of transportation professional through education in transportation and related fields. A major part of the AITE program is providing scholarships to young people, both those that are just starting their careers and those who are already working in the transportation field who want to increase their knowledge and skills. The Graduate Scholarship Program is a major part of the AITE Program. The 2012 Scholarship Awardees are:

Recipients from Universities		
Recipients	School	Academic Adviser
Jacqueline Burton	New York University	Dr. Zhan Guo
Sean Michael Coffey	Rowan University	Dr. Yusuf Mehta
Jonathan Daniel Egelton	Rutgers University	Dr. Hani Nassif
Scott Fishberg	Rutgers University	Dr. Michael Lahr
Joshua Mark Herman	Polytechnic Institute of NYU	Dr. Elena Prassas
Heather Anne Martin	Rutgers University	Dr. Robert Noland
Samuel L. Piper	University at Albany	Dr. Catherine Lawson
Thai Minh Truong	University at Buffalo	Dr. Qian Wang
Nathan Jeffrey Wojcik	University at Albany	Dr. Catherine Lawson
Recipients from Agencies		
Ellen Caesar-Quaye	Poly	Dr. Elena Prassas/NYS DOT
Ratan Md. Huda	Buffalo	Dr. George Lee/NYS DOT
Dawn Stewart-Riles	Poly	Dr. Elena Prassas/NYCT

NYMTC/UTRC SEPTEMBER 11TH MEMORIAL PROGRAM CONTINUES

Four students have recently been selected to be 2012-13 participants in the NYMTC/UTRC September 11th Memorial Program Academic Initiative, a program which began in 2005 to honor three NYMTC staff members who died in the attack on the World Trade Center on September 11, 2001: Ignatious Adanga, Charles Lesperance and See Wong Shum. These students include Adam Davidson from the College of Staten Island (CSI), Stanislav Parfenov of Polytechnic Institute of New York University (Polytechnic/NYU), Jeremy Safran of NYU, and Simin You of the Graduate Center, City University of New York (CUNY).

ADAM DAVIDSON, a Ph.D. candidate

at CSI in Earth and Environmental Sciences, will perform his internship at the New York Metropolitan Transportation Council under the direction of NYMTC Sustainability Manager Larry McAuliffe. Adam's topic will be Greenhouse Gas (GHG) Emission Reduction Implementation Planning, which will involve development of selected regional transportation strategies for reducing GHG emissions, including evaluation of potential strategies for implementation by NYMTC member agencies and development of white papers that discuss the relative merits of the strategies, including amount of potential reduction, practical steps to implement the strategy, the cost of the strategy, and inclusion of case study information.

STANISLAV PARFENOV, a master's of science candidate in civil engineering at Polytechnic/

NYU, will work in the New York City Department of Transportation (NYCDOT) Division of Traffic and Planning. His NYCDOT supervisor is Mike Marsico. The work will focus on effects of street closures on New York City's street network through the development of dynamic and static simulation models, which will be based on datasets of newly created NYCDOT's Traffic Information Management System supplemented by taxi GPS data from the NYC Traffic and Limousine Commission.

JEREMY SAFRAN, a master's of urban planning candidate at NYU will also intern at NYCDOT with the Transit Development Group within the Division of Traffic and Planning. His internship will assess bus lanes in New York City, including the assembly of data on a wide variety of bus lane features such as signage, design, color, regulation,

and enforcement and on bus performance. The research will result in a best practices document that describes and interprets the findings. The goal of this effort is to assist DOT in implementing bus lane infrastructure that maximizes performance for both Select Bus Service and regular transit buses. Jeremy's supervisor at NYCDOT is Eric Beaton.

SIMIN YOU, a Ph.D candidate in computer science at the Graduate Center, CUNY will be interning with the NYCDOT Office of Research, Implementation, and Safety under the direction of Matthew Roe. Simin's internship will focus on developing data management and analysis tools and consists of two major components: improving the existing Safety Data Viewer, and providing other management and analysis tools for transportation research and planning needs. Simin will also work closely with transportation professionals and get in touch with real world transportation data management and analysis problems. By applying state-of-the-art GIS and database management techniques, the research should result in efficient solutions to transportation problems, helping support the core missions of NYCDOT.

NEW STAFF AT UTRC



Tierra Fisher
Office Assistant

Tierra Fisher has joined UTRC as an Office Assistant. She is no stranger to this position however, as for 4 years she worked as an Office Assistant at Virginia Union University while a student there.

A native of Brooklyn, New York, Tierra graduated cum laude from that University in 2007 with a degree in Speech and Drama and hopes to obtain her Master's Degree in Speech-Language Pathology one day. Nevertheless, Tierra thoroughly enjoys working for the University Transportation Research Center and its staff and hopes to have a wonderfully bright future here.



Sabiheh Faghih
Ph.D. Candidate, CCNY

Ms. Sabiheh Faghih has received her M.S. in Transportation Engineering on January 2012 from Sharif University of Technology, and has been admitted to our Ph.D. program through an extremely competitive selection process. Ms. Faghih's record in transportation modeling and analysis has been outstanding. Advanced and cutting-edge research in these areas is urgently needed to advance our knowledge on modeling traffic, network analysis, and travel behavior to better manage our transportation systems. At CCNY, Ms. Faghih will be working on the development of advanced traffic model and simulation for the NY Metropolitan Region. She has strong academic background and has excellent abilities to carry out this research. This research will be supported through grants from the USDOT, NYSDOT, and NYMTC.



Dan Wan
Ph.D. Candidate, CCNY

Dan Wan is a PhD candidate in the Civil Engineering Department at the City College of New York. She received her M.S. and B.S. in Transportation Engineering from Huazhong University of Science and Technology (HUST) in March, 2012 and July, 2009 respectively. Her undergraduate and postgraduate studies have prepared her with knowledge in Traffic Impact Analysis, Transportation Planning, Intelligent Transportation Systems and Urban Study.

Dan Wan participated in several transportation projects which greatly improved the traffic efficiency and safety of those involved cities of China. Her intended research areas in UTRC would be related to public transportation and traffic system.

DR. ALISON CONWAY

*ASSISTANT PROFESSOR OF CIVIL ENGINEERING, CCNY
ASSOCIATE DIRECTOR FOR NEW INITIATIVES, UTRC*



Alison Conway is an Assistant Professor of Civil Engineering at the City College of New York and the Associate Director for New Initiatives at UTRC. Previous to this position, she was a graduate research assistant at the University of Texas at Austin. At CCNY, Dr. Conway teaches courses in transportation engineering and planning, and her primary areas of research focus include commercial freight policy and logistics, sustainable freight transportation, and multi-modal interactions in an urban environment. Currently, her work is supported by the US Department of Transportation (through UTRC and the Center for Transportation and Livable Systems at the University of Connecticut), and by the New York State Energy Research Development Authority (NYSERDA) and New York State Department of Transportation (NYSDOT). Dr. Conway also works with the Material Exchange Development Program (MEDP) of the NYC Department of Sanitation's Bureau of Waste Prevention, Reuse and Recycling (BWPRR) to address transportation and logistics challenges in New York City's Material Reuse Sector. MEDP is housed in the Civil Engineering Department at City College and directed by Professor Vasil Diyamandoglu.

In addition to teaching and research, Dr. Conway serves as the CCNY Campus Program Manager for the Dwight D. Eisenhower Transportation Fellowship Program. Over the last two years, the program, which is administered by the Federal Highway Administration, has supported seven CCNY undergraduate students to work on research projects and attend the TRB Annual meeting, providing a total of \$41,000 in support. In 2011, she was appointed as the Freight Systems Group Representative to the TRB Young Members Council, and she currently chairs the Freight and Marine Young Members Council subcommittee. Additionally, Dr. Conway serves as the Secretary of TRB's Freight Data Committee and the Technical Reviews Chair for TRB's Truck Size and Weight Committee, and she is a member of the Women's Transportation Seminar (WTS), the American Society of Civil Engineers (ASCE), and the Institute of Transportation Engineers (ITE).

INTELLIGENT TRANSPORT SYSTEMS (ITS) IN HONG KONG: RECENT DEVELOPMENT AND FUTURE APPLICATIONS

AUGUST 6, 2012, NEW YORK UNIVERSITY

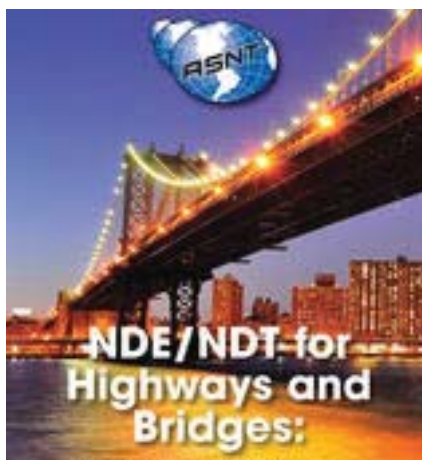
Dr. William Lam, a Chair Professor of Civil and Transportation Engineering and Associate Head of the Department of Civil and Structural Engineering at the Hong Kong Polytechnic University, delivered a presentation on the Hong Kong ITS Systems at the NYU on August 6th, 2012. Dr. Lam pointed out that various data collection methods and advanced techniques have been developed in the past decade for estimation of real-time traffic information in freeway and/or expressway corridors. New systems have recently been developed for estimation of real-time travel times on major roads in congested urban areas of Hong Kong. The seminar has give an overview of recent development of intelligent transport systems (ITS) in Hong Kong together with future potential applications. It covered various ITS development in Hong Kong including their applications and validation results. Future research on this important topic was also be discussed together with the related research works that have recently been carried out in the Hong Kong Polytechnic University.



To access Dr. Lam's presentation, please visit our website at: <http://www.utrc2.org/events/intelligent-transport-systems-HK>

SMT 2012 CONFERENCE: NDT/NDE FOR HIGHWAYS AND BRIDGES: STRUCTURAL MATERIALS TECHNOLOGY (SMT)

OCTOBER 18, 2012, MERCER CONFERENCE CENTER, NEW JERSEY



UTRC and NYSDOT, among others, co-sponsored "SMT 2012 Conference: NDT/NDE for Highways and Bridges: Structural Materials Technology" and invite abstracts for presentation at the conference. This conference was held in the New York LaGuardia Airport Marriott near New York City, NY on August 21-24, 2012. The goal of this conference was to promote the exchange of information between national and international researchers, practitioners and infrastructure owners on the application of Nondestructive Evaluation (NDE) and Nondestructive Testing (NDT) technologies for the condition assessment of highway infrastructure. Contributions focused on field applications, case studies, technology implementation, applied research, and practical experience are invited. Through technical presentations and exhibits, infrastructure owners, transportation officials, researchers, consultants, and contractors was exposed to the state-of-the-practice in nondestructive evaluation (NDE) methods. In addition, participants had the opportunities to discuss urgent problems faced by civil infrastructure owners and the potential solutions utilizing available emerging NDE technologies.

If you need further information, please contact Dr. Sreenivas Alampalli at salampalli@dot.state.ny.us.

HELP PLAN THE REGION'S TRANSPORTATION FUTURE!

JOIN NYMTC AT UPCOMING OPEN HOUSES - SEP 12- OCT 17, 2012

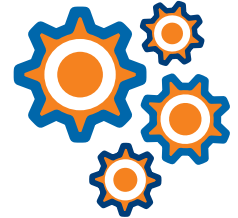
UTRC and the NYC Department of City Planning are co-ordinating with NYMTC staff to hold the open-houses to continue the public involvement process for the development of the 2040 Regional Transportation Plan (RTP). These open-houses will be held in each of the counties and boroughs in the NYMTC region. The information gathered at these open-houses will be used in conjunction with feedback received from the other outreach efforts to help shape the 2040 RTP. The public is invited and encouraged to attend and participate in the open-houses.

In addition, UTRC has also initiated a web-based outreach for NYMTC for optimal public outreach through the Regional Planning website and a virtual townhall meeting website "MindMixer" which allows people to input their ideas on the transportation issues within NYMTC region. The user friendly website allows people to share an already submitted idea on different social media platforms.

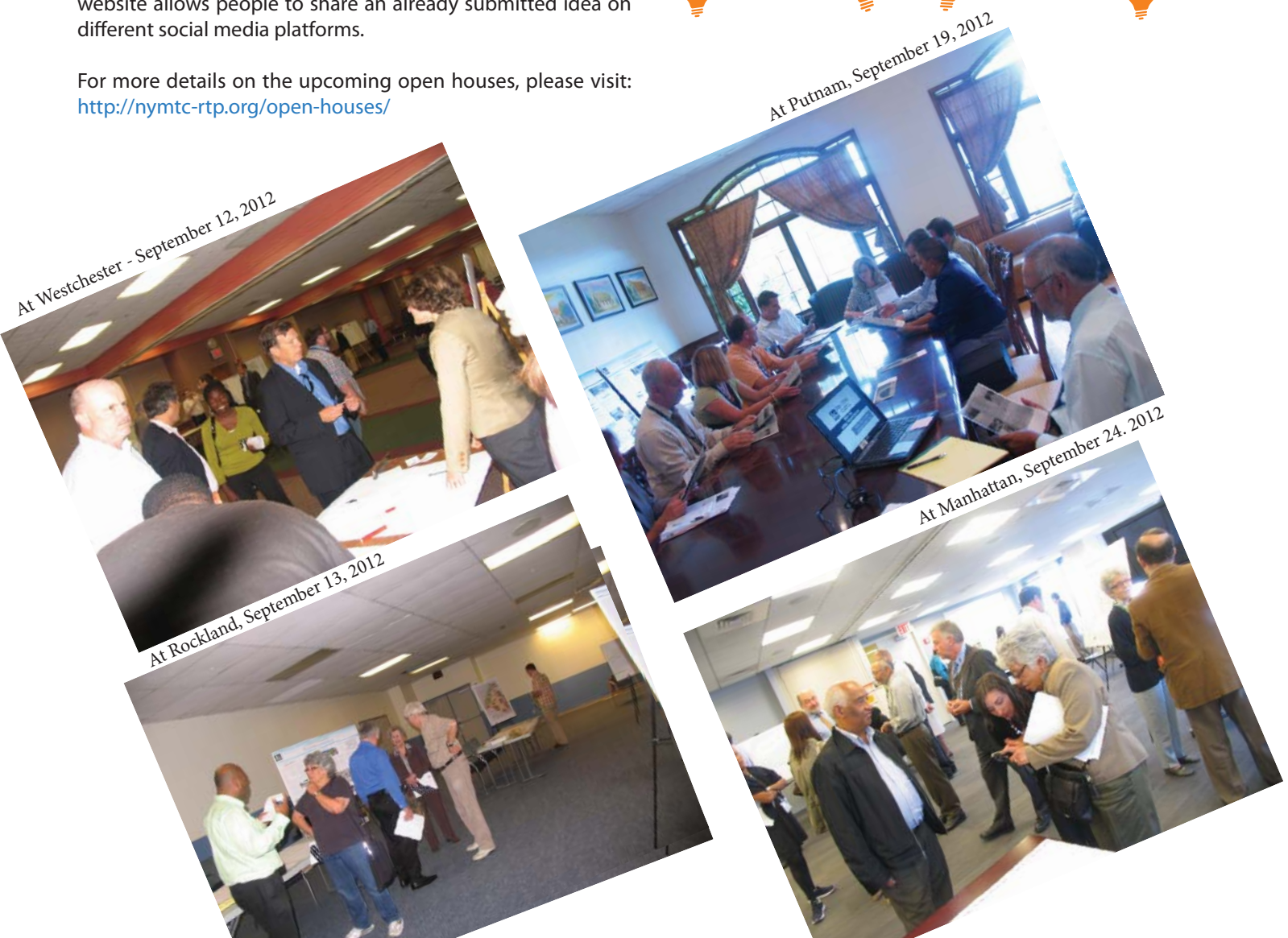
For more details on the upcoming open houses, please visit:
<http://nymtc-rtp.org/open-houses/>

SHARE YOUR IDEAS FOR NYMTC 2040 RTP

Visit our online forum to share your ideas that will help improve transportation.



★★ ideas.NYMTC-RTP.org ★★



2040 REGIONAL TRANSPORTATION PLAN OPEN-HOUSES ANNOUNCED

SEP 12 - OCT 17, 2012, NYMTC REGION

Help Plan the Region's Transportation Future!

Join us at upcoming Open Houses

Share your ideas and comments on the 2040 Regional Transportation Plan. The Plan will be the 20-year blueprint for multi-modal transportation strategies and investments in the NYMTC region, which includes the five boroughs of New York City, the lower Hudson Valley counties of Putnam, Rockland and Westchester, and Sussex and Sullivan counties in New Jersey.

You can also share your comments, ideas and suggestions on our interactive website <http://www.nymtc.org> and learn more about the Plan at www.nymtc.org.

NYMTC will be holding open-houses to continue the public involvement process for the development of the 2040 Regional Transportation Plan (RTP). These open-houses will be held in each of the counties and boroughs in the NYMTC region. The information gathered at these open-houses will be used in conjunction with feedback received from

the other outreach efforts to help shape the 2040 RTP.

The public is invited and encouraged to attend and participate in the open-houses.

NY-NJ-CT METROPOLITAN AREA PLANNING FORUM

OCTOBER 4, 2012 - 10AM - 1PM. NYMTC, NY

NYMTC and the adjacent MPOs in New Jersey and Connecticut will hold a public Metropolitan Area Planning Forum to advance the coordination of regional planning in accordance with the provisions of the Planning Coordination Memorandum of Understanding adopted in 2008 by NYMTC, the North Jersey Transportation Planning Authority, South Western Region Planning Organization, Housatonic Valley Council of Elected Officials and Greater Bridgeport/Valley Metropolitan Planning Organization.

The meeting will include presentations on Regional Coordination of Planning for Sustainable Development; Port Authority of New York & New Jersey Goods Movement Plan; and Inter-Regional Rail Planning, and may be attended in person or as a webinar. The agenda and webinar registration are available on www.NYMTC.org in the Calendar of Events.

To RSVP call 212.383.7200 or email Lisa Daglian at lisa.daglian@dot.ny.gov.

THE 14TH ANNUAL NJDOT RESEARCH SHOWCASE

OCTOBER 18, 2012, MERCER CONFERENCE CENTER, NEW JERSEY

The 14th Annual NJDOT Research Showcase will be held on October 18th, 2012 at the Conference Center at Mercer. The NJDOT showcase is an opportunity for NJDOT customers to experience the broad scope of ongoing research initiatives, technology transfer activities, and academic research being conducted by university research partners and their associates.

Research is highlighted in presentations, poster sessions, and displays. Continental breakfast and lunch are included in the program.

[To Register](#) for the 14th Annual NJDOT Research Showcase.

LIVABLE CITIES OF THE FUTURE A SYMPOSIUM HONORING THE LEGACY OF GEORGE BUGLIARELLO

OCTOBER 26, 2012, POLYTECHNIC INSTITUTE, NY

UTRC co-sponsors the Livable Cities of the Future/A SYMPOSIUM HONORING THE LEGACY OF GEORGE BUGLIARELLO, on Friday, October 26, 2012, from 8 a.m. to 5 p.m. at Polytechnic Institute of New York University, Pfizer Auditorium, 5 at MetroTech Center, Brooklyn, New York 11201.

Registration is free.

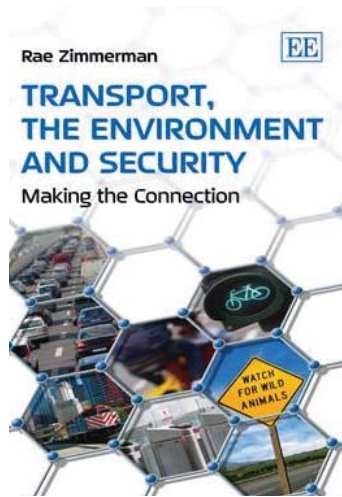
The Symposium will feature thought leaders in a vital conversation to address the fundamental needs and emerging challenges in large cities, including water, energy, transportation, sustainability, information technology and the environment. Robert Steel, New York City Deputy Mayor for Economic Development, will open the Symposium sessions at which participants will hear from a remarkable list of speakers.

Please join in this global metropolitan forum for open discussion at which the experiences of private and public service operators, infrastructure agencies, elected officials, the academic community and other stakeholders in the critical urban sectors will be shared.

To register or obtain more information, visit www.poly.edu/bugliarellosymposium.

BOOK TALK - TRANSPORT, THE ENVIRONMENT AND SECURITY - MAKING THE CONNECTION

OCTOBER 29, 2012, NEW YORK UNIVERSITY



University Transportation Research Center will host a Book Talk with Dr. Zimmerman for her new book on “transport, the Environment and Security – Making the Connection”

Rae Zimmerman is a Professor of Planning and Public Administration, Director of the Urban Planning Program and the Director of the Institute for Civil Infrastructure Systems (ICIS) at NYU-Wagner. In her presentation, she will provide a brief synopsis of the book.

The book is aimed at academics, students, and practitioners across a wide range of fields including: transport planning and policy, environmental economics, environmental management, urban planning, public policy, and terrorism and security. Case studies of severe and potential impacts of natural hazards, accidents, and security breaches on transportation are presented. These cases support the analyses of the forces on transportation, land use and patterns of population change that connect, disconnect and reconnect people from their environment and security.

To register for this book talk, please visit the UTRC website at: <http://www.utrc2.org/events/book-talk/transport-environment-and-security>

Please Look for
More Events at
www.utrc2.org

2012 UTC SPOTLIGHT CONFERENCE ON SUSTAINABLE ENERGY AND TRANSPORTATION: STRATEGIES, RESEARCH, AND DATA

NOVEMBER 8-9, 2012, WASHINGTON, DC

The Topic of the 7th Annual 2012 UTC Spotlight Conference will be Sustainable Energy & Transportation. This topic speaks to one of the leading challenges facing the nation, and also addresses one of USDOT’s strategic goals, with a particular emphasis on improved energy efficiency, reduced dependence on fossil fuels, and identification of effective strategies to promote these goals. As the U.S. moves toward a performance-based transportation bill, energy-focused environmental sustainability is expected to become one of the pillars against which success is measured if it is to become a national priority. The conference will bring together representatives of federal, state and local agencies, and universities in transportation. The purpose of the conference is to promote synergies among these diverse groups in order to understand and address the unique issues involved with sustainable energy in the transportation sector, to spotlight recently completed and ongoing research in this area by University Transportation Centers and others, and to identify existing knowledge gaps in current research and related activities.

For registration information, please visit the [conference website](#).

2012 INTERNATIONAL ASSOCIATION OF TRANSPORTATION REGULATORS (IATR) CONFERENCE

NOVEMBER 14-17, 2012, WASHINGTON, DC

The 2012 IATR Conference will be held November 14-17, 2012 at Four Seasons Hotel, Washington, DC. The three days conference will capture government, industry and regulator’s perspective on various transportation issues. The focus areas on each day are:

Day 1 – “Day on the Hill” and Concurrent Workshops
Day 2 - The Future of Ground Transportation and Technology
Day 3 - Regulatory Reforms: Research, Safety and the Customer Experience

For more details, please visit the [conference website](#).

NEW FUNDING PROGRAMS

NEWLY FUNDED PROJECTS AT UTRC

The following table provides a list of the most recent projects awarded by UTRC. The details of these projects will be available on our website soon.

Faculty Initiated/Outside the Box/Cooperative Awards		
Project Title	Principal Investigator	Institution
Robotic Inspection of Bridges Using Impact-Echo Technology	Jizhong Xiao	CCNY
Planning level assessment of greenhouse gas emissions for alternative transportation construction projects	Robert Noland	Rutgers
Empowering Individuals to Make Environmentally Sustainable and Healthy Transportation Choices in Mega-Cities through a Smartphone App	Ywan Zheng	
On-Road Energy Harvesting for Traffic Monitoring	Lei Zuo	Stony Brook
Determine Viscoelastic Mechanical Properties of Warm Mix Asphalt (WMA)-Reclaimed Asphalt Pavement (RAP) Mixes under High Stresses in Airfield Flexible Pavements and Its Impact on Design Life.	Yusuf Mehta	Rowan
The Role of Social Media in Improving the Safety and Efficiency of Traffic Operations during Non-Routine Events such as Incidents and Planned Special Events	Al Wallace	RPI
Data collection and econometric analysis of the demand for nonmotorized transportation	Ricardo Alvarez Daziano	Cornell
Energy Savings from Transit Passes: An Evaluation of the University at Buffalo NFTA Transit Pass Program for Students, Faculty, and Staff	Daniel Hess	UB
Leveraging Brightness from Transportation Lighting Systems through Light Source Color: Implications for Energy Use and Safety for Traffic and Pedestrians	John Bullough	RPI
Analysis of Environmental, Economic, and Infrastructure Impacts of Transportation Activities Associated with High Volume Horizontal Fracturing Operations in the Marcellus Shale Formation Using the Geospatial Intermodal Freight Transport (GIFT) Model	Karl Korfmacher	RIT
A GIS-based Performance Measurement System for Assessing Transportation Sustainability and Community Livability	Qian Wang	UB
Use of Web-Based Rider Input for Transit Management in the New York City Region	Mitchell Moss	NYU
Promoting Transportation Flexibility in Extreme Events through Multi-Modal Connectivity	Rae Zimmerman	NYU
Automating the Reporting and Progress Monitoring Process using Mobile Computers for Highway Construction Projects	Didier Valdes	UPR
Energy Efficient and Environmental Friendly Cement Free Concrete (CFC) for Pavement and Bridge Deck Application	Sulapha Peethamparan	Clarkson
Speed and Design Consistency of Combined Horizontal and Vertical Alignments in Two-Lane Rural Roads	Alberto Figueroa	UPR
Modeling Disaster Operations from an Interdisciplinary Perspective in the New York-New Jersey Area	Kaan Ozbay	Rutgers
Investigation of the Carrs Creek Geofoam Project	Dawit Negussey	Syracuse
Assessing Behavior Changes under the Influence of Travel Demand Management Strategies	Cara Wang	RPI
Major Workforce Challenges Confronting New York City's Transit Industry	Lesley Hirsh	CUNY Graduate Center
Improving Transportation Engineering Education By Applying The Inverted Classroom Concept	Ivette Cruzado	UPR
Air Quality Impact of Traffic Congestion in Midtown Manhattan	Masoud Ghandehari	POLY

Faculty Initiated/Outside the Box/Cooperative Awards

Project Title	Principal Investigator	Institution
Metrics and Performance Response Functions for Assessment of Resilience of Urban Infrastructure System	Priscilla Nelson	NJIT
Optimum Fund Allocation to Rehabilitate Transportation Infrastructure	Jay Meegoda	NJIT

Emerging Scholar/Research Cluster/Ed -Tech Transer Awards

Real-time Dynamic Pricing for Bicycle Sharing Programs	Changyun Kwon	UB
Street Standards as Parking Policy: Identifying Residents' Willingness to Pay	Zhan Guo	NYU
Alternative Fuel Vehicle Technology Conference	Yolanda Rodriguez	CUNY
GPS Research Cluster Team for Transportation	Hongmian Gong	Hunter College
Sidewall collapse of underground structures due to loss of lateral support under internal blast loading	Huabei Liu	CCNY
A Proposal for a Research Cluster on Connected Vehicles and Cyber Transportation Systems Research	Adel Sadek	UB
The Effects Of Public-Private Partnerships On Traffic Safety: Evidence From Mexico	Raymond Geddes	Cornell
Developing self-cleaning and air purifying transportation infrastructure components to minimize environmental impact of transportation	Alexander Orlov	Stony Brook
National Aviation Security to Cyber-terrorism: An Integrated Framework to Quantify the Economic Impacts of Cyber-terrorist Behavior	Jiyoung Park	UB
Subsurface Imaging of Corrosion in Painted Steel Bridges	Alexey Sidelev	Poly
Financing high speed rail in the U.S. and France: the evolution of public-private partnerships	James Cohen	John Jay
The Outdoor Lighting Institute	Mark Rea & John Bullough	RPI
Narratives of transportation planning: An archive of documents and oral histories	Bob Noland	Rutgers

For additional information on our research projects, please visit www.utc2.org

RESEARCH NEWS FROM OUR CONSORTIUM UNIVERSITIES

STEVENS AND WEIRTON AREA PORT AUTHORITY COLLABORATE TO ESTABLISH RESILIENT PORTS

Stevens researchers develop a resiliency plan to enhance port security, efficiency, and profitability

In today's global economy, ports are more important than ever in the supply chain, with approximately 80% of the entire world's freight transported through waterborne vessels, valued at \$1 trillion per year. To sustain an acceptable performance level despite disruptions, the Weirton Area Port Authority (WAPA) turned to the experts at Stevens Institute of Technology School of Engineering and Science and Howe School of Technology Management to create a resiliency plan in the event of an emergency. As members of the Executive Committee of the Stevens National Center for Secure and Resilient Maritime Commerce, a Department of Homeland Security Center of Excellence, Dr. Thomas Wakeman and Dr. Hady Salloum, in collaboration with Jan Klein, Industry Associate Professor in the Howe School of Technology Management at Stevens, are leading the research team.

"This partnership exemplifies the critical real-world contributions Stevens researchers are making," says Dr. Michael Bruno, Dean of the Charles V. Schaefer, Jr. School of Engineering and Science. "We are excited to work with the Weirton Area Port Authority to modernize ports and prepare for the increasing complexity of port systems."

"Our clients must be able to sleep at night knowing their goods will be delivered to their various destinations, quickly and safely," says Weirton Area

Port Authority, Inc. General Manager, Jim Greco.



"With major competing ports nearby in Philadelphia, Baltimore, and New York City, we will guarantee our clients the highest level of performance—even in the event of a

disruption."

"There needs to be a balance between protecting a port and making it resilient to disruptions. This requires developing a systematic approach dealing



with the entire supply chain that includes both water and land side," says Dr. Hady Salloum. "Also, consequences of disruptions need to be addressed to ensure the highest return from any investment made, whether for protection or resilience."

The port's assets include the value of cargo, tax revenue generated from business, and job creation for residents of the area and region.



"Once the economic value of the addition of the Weirton Area Port is established, the Stevens team will assess the impact of a myriad of disruptive forces on the port and the investment returns that can be achieved by implementing Stevens recommended resiliency plan,"

explains Mr. Klein.

"This is an important collaboration between a port authority and a university that enriches all parties, and we



look forward to future partnerships to continue to improve maritime commerce and safety," says Dr. Thomas Wakeman.

The Weirton Area Port Authority was created in 1997 to establish an Inland port in the West Virginia Northern Panhandle. The WAPA is positioning itself as a Logistics Village and Virtual Port supporting enterprises and shippers that utilize inland transportation systems (water, road, rail, air). The Port's mission is to connect businesses and communities to regional, federal, and national service networks and be a catalyst for regional economic development.

The Center for Secure and Resilient Maritime Commerce at Stevens works to preserve and secure US maritime resources and assets through collaborative knowledge development, innovation, education, and training. It was designated a National Center of Excellence by the Department of Homeland Security in 2008. The center conducts research and education to safeguard populations and improve port security.

Learn more about Stevens and the National Center of Excellence for Secure and Resilient Maritime Commerce and the Howe Institute of Technology or apply at Undergraduate or Graduate Admissions.

NEW FUNDING/PROGRAMS AT THE VORHEES TRANSPORTATION CENTER

IMPACT ANALYSIS OF RECREATIONAL TRANSIT SERVICES ON LOCAL COMMUNITY ECONOMIC DEVELOPMENT, EMPLOYMENT AND SPENDING

Principal Investigator: Devajyoti Deka, Assistant Director for Research, Alan M. Voorhees Transportation Center, Edward J. Bloustein School of Planning and Public Policy, Rutgers, The State University of New Jersey, New Brunswick.

Sponsor: New Jersey Department of Transportation (with additional funding from the UTRC).

The primary objective of this study is to estimate the economic benefits from public transit service to recreational activities in New Jersey. The study will specifically focus on three markets served by public transportation: The Prudential Center in Newark, the shore communities served by the NJ Coast Line, and the Cape May/Wildwood area served by the Philadelphia-Cape May bus service. It will involve a number of surveys and focus groups involving visitors to recreational sites. Regional economic modeling will be used to quantify direct and indirect benefits from public transportation service. Researchers from four centers at Rutgers University will participate in the study.

NARRATIVES OF TRANSPORTATION PLANNING: AN ARCHIVE OF DOCUMENTS AND ORAL HISTORIES

Principal Investigator: Robert B. Noland, Alan M. Voorhees Transportation Center, Edward J. Bloustein School of Planning and Public Policy, Rutgers, The State University of New Jersey, New Brunswick.

Sponsor: University Transportation Re-

search Center

Starting in the mid-1950's the planning and construction of our current system of transportation was begun. This era of development lasted until about the mid-1980's and within the New Jersey and New York regions resulted in large scale construction of new roads and the development of integrated public transportation networks. This feat was accomplished through the skills and knowledge of a generation of transportation professionals, many of whom are now in retirement or near retirement. This project will seek to preserve the knowledge gained from this experience and ultimately provide a resource for future scholars, practitioners, and decision makers to understand the lessons, both good and bad, that were learned by this first generation of transportation professionals. This will be accomplished in two ways. First, we will gather archival grey literature that many practitioners have saved, but are not readily accessible. Our plan is to eventually (pending future funding) make this available as a reference source in the Rutgers Library (and eventually as a digital resource by scanning documents). The second task will be the collection of oral histories of those that have been instrumental in the development of transportation since the 1950's.

NEWS FROM THE LIGHTING RESEARCH CENTER AT RPI – FALL 2012

LRC'S BULLOUGH AUTHORS NATIONAL ACADEMIES REPORT ON LED AIRFIELD LIGHTING

Light-emitting diode (LED) technology holds significant promise for airfield lighting in the U.S, mainly in terms of the potential for longer operating lives and increased efficacy of LEDs compared to incandescent lamps, the most common light source on airport runways and taxiways today. Throughout the past decade,

the Lighting Research Center (LRC) at Rensselaer Polytechnic Institute has assisted the Federal Aviation Administration (FAA) to understand and maximize the benefits of LED lighting technologies.

Drawing on the experience of airport operators, on published accounts of LED airfield installations, and on the LRC's knowledge of LED lighting technologies and aviation applications, John Bullough, senior research scientist and adjunct assistant professor at the LRC, authored a newly published report written to assist airports as they decide if and when to install LED runway and taxiway lights. The report was published by the Transportation Research Board (TRB) of the National Academies through the Airport Cooperative Research Program (ACRP), which funded the study. A panel of experts from aviation, government, industry, and academia appointed by the National Academies oversaw the project.

Bullough's report summarizes the responses of airports across the country to a survey questionnaire regarding their experiences with LED airfield lighting, supplemented by published reports that until now have been scattered in many locations. "LED runway and taxiway lighting systems can save airports time and money," said Bullough. "FAA requirements for LED lighting help ensure that these systems work as promised, and the technology regularly improves to keep up with those requirements."

Bullough found that the largest area for savings by airports was in terms of reduced maintenance requirements, followed by lower energy use. "LED airfield lighting uses much less energy than incandescent, but airfield electrical systems are optimized for incandescent lamps, not LEDs. Even more energy can be saved if electrical systems are designed with the reduced loads of LEDs in mind," he said. The FAA is now investigating new electrical infrastructures for airfield lighting that will help maximize energy savings and reliability.

The report also contains an overview of LED light source technology, the relevant FAA guidance documents for airfield lighting, and pointers to resources on airport funding and economic cost analysis tools. Bullough's report, Issues with Use of LED Airfield Lighting: ACRP Synthesis 35, is available for download from the TRB website at: http://onlinepubs.trb.org/onlinepubs/acrp/acrp_syn_035.pdf.

LRC RESEARCHERS PUBLISH ARTICLE ABOUT BARRICADE LIGHTING SYSTEM

The Lighting Research Center (LRC) at Rensselaer Polytechnic Institute recently published an article in the International Journal for Traffic and Transport Engineering based on the recent Barricade Lighting System project, sponsored by the University Transportation Research Center (UTRC) with in-kind support from the New York State Department of Transportation and LumenTech Innovations. The study was authored by LRC researchers John Bullough, Jeremy Snyder, Nicholas Skinner, and LRC director Mark Rea. The objective was to evaluate an innovative signal lighting concept for work zones.

The study proposes a novel lighting concept for work zones. Presently, standard barricade warning lights used in work zones have channelizing and warning functions. Yellow flashing lights are utilized regardless of specific activities that may be taking place in the work zone. The proposed Barricade Lighting System (BLS) uses light signals in four different ways to provide more information about the work zone to the driver.

- Flashing red lights are used when traffic is stopped or is moving very slowly in the work zone.
- Flashing green lights are used when the work zone is inactive, and traffic should proceed normally.
- Expanding yellow lights are used to slow drivers down and increase caution.

- Sweeping yellow lights indicate that lane closures require drivers to move to the left or right.

The LRC team created prototype BLS units, conducted a survey on the proposed system, and conducted a field evaluation. The survey indicated that drivers would likely understand all of the functions of the BLS. However, there was some concern that the flashing red and green lights could result in conflicts with other traffic signals. A field evaluation in mock work zones found that drivers understood these signals in a realistic driving scenario. Furthermore, drivers changed lanes sooner (providing a 40% longer lane change margin) in response to the sweeping BLS function than to conventional flashing barricade lights. Subjective ratings of clarity of the BLS were also positive. The paper also includes discussion of the results and recommendations for future study.

The paper can be downloaded at: http://www.ijtte.com/study/74/download/DEVELOPMENT_AND_EVALUATION_OF_A_PROTOTYPE_BARRICADE_LIGHTING_SYSTEM.html.

LRC COMPLETES STUDY ON USING LIGHTING TO ALTER DRIVER BEHAVIOR

Researchers at the LRC recently completed a project, titled "Using Lighting to Alter Driver Behavior". The study was sponsored by the New York State Department of Transportation through UTRC.

Inappropriate driving speeds are a major cause of traffic fatalities. Since driving requires a substantial contribution from vision, the use of lighting and visual information such as signage could provide cues to encourage appropriate speeds. LRC researchers investigated the use of visual information in sharp roadway curves, where a reduction in speed is desirable to prevent rollover crashes. Through modifying the size and spacing of chevron signs along a curve, the researchers were

able to create a perception of increasing curvature sharpness. The modified chevron signs were field tested in a controlled driving experiment as well as a real-world installation on two highway curves in New York State. Results of both the field tests and the real-world installation showed that when driver perceptions of curve sharpness increased, their speeds significantly decreased.

Locations prone to congestion, such as exit/entrance ramps and work zones, are also areas where visual information and lighting can help improve traffic safety. In these congested areas, uniformity of speeds is desirable to optimize safety and traffic flow. LRC researchers developed conditional speed display messages on changeable message boards, where the displays were dependent on the speed of oncoming traffic. In both controlled field experiments and real-world installations, drivers modified their speeds and overall speed variance was reduced.

The results of this research project indicate that chevron size and spacing modifications can be readily implemented to improve traffic safety. Additional trials of the conditional speed displays at different types of congested areas would be recommended, but these initial results are promising.

The report will shortly be available online at: <https://www.dot.ny.gov/divisions/engineering/technical-services/transportation-research-development-publications>.

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LRC RESEARCHERS COMPLETE STUDY ON ECOLUMINANCE APPROACH TO ROUNDABOUT LIGHTING

A team of researchers at the LRC recently completed a project, titled "Demonstration of Roundabout Lighting Based on the Ecoluminance Approach", which was sponsored by the New York State Energy Research and Development Authority and the New York State Department of Transportation.

Traditional roundabout lighting typically consists of pole-mounted high pressure sodium luminaires. However, these luminaires are energy intensive and do not necessarily provide clear delineation for drivers and pedestrians navigating the roundabout. LRC researchers demonstrated an Ecoluminance concept, which was developed in a previous study. Ecoluminance uses lighting integrated with vegetation, using lower mounting heights and reflected light from plants and retroreflective elements. This method of illumination requires less energy.

Two short-term demonstrations were conducted in a real-world roundabout in New York State, using the Ecoluminance approach and low-wattage luminaires producing "white" light. Through feedback from transportation engineers and the public, the concept was refined for a final demonstration, consisting of shrubs and trees in the central island, landscape lighting for these items, retroreflective markers delineating the perimeter of the central island, pedestrian bollard lighting at crosswalks, and overhead light-emitting diode (LED) luminaires in sidewalk and roadway areas.

Photometric measurements confirmed the simulations performed during the design phase, indicating that pedestrians and roadway elements were visible to both drivers and pedestrians. Observations of approaching vehicle speeds showed that there was little difference between

Ecoluminance and conventional lighting in the way drivers approached roundabouts. Furthermore, the Ecoluminance system had similar initial costs as conventional lighting, but only used one-fourth of the energy of a conventional roundabout lighting system. These results suggest that Ecoluminance is a promising alternative to conventional roundabout lighting.

The report will shortly be available online at: <https://www.dot.ny.gov/divisions/engineering/technical-services/transportation-research-development/publications>.

To learn more about the LRC's transportation lighting and safety research, visit www.lrc.rpi.edu/programs/transportation/index.asp.

RENSSELAER POLYTECHNIC INSTITUTE (RPI) CONDUCTS A NYSDOT RESEARCH PROJECT ENTITLED "DETERMINING THE REMAINING FATIGUE LIFE OF IN-SITU MAST-ARM TRAFFIC SIGNAL SUPPORTS."

Currently, at Rensselaer Polytechnic Institute, a research project is being conducted for the New York State Department of Transportation (NYSDOT) entitled "Determining the Remaining Fatigue Life of In-Situ Mast-Arm Traffic Signal Supports." Harry White is the NYSDOT project manager while Professors Christopher Letchford and Michael O'Rourke are Co-Principal Investigators. The graduate research assistant for this project is Michelle Riedman and an undergraduate Electrical Engineering student, Vinh Nguyen, is working on the project as well as part of Rensselaer's Undergraduate Research Program.

The project studies wind induced vibrations of long cantilevered mast arm traffic signal structures. When wind flows past the mast arm of the structure, low-pressure vortices are shed on alternating sides of the arm causing the mast arm to vibrate in a cross-wind or vertical response, as shown below.

If the frequency at which the vortices are shed (which is a function of both the wind speed as well as the diameter of the mast arm) matches the natural frequency of the structure, then vibrations with high amplitudes can occur. These vibrations cause structural stresses and strains to occur in a cyclical fashion which can lead to fatigue of the structure, and in some cases full collapse.

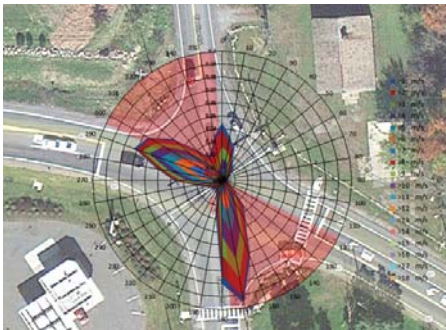
To study these wind induced vibrations, we are currently conducting a full scale experiment on a 25 meter cantilevered traffic structure in Malta, NY. An ultrasonic anemometer and two 3-component accelerometers were installed on the structure and data is currently being recorded at intervals of 23Hz through a data acquisition system. A picture of the traffic structure along with several pictures from the installation of our equipment is shown below.

While installing the equipment, pluck tests were conducted in order to determine the dynamic properties of the structure. To conduct these pluck tests, the free end of the mast arm was manually excited by a person from the research team with access via a boom lift and then let go so that the structure entered into free vibration. Using both the time history of the data collected during these tests and the corresponding Fourier transform, the natural frequencies and damping ratios were determined for both the in plane and out of plane directions.

These results compared well with the finite element model that had been developed prior to the full scale tests. A screen-shot of the finite element model in its first mode of vibration is shown below.

The natural frequency of the structure was calculated to be 0.52 Hz for the first mode of vibration. Knowing the diameter of this particular mast arm, it has been calculated that vortices should be shed at this same frequency when the wind speed is around 6 m/s or about 13 mph. In order to determine how frequently

this wind speed of interest should occur, wind climate data for the Albany, NY area was obtained from the National Climatic Data Center (NCDC) and a wind rose was constructed. A wind rose shows the frequency at which wind blows from a particular direction at a particular speed. The angle of attack of the wind relative to the mast arm is of interest as well since the vibrations are most severe when the



wind hits near perpendicular to the mast arm's longitudinal direction. When overlaid on a site map, the wind rose for the Albany, NY area shows that the majority of winds in the area should hit the arm in a near perpendicular fashion, making the orientation of the structure ideal for this study.

The end goal of the project is to use the data collected through the full scale experiment, the finite element computer model, as well as the general climate data from the NCDC for various locations in New York State to come up with a general methodology that the DOT can use to assess the remaining fatigue life of these types of structures throughout the state.

RECENT PUBLICATIONS/ PRESENTATIONS

Publications

- Deka, D. (2012). "The impacts of non-resident parking restrictions at commuter rail stations." *Journal of Transport Geography*, 24, pp. 451-461.
- Jiwattanakupaisarn, Piyapong, Robert B. Noland, and Daniel J. Graham (2012). "Marginal productivity of expanding highway capacity", *Journal of Transport Economics and Policy*, 46(3), 333-347.
- Lachapelle, Ugo and Robert B. Noland (2012). "Does the commute mode affect the frequency of walking behavior? The public transit link", *Transport Policy*, 21, 26-36.
- Weiner, Marc D., Orin T. Puniello, Robert B. Noland, Chintan Turakhia, and David Ciemnecki (2012). Consider the Non-Adopter: Developing a Prediction Model for the Adoption of Household-Level Broadband Access, *Socio-Economic Planning Sciences*, 46, 183-193

Presentations

[Dr. James Cohen's Lecture at the T2M Conference in Spain on November 16, 2012](#)

Jim Cohen, Prof. Emeritus, John Jay College and CUNY Institute for Transportation Systems, has been invited to give a Public Lecture at the opening of The International Association for the History of Transport, Traffic and Mobility (T2M) Conference in Madrid, Spain, on November 16, 2012. His lecture will discuss the significance of changes in the financing of railroads, 1840 to present, using evidence from Europe and the U.S.

More Information at: <http://t2m.org/program/>

[Dr. Deka Presented a Research Paper at the 2nd International Conference on Evacuation Modeling and Management \(ICEM\)](#)

Devajyoti Deka, Assistant Director for Research, and Jon Carnegie, Executive Director of the Alan M. Voorhees Transportation Center at Rutgers University presented a paper titled "Forecasting Shelter Accessibility and Vehicle Availability for Hurricane Evacuation in Northern New Jersey: A Step-By-Step Methodology Using Sample Enumeration" at the 2nd International Conference on Evacuation Modeling and Management (ICEM) at the Northwestern University, Evanston, IL, on August 13, 2012.

JOB ANNOUNCEMENTS

Faculty Position in Transportation at Rutgers, SUNJ

The Edward J. Bloustein School of Planning and Public Policy at Rutgers, The State University of New Jersey, is seeking to fill a full-time tenure-track faculty position in transportation (transportation planning methods; urban modeling and simulation; decision and planning support systems; travel behavior and forecasting; transportation and land use interactions; traffic safety; non-motorized transportation; public transit; transportation economics; transportation risk and security). The position may be at the assistant, associate or full professor level.

Applicants must be doctoral graduates of accredited colleges/universities, and we prefer that they have their Ph.D. by January 1, 2013. Ph.D.'s may be in any field relevant to transportation (e.g. urban planning, engineering, geography, economics). The standard teaching assignment is two courses each semester, including both undergraduate and graduate courses. The successful applicant will have classroom experience, preferably in teaching transportation and quantitative methods.

The Edward J. Bloustein School of Planning and Public Policy offers undergraduate degrees in Planning and Public Policy, and in Public Health; master's degrees in Urban Planning and Policy Development and in Public Policy; the Ph.D. in Planning and Public Policy; and joint degrees in public health with the University Medicine and Dentistry of New Jersey. We offer two graduate certificate programs in transportation: transportation studies; and transportation management: vulnerability, risk and security. The Bloustein School has 18 research centers and institutes and annually attracts approximately \$20 million in external funding. EJB has three existing transportation centers, and the new faculty member is expected to contribute to their efforts. For further information, visit the EJBS web site at <http://www.policy.rutgers.edu>.

Applicants must apply via e-mail to facultysearch@policy.rutgers.edu. Attach a letter of application, a curriculum vita, a writing sample, and the names and contact information of three professional references. Review of applications will begin on November 15, 2012. Members of the search committee will be attending the ACSP conference and can arrange a time to meet with potential applicants.

Rutgers University is an Affirmative Action, Equal Opportunity employer committed to expanding the educational diversity of its faculty and students and encourages applications from a broad variety of candidates.

Position Opening at the Capital District Transportation Authority (CDTA)

The Capital District Transportation Authority (CDTA) has a position opening for an Advanced Traveler Information Systems Administrator. Below is a brief description, and the link for further details is: http://www.cdta.org/about_careers_job_opportunities.php

- The Applications Administrator is responsible for managing CDTA's advanced traveler information system. This includes all functional aspects of the Fare Collection System, Real Time Passenger System and other passenger amenities such as wi-fi.
- Responsibilities also include management of mobile devices and voice response systems.
- Primary duties include technical support, reporting, data development, software configuration, security and training. Also includes project management for new system implementation and ongoing application software development activities. This position has frequent contact with co-workers, end users, and vendors. Administrative work includes procurement, contract management, and documentation.
- A BS degree in MIS, GIS, Planning or a related field is preferred, Masters Degree is desirable. This is an exempt position which includes our standard benefit package, PTO and entrance into the NYS Retirement System.

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- ▶ New York University
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- ▶ Rutgers University
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- ▶ Stevens Institute of Technology
- ▶ Syracuse University
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- ▶ University of Puerto Rico Mayagüez



UNIVERSITY TRANSPORTATION RESEARCH CENTER - REGION 2

UTRC Research News is Published Quarterly by the University Transportation Research Center, which is based at The City College of New York, Marshak Hall, Suite 910
New York, NY 10031.

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address correction, please email martinez@utrc2.org.