

University Transportation
Research Center
Region 2
Annual Report 2009

UTRC



U NIVERSITY T RANSPORTATION R ESEARCH C ENTER Region 2

Annual Report – 2009

This Report represents the activities of the UTRC from
October 1, 2008 - October 31, 2009

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The preparation for this report was funded by a grant from the Research and Innovative Technology Administration of the U.S. Department of Transportation. This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its contents or use thereof.

DESIGN CREDITS:

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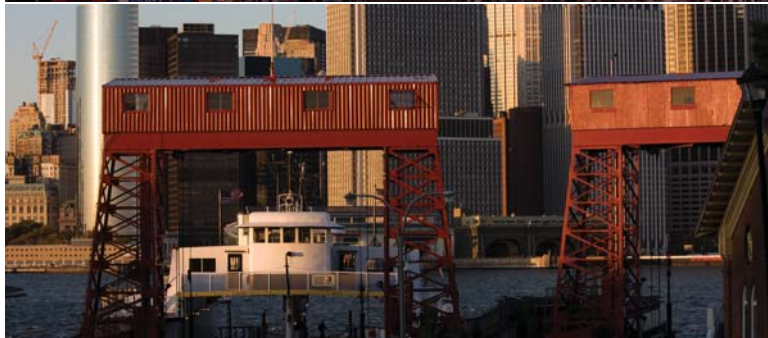
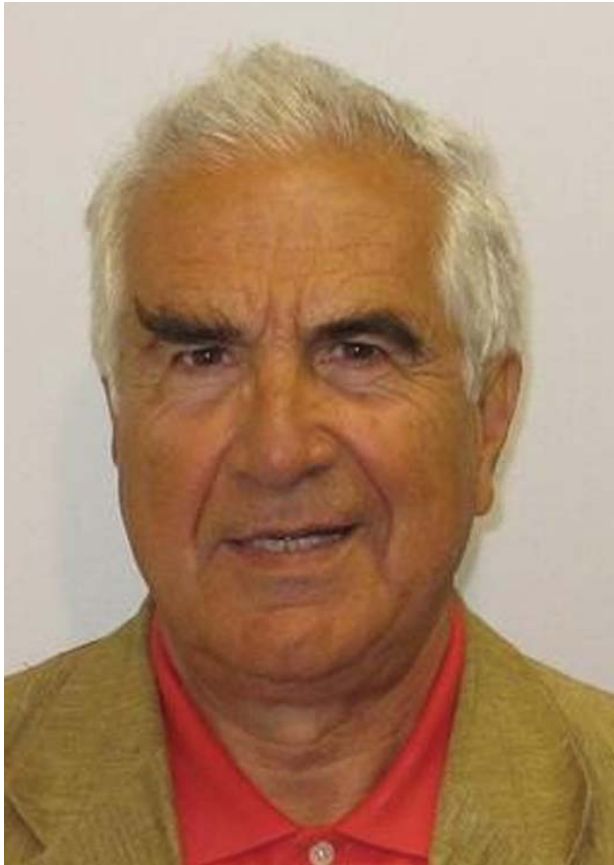


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CHAIRMAN'S MESSAGE

Dr. John C. Falcocchio



In this year's report you will notice an impressive list of accomplishments in research, education, and technology sharing activities. Our university consortia performed research funded by the Departments of Transportation of New York and New Jersey; conducted education and training programs funded the New York Metropolitan Transportation Council; and organized workshops and seminars to propagate information relevant to policy making and transportation management.

I believe these activities have contributed to improve our understanding of the complex and challenging world of transportation, and provided a forum for discussion and debate on the region's needs to invest more resources to protect our aging transportation infrastructure from further neglect, and to ensure that travelers and goods movement mobility in the metropolitan area does not deteriorate as congestion increases. Our visiting scholar seminars have featured speakers of national and international reputation who have addressed

many of these concerns by addressing issues of land use policy, transportation investments, economic development, environmental quality, and climate change.

I believe this year's annual report confirms our continued commitment to products that our customers need: answering their questions through applied research; educating and training a changing workforce; and educating transportation stakeholders through workshops and seminars organized around hot transportation policy topics.

Therefore, I am pleased to note that once more, this year, our twelve universities UTRC has been a vital resource to this region's policy makers.

DIRECTOR'S MESSAGE

Dr. Robert E Paaswell

At the June, 2009 annual meeting of the Council of University Transportation Centers, I had the opportunity to reflect on the overwhelming contribution these Centers have made to addressing our national transportation problems since the inception of the program in 1987. From the initial ten Regional Centers (of which UTRC was one) to the present 33 University Transportation Centers, the program has addressed issues embracing almost every discipline from health to economics, engineering to political science. Thousands of students and professionals have been educated or received training and graduates of the UTCs now command significant positions in agencies and firms around the world. Over the 20 years plus that UTRC has served the region, it too has grown, enlarging its mission and addressing the complex problems that Region 2 faces. We have met the DOT/UTC program goals of conducting research, providing education and training and disseminating the results, not only of our work, but of the work of our sister Centers in the US and abroad. Today, UTRC is engaged in work on improving freight access and movements in

the region, workforce training, infrastructure finance, safety, bridge integrity and regional models, and much more. UTRC faculty serve on agency and regional advisory panels and commissions and are frequently called to testify on complex and controversial planning and funding issues. Our annual report only touches the surface, but reflects on the amazing growth of the program from 1987.



2009 HIGHLIGHTS



CUNY Executive Vice Chancellor Allan Dobrin and Robert Paaswell

Robert E. Paaswell Receives Lifetime Achievement Award, NYU Rudin Center

Every year, the NYU Wagner School's Rudin Center for Transportation Policy & Management honors transportation leaders and regional agencies with their annual Leadership in Transportation Awards. The 2009 Awards Ceremony was held on February 24th at NYU's Rosenthal Pavilion. Robert E. Paaswell, UTRC Director and Distinguished Professor of Civil Engineering, City College of New York, received a Lifetime Achievement Award for his many contributions to the field of transportation. This is the first time a lifetime achievement award has been presented and it is very fitting that Professor Paaswell was the first recipient of this award.



Jeff Ban Receives Best Transportation Paper Award

The winner of the 2008 UTRC Best Transportation Paper Competition was "Bottleneck Identification and Calibration for Corridor Management Planning". The lead author was Xuegang (Jeff) Ban, an assistant professor of Civil and Environmental Engineering at Rensselaer Polytechnic Institute. His co-authors were Lianyu Chu and Hamed Benouar. Professor Ban and the paper were honored at the Awards Ceremony for their work on developing practical and efficient approaches for bottleneck identification and calibration in microsimulation.



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."

Maria Chau Demonstrates Excellence in Transportation Education

Maria Chau is an example of an outstanding UTRC transportation scholar. She received an Advanced Institute of Transportation Education Graduate Scholarship in 2006 to attend the University of Albany for a Master's degree in Urban and Regional Planning.

After starting the program at U Albany, she participated in two research projects, the Initiative for Healthy Infrastructure and the GPS Pilot Study. While in school, Maria served as President of the Graduate Student Organization and member of the University Executive Senate Committee and successfully advocated

transportation and planning issues affecting the university community in the City of Albany. She also received the American Planning Association, American Institute of Certified Planners 2008 Outstanding Planning Student Award and the University of Albany President's Award for Leadership and the Graduate Student Organization Leadership Award in 2007.

After graduating, Maria became the Statewide Planner and Research Coordinator in the New York Division Office helping to deliver the Federal Aid Highway Program in the context of the national transportation system. If Maria had not been working with FHWA which created a conflict, UTRC would have named Maria Chau as the Region's Student of the Year.





Dr. Agrawal Appointed Chief Editor of the ASCE Journal of Bridge Engineering

Dr. Anil Agrawal, UTRC PI and Professor of Civil Engineering at the City College of New York, has been appointed the Chief Editor of the ASCE Journal of Bridge Engineering effective from October 1, 2009. He has been serving as the Associate Editor of ASCE Journal of Bridge Engineering and ASCE Journal of Structural Engineering for the last several years. The Journal, devoted exclusively to bridge engineering, reports on both the theory and

the practice of the structural design, inspection, construction, and performance of bridges. From materials to rehabilitation, safety to demolition, papers address all aspects of a bridge's life. Dr. Agrawal is the 3rd Chief Editor since the Journal was launched in 1996. UTRC congratulates Dr. Agrawal for his achievements and appointment!

Dr. Geddes Awarded Fulbright

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.



Region 2's primary focus is the stewardship, management, and future evolution of its already mature transportation systems, in the face of emerging policy challenges. The region's transportation agencies must continually adjust to the nature of the economy and its evolving transportation requirements; their emerging understanding of what is required to protect public safety and security; and new challenges, such as global climate change. As advances in technology continually redraw the boundaries of what is possible, transportation agencies also face the daunting challenge of revisiting how they define their missions, serve the public and conduct their routine business. Because this region has historically faced so many transportation challenges, it has a tradition of innovation in transportation. Yet as the early solutions it adopts become institutionalized, it tends to be slow to absorb and implement lessons from innovators elsewhere in the U.S. and abroad, and thus often falls behind the curve. To become a region that can plan and manage its systems effectively in the face of change, it must become more dynamic in its approaches to the management of information and technology.

UTRC's theme – "Planning and Managing Regional Transportation Systems in a Changing World" encompasses three broad thematic areas:

Planning Today: requires knowledge of multi-modal and intermodal systems serving both freight and passenger movements. Planning in the region involves not only MPOs, but

all of the many agencies taxed with the need to move people and goods 24/7. Planning is constrained by institutional mandate and history, the need to catch up with a backlog of capital needs, and a chronic shortage of adequate funds for both maintaining and building the infrastructure. UTRC's role is to provide through academic programs, a solid base on which planning decisions can be made.

Management Today: demands knowledge of interaction among complex multi modal systems, budgeting, system operations and performance targets, customer needs, the need to address security, and – when fighting fires stops – a sense of vision of system performance and regional change. Management takes place at every level: from agency board members to line operators. UTRC works to develop education and training programs to improve the state of knowledge and practice at all of these levels.

Responses to Change: As the world changes, the demands on the transportation system change as well. Tomorrow's transportation systems will need to be more secure, more resilient to natural hazards, less damaging to the environment, and better able to use available capacity efficiently. Emerging transportation systems rely on real time technology and rapid transfer of operational information. The institutions that have traditionally operated the regional assets must, themselves, begin to change. They must think multimodally, with integrated operating systems. UTRC strives to assist these agencies to achieve organizational change responsive to new missions.

CENTER'S THEME

"Planning and Managing Regional Transportation Systems in a Changing World"

STAFF

Dr. Robert E. Paaswell

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The City College of
New York,
Director Emeritus



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Assistant Professor
of Civil Engineering



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Herbert Levinson

UTRC Icon Mentor
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Assistant
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Technology Transfer



Dr. Ellen Thorson

Senior Research
Fellow



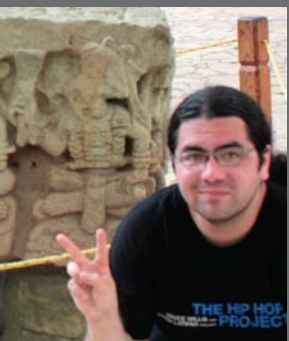
Andrew Nagel

Intern, Information
Technology



Rodolfo Leyton

Designer



Harold Stolper

Former Assistant
Director for
Research &
Outreach



MANAGEMENT STRUCTURE

UTRC has adopted a corporate style of management. In this style, the UTRC Board provides policy guidelines, and approval of UTRC activities. Dr. Robert Paaswell, Distinguished Professor of Civil Engineering at City College of New York, serves as Chief Executive Officer, overseeing day-to-day operations and providing a bridge between UTRC policies and the activities and resources used to carry out those policies.

The Board of Directors, with representatives from consortium universities, is chaired by Dr. John Falcocchio of Polytechnic University and conducts its business through a well-organized committee structure. The full Board reviews Center Objectives and Programs, approves budgets, and reviews and recommends actions forwarded by its two major working committees.

The two committees, Research and Technology Transfer, chaired by Dr. Ali Maher of Rutgers University, and Education and Training, chaired by Dr. Neville Parker of City College are the working hearts of the Board. Each is responsible for developing the yearly program of activities, overseeing the selection of projects, and recommending to the full Board the programs of projects commensurate with the budget.

BOARD OF DIRECTORS

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City University of New York, New York

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City University of New York, New York

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Columbia University, Earth Center,
New York

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New York

Mark A. Turnquist, Ph.D.
Cornell University, New York

Huaizhu (Oliver) Gao, Ph.D.
Cornell University, New York

Pricilla P. Nelson, Ph.D.
New Jersey Institute of Technology,
New Jersey

Lazar Spasovic, Ph.D.
New Jersey Institute of Technology,
New Jersey

Anthony E. Shorris
New York University, New York

Rae Zimmerman, Ph.D.
New York University, New York

John C. Falcocchio, Ph.D.
Polytechnic Institute of NYU, New York

Richard Wener, Ph.D.
Polytechnic Institute of NYU, New York

José Holguin-Veras, Ph.D.
Rensselaer Polytechnic Institute, New York

William "Al" Wallace, Ph.D.
Rensselaer Polytechnic Institute, New York

Robert Noland, Ph.D.
Rutgers University, New Jersey

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Rutgers University, New Jersey

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Puerto Rico

Didier M. Valdés-Díaz, Ph.D.
University of Puerto Rico – Mayagüez,
Puerto Rico

MEMBER UNIVERSITIES

City University of New York

The City University of New York is the nation's largest urban university. CUNY, with more than 100 nationally recognized research centers, institutes and consortia, is also one of the nation's major research institutions. Due to its urban context, many of CUNY's campuses are involved in transportation research and education. CCNY is UTRC's host campus. Faculties within several departments are actively involved in transportation research and the activities of UTRC. CCNY is also home to the CUNY Institute for Transportation Systems and the CUNY Institute for Urban Systems.

Stevens Institute of Technology

Founded in 1870 in Hoboken, New Jersey, the Stevens Institute of Technology is one of the leading technological universities in the country. Research at Stevens Institute includes structural dynamics, soil-structure interaction, freight transportation, and embedded, real-time, intelligent infrastructure systems.



University of Puerto Rico

The University of Puerto Rico was established in 1903. Transportation research at UPR is concentrated on its Mayagüez campus, which serves over 12,000 students.



Its Department of Civil Engineering has an active program in natural hazards research with applications in transportation. UPR is home to the Civil Infrastructure Research Center, which was funded by FEMA, FHWA, the Puerto Rico Department of Transportation, and other partners, and the Puerto Rico Transportation Technology Transfer Center, the local center for FHWA's Local Technical Assistance Program.

Columbia University

Columbia University was founded in 1754 and is the oldest institution of higher learning in the state of New York, with enrollments of over 23,000 students in 16 schools and colleges. Columbia conducts transportation-related research through its strong departments of Urban Planning, Civil Engineering, and Industrial Engineering and Operations Research. Columbia is also home to the Earth Institute, which houses The Center for Sustainable Urban Development.



Cornell University

Founded in 1868 and being first university in the eastern United States to admit women, Cornell University today encompasses thirteen undergraduate, graduate, and professional colleges and schools. Cornell is a unique combination of public and private divisions, being both a private, nonsectarian university and the land-grant institution of New York State. Cornell is home to the Transportation Infrastructure Research Center and the Cornell Local Roads Program, New York State's Local Technical Assistance Program center.



State University of New York

The State University of New York's 64 geographically dispersed campuses comprise the nation's more comprehensive system of public higher education. Across this network, SUNY has many capabilities that relate directly and indirectly to transportation research: urban planning and nanotech at Albany; civil and earthquake engineering, urban planning, and transportation injury research at Buffalo; environmental mitigation and biofuels at Syracuse; port security and trade at Maritime College; thermal sprays at Stony Brook; and pavements at Farmingdale. Many individual faculty members at other SUNY campuses are involved in transportation research as well.



Polytechnic Institute of NYU

Polytechnic Institute of NYU, the nation's second oldest private engineering university, was founded in 1854 in Brooklyn, New York. Today, it is the New York metropolitan area's preeminent resource in science and technology

education and research. In the transportation field, Polytechnic has strengths in Traffic Models, Highway Capacity and Traffic Operations, and Intelligent Transportation Systems. It is home to the Urban ITS Center, funded by the New York City Department of Transportation.



Rutgers University

Rutgers University is one of America's leading public research universities and educates over 48,000 students on its three campuses. Rutgers' Department of Civil and Environmental Engineering, Department of Industrial and Systems Engineering and Edward J. Bloustein School of Planning and Public Policy are all active in transportation research. It is home to the Center for Advanced Infrastructure and Transportation, which serves as New Jersey's center for FHWA's Local Technical Assistance Program, the Voorhees Transportation Center and the National Transit Institute.



Rowan University

Established in 1923, Rowan is a comprehensive public university serving nearly 10,000 students in a Graduate School and several Colleges. Rowan's Civil and Environmental Engineering Department conducts transportation research in the areas of pavement design, materials, rail crossing safety, structural design of bridges, and structural design and testing of transit vehicles. Other areas of transportation research include renewable energy technologies, diesel combustion, distributed instrumentation systems and smart sensors, and vehicle systems integration.



New Jersey Institute of Technology

NJIT is a public research university enrolling nearly 8,100 students in 92 degree programs. NJIT has built its research program around multi-disciplinary centers that encourage partnerships among various disciplines, educational institutions, private enterprise and government agencies. NJIT is home to the National Center for Transportation and Industrial Productivity, the International Intermodal Transportation Center, and the New Jersey TIDE (Transportation Information and Decision Engineering) Center.



New York University

Founded in 1831, New York University is one of the largest private universities in the United States, with nearly 51,000 students. NYU is home to the Robert F. Wagner Graduate School of Public Service, which engages transportation issues through programs in Urban Planning, Public Management and Finance, and Negotiation and Conflict Resolution. NYU also is host to the Rudin Center for Transportation Policy and Management and the Institute for Civil Infrastructure Systems.



Rensselaer Polytechnic Institute

RPI was established in 1824 and has the oldest program in Civil Engineering in the English-speaking world. RPI provides vast leadership in research relating to intelligent transportation systems, transportation modeling, traffic operations, intermodal freight transportation, transportation economics, and analytical approaches to emergency management. RPI hosts the Center for Infrastructure and Transportation Studies, The Intermodal Center for Freight Security and the Lighting Research Center, which has a dedicated Transportation Lighting Group.



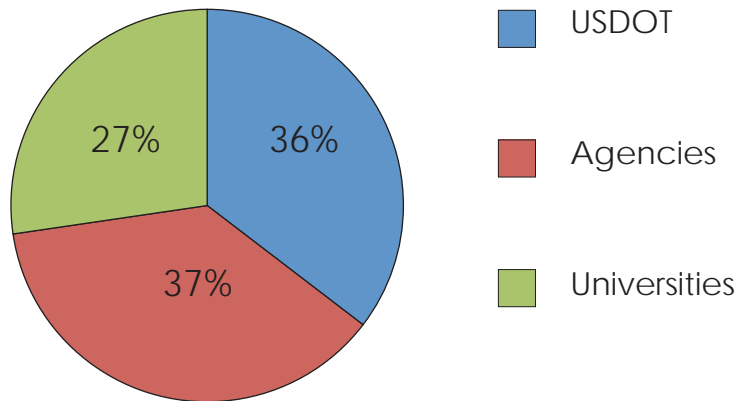
FINANCIAL REPORT

The following charts summarize the UTRC revenues and expenditures for FY 2008-2009. Under the transportation bill – SAFETEA-LU, the University Transportation Research Center Region 2 funding allocated to programs totaled approximately \$3.5 Million in 2008-2009. This fiscal year, the annual USDOT grant allocated to our programs was \$1,182,558. The USDOT funds represent 35 percent of the total allocation.

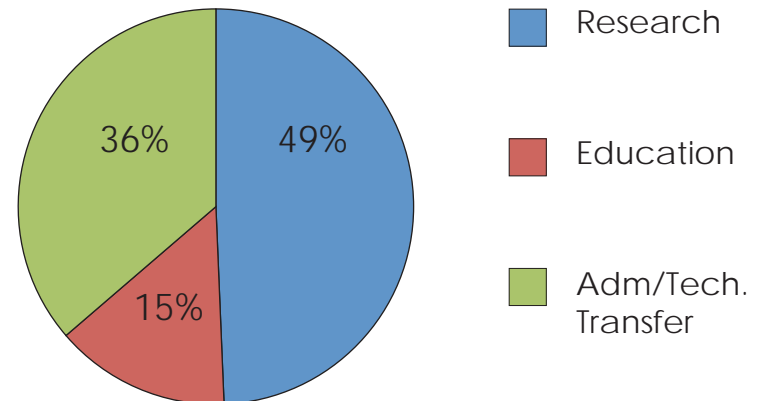
During the FY 2008-2009, UTRC has continued to strengthen its relation with its partners. As in the past, UTRC’s longtime partners, the New York State Department of Transportation, the New York Metropolitan Transportation Council, the New Jersey Department of Transportation, and the New York City Department of Transportation provided a combined 38 percent of the revenues. UTRC’s in-kind support from university members and agencies were 27 percent of the total budget.

Continuing its tradition of strong partnerships and solid financial commitment from federal, state, and local transportation agencies, UTRC allocated 50 percent of its total budget to research projects. To carry out administrative and technology transfer programs, 36 percent of these funds were used. The remaining funds (14%) were allocated to the Advanced Institute for Transportation Education program, the September 11th Memorial Program for RTP – Academic Initiative, and other educational initiatives.

FY 2008-2009 Revenues



FY 2008-2009 Funds Allocation





EDUCATION & TRAINING

The modern professional must combine the technical skills of engineering and planning with knowledge of economics, environmental science, management, finance, and law as well as negotiation skills, psychology and sociology. And, she/he must be computer literate, wired to the web, and knowledgeable about advances in information technology. UTRC's education and training efforts provide a multidisciplinary program of course work and experiential learning to train students and provide advanced training or retraining of practitioners to plan and manage regional transportation systems. UTRC must meet the need to educate the undergraduate and graduate student with a foundation of transportation fundamentals that allows for solving complex problems in a world much more dynamic than even a decade ago. Simultaneously, the demand for continuing education is growing – either because of professional license requirements or because the workplace demands it – and provides the opportunity to combine State of Practice education with tailored ways of delivering content.

2009 Summer Transportation Institute Program At CCNY

The enrollment of students with engineering or technical backgrounds continues to fall below the number needed by the transportation industry. This fact translates into an unusual opportunity for students to enroll in engineering and/or technical disciplines. The Institute for Transportation Systems (ITS) - Summer Transportation Institute Program (STIP) hosted at The City College of The City University of New York, completed its fourteenth year in 2009. The STIP Project Director, Neville A. Parker, Ph.D., P.E., continued bridging the gap between supply and demand by creating awareness and stimulating interest in high school students to take maximum advantage of the opportunities that exist in the transportation industry.

The Non-Residential - 2009 Summer Transportation Institute Program, commenced with the Opening Ceremony on Monday, June 29, 2009, and concluded with its Closing/Award Ceremony on Friday, July 24, 2009. Of the 12 scholarships awarded, 11 incoming students completed the program, in addition to one participant in the Internship component. The 11 primary students represented grades 9 through 12. Our intern is in the twelfth grade.

The 2009 STIP staff consisted of Alma T. Jefferson, M.A., Program Administrator, Roxzanne Rolston, Academic Coordinator, and Rodley Ferguson, and Michael Verlus, Academic Aides.

Community Impact Research Project: To support the transportation goals of the Go Green East Harlem (GGEH) initiative, launched by the Manhattan Borough President, and in preparation for the STIP students to assess the efficiency of MTA buses on 125th Street in Manhattan, New York, the students participated in several lectures and in-depth traffic simulations that introduced them to the World of Transportation in New York City.

Students were also instructed on the concept of “The Anatomy of a Trip” and its five (5) characteristics (Original Origin – Access - Line Haul – Egress - Final Destination). Training and assignments prepared them on how to describe the “essence” of the Fundamental Diagram of Traffic, as well as the relationships between volume, density and speed.

Supervised by the STIP staff, the students were then challenged to research how efficient MTA buses are in transporting New Yorkers as they commute to school, work, etc. The thrust was to determine the frequency of how often the buses were on time and how much they deviated from their scheduled arrival; and what variables impact their efficiency.

New York Joint Traffic Management Center (JTMC) in Long Island City, New York: On July 7, 2009, Mr. Mohamad Talas, Operations Manager, and his staff hosted the STIP students and staff. They toured the facility, met and discussed the various job responsibilities of the supervisors, police officers, and other employees, as they daily monitor the streets and dispatch appropriate responses when a traffic disturbance occurs. They also observed the technology used to monitor the current traffic flow in various areas.



Route 9A Construction Site: On July 10, 2009, the students were the guests of Mr. Peter Mazza, P.E., Engineering Counsel for Tully Construction Company, Inc., and the Senior Engineer for the 9A Construction Site, located across the street from the World Trade Center. The purpose of the 9A Construction Site was to repair roads outside of the World Trade Center that were damaged by the 9/11 attack. Mr. Mazza and their tour guide did an outstanding job of explaining the different facets of a construction site. He also reiterated that engineering is one of, if not the most, important part of a construction operation. In addition to laying



out the plans explaining how to construct the project, engineers must determine how to keep the vehicle and pedestrian traffic flowing while the roads are being reconstructed. Thankfully, due to the wonderful opportunity granted them, the students developed a stronger appreciation for the roads and the people who build them.

NJ DOT Student of the Year

Each year, one student from each academic research partner of the New Jersey Department of Transportation is awarded the Outstanding University Student in Transportation Award. This year's winner was Mr. Ashish Wadkar, a graduate student in the Civil Engineering Department of Rowan University. Ashish has been very committed to his education and his research. He has spearheaded the effort in the safety research project sponsored by the NJ Department of Transportation and pavement research project sponsored by the Federal Avia-



tion Administration. He thinks through problems logically and rationally. His work has been accepted for presentation at the DAWG workshop in TRB, MAIREPAV 2009, Sigma Xi Research Symposium and the Federal Aviation Administration's Technical Group. His academic performance, his intellectual capability and his enthusiasm all clearly demonstrate his overall abilities as an outstanding student and an excellent researcher.

September 11th Memorial Program

Recipients of the 2008/2009 September 11th Academic Initiative Program presented their research and experiences at NYMTC's Brown Bag Lunch Series on September 16th. This initiative was created in 2005 by the New York Metropolitan Transportation Council and the University Transportation Research Center to serve as a living memorial to Ignatius Adanga, Charles Lesperance, and See Wong Shum, the three NYMTC employees lost during the attack on the World Trade Center. To date, it has attracted 51 applicants and has had 18 participants selected through Year 5 (2009-10), 9 in agency internships and 9 in independent research covering a variety of topics pertinent to the Region's TIP goals. Topics presented appear below.

- Nicholas Tulach, Ph.D. candidate in Urban Planning, Rutgers University, "The Tyranny

of the Shovel: Exploring Changes in Planning During Periods of Economic Crisis."

- Peter Feroe, Masters in Urban Planning, May 2009, New York University, Internship with the Westchester County Department of Planning on Transit Oriented Development Along the I-287 Corridor.

- Evan Bialostozky, Masters Degree in Geography, May 2009, Hunter College Internship with NYMTC Technical Group

- Jennifer Lozano, Masters Degree in Urban Planning, May 2009, New York University Internship in MTA Capital Construction- Workforce Initiatives

- Darrell Sonntag, Ph.D candidate, Civil and Environmental Engineering, Cornell University "Independent Research on Modeling the Temporal and Size Distributions of Diesel Vehicular Particulate Matter Emissions"

Scholarships for the 2009-2010 academic year were awarded to the four individuals highlighted below:

Judd Schechtman is a Ph.D candidate at the Bloustein School for Planning and Public Policy at Rutgers University. He will participate in the September 11 Academic Initiative Program by undertaking independent research on the topic of *Is Sprawl Still the Law? Linking Smart Growth to Transportation Capacity*.

The proposed project will investigate the hypothesis that local land use laws and policies are exclusionary and impede climate stabilization and sustainability goals, by forcing development towards the auto-oriented edges of the region, instead of towards existing infrastructure. The research will investigate the extent to which maintenance of such policies will slow the New York region from achieving significant greenhouse gas reductions. In addition, the research will look at models for tying transportation investments to cooperative land use changes around the country and globe.

Sandra Rothbard is a master's student in urban planning at the Robert F. Wagner Graduate School of Public Service at New York University. She will participate in the September 11 Internship Program by working at the Port Authority of New York and New Jersey on the Comprehensive Long-Term Goods Movement Plan. This effort will provide the region



with the vision, strategy, and project concepts required to create an effective and efficient regional goods movement network by 2035. The Port Authority of NY & NJ will manage development of the plan in partnership with the NYS and NJ Departments of Transportation. A broader range of federal, state, regional, and local agency partners, as well as stakeholders from the private sector and other public agencies will also participate.

Alexander Wolk is a master's student in urban planning at the Robert F. Wagner Graduate School of Public Service at New York University. He will participate in the September 11 Internship Program by working in the Office of Planning and Sustainability Department in the New York City Department of Transportation. He will primarily concentrate in two areas: the analysis of potential Transit Oriented Development sites around the five boroughs and researching a Fleet Management system which would ease traffic congestion by placing GPS devices in trucks entering the city.

Haiyun Lin is a Ph.D candidate in the engineering department of the City College of New York. She will participate in the September 11 Academic Initiative Program by undertaking independent research on the topic of *Keeping Up with the Trend - Improving the Residential Location Model for the New York Metropolitan Region*. Residential location models describe how households make location decisions. The model is an essential element in integrated land use

and transportation models because the urban landscape is shaped by the location decisions of countless households. To improve upon existing residential models, Ms. Lin's research will answer the following questions: How does a person's past location experience affect the preferences in the current location decision?; How does a person's ethnic background affect the preferences in the current location decision? How does the social context play a role in the current location decision?

New York Metropolitan Transportation Council – Executive Development Program.

Designed for mid-level transportation agency personnel identified as having high career potential, the Executive Development Program focuses on transportation management, policy, operations, and planning. The program is administered through UTRC and conducted by NYU's Rudin Center for Transportation Policy and Management. In addition to providing students with a year-long curriculum, this highly successful program fosters informal inter-agency relationships among participants, thus promoting greater inter-agency cooperation and exchange of best practices within the field.

UTRC WTS Award Winners

In 2009, the UTRC WTS Student Award is being shared by two women, Tra Vua and Nayibe Perez. The two applicants for the Women's Transportation Seminar's (WTS) Leonard Braun Memorial Graduate Scholarship were both excellent and the Committee could not choose between them.

Tra Vua is working on her Ph.D. in Transportation Planning and Engineering at Polytechnic Institute of New York University. She is working under Professors Roess and Prassas on the Dynamic Rate Structure of Mileage-based User Charge (or the Vehicle Miles Traveled Tax). She became interested in this topic after a trip back to Vietnam in 2008, where she found that the increase in vehicles since her last time there seven years earlier had grown "at a dizzying pace" and the fumes, noise, congestion, and accidents levels were out of control. She hopes that her research will help bring order to transportation in Vietnam.

Nayibe Perez is studying for a Master's in Civil Engineering specializing in Transportation at The City College of New York. After graduating with a Bachelor's in Computer Engineering, she started working as a document control clerk at DMJM Harris. She is now the Project Control Engineer for the Tappan Zee Bridge Project at AECOM. She plans on focusing her career on helping to develop transit projects in order to increase their efficiency and sustainability. Her background in computers has also sparked her curiosity about how intelligent transportation systems can improve transit.

Advanced Institute of Transportation Education

UTRC's Advanced Institute for Transportation Education sponsors the AITE Graduate Scholarship to attract bright people to careers in transportation and to encourage practicing transportation professionals to keep themselves current and increase their expertise in transportation. The scholarship pays up to \$25,000 in tuition and stipends (for the full time students) and ten scholars per year to earn a master's degree specializing in transportation at one of six civil engineering or planning programs. In 2009, 28 potential students applied for the AITE Graduate Scholarship. The group of scholars who received the scholarship includes a project manager at the New York City Transit, a New York City DOT employee in signals, and two New York State DOT employees, one in safety and mobility and the other in landscape architecture and environmental services. Additionally five full time students receive the scholarship; besides their course work they are undertaking research projects ranging from GIS based asset management to a cost benefit analysis of a BRT system.



TECHNOLOGY TRANSFER

UTRC's Technology Transfer Program goes beyond what might be considered "traditional" technology transfer activities. Its main objectives are " (1) to increase the awareness and level of information concerning transportation issues facing Region 2; (2) to improve the knowledge base and approach to problem solving of the region's transportation workforce, from those operating the systems to those at the most senior level of managing the system; by doing so, to improve the overall professional capability of the transportation workforce; (3) to stimulate discussion and debate concerning the integration of new technologies into our culture, our work and our transportation systems; (4) to provide the more traditional but extremely important job of dissemination of research and project reports, studies, analysis and use of tools to the education, research and practicing community both nationally and internationally; and (5) to provide unbiased information and testimony to decision-makers concerning regional transportation issues consistent with the UTRC theme.

Symposium: NextGen: The Future of Aviation

On February 25, 2009, the Port Authority of New York and New Jersey (PANYNJ) and the Region 2 University Transportation Research Center (UTRC) convened a half-day symposium, "NextGen: The Future of Aviation." Attended by approximately 300 individuals from around New York State and the nation, the symposium generated support and a call to action for a faster deployment of the Federal Aviation Administration's Next Generation Air Transportation System - called NextGen, which promises to improve the current antiquated air traffic control system.

The aviation industry is vital and fundamental to our national economy and to its continued level of prosperity. Over 11 million people work in aviation related jobs; over \$1.2 trillion of economic activities are generated from it. According to the Federal Aviation Administration (FAA), the industry contributes approximately 5% of the United States Gross Domestic Product (GDP).

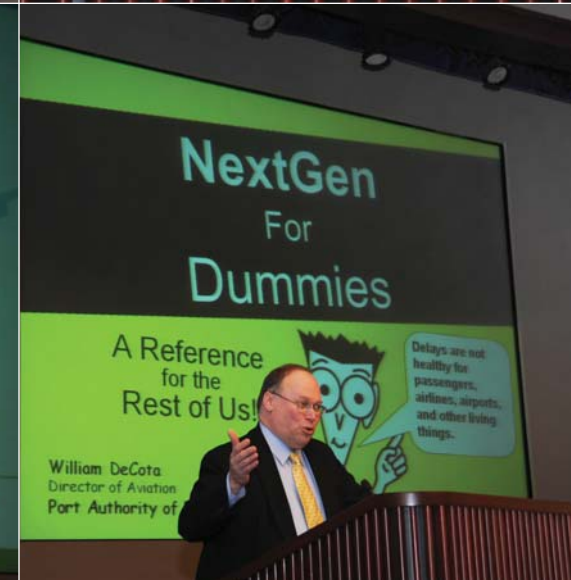
Unfortunately, the National Airspace System (NAS), the backbone of the aviation industry, is at the saturation point, with antiquated

ground-based radar technologies no longer able to accommodate the growth of U.S. aviation. These constraints are causing flight delays in the U.S. aviation system, posing a threat to both our regional and national economic growth and prosperity. It is estimated that the delays in the airspace system will only grow worse as the number of passengers flying each year in the U.S. continues to rise. Delays resulting from these constraints of the current NAS are very costly in terms of lost time to the traveling public, loss of productivity, wasted fuel, and pollution on the environment. Flight delays will continue to be costly if no action is taken.

The problem of flight delays is especially acute in the New York metropolitan area and their cascade effects impact flights at airports throughout the global system. The New York Region's three major airports have consistently ranked among the nation's worst in on-time performance. These airports, which handle about one-third of the nation's flights, are ultimately responsible for approximately three-quarters of nationwide delays. According to *Grounded: The High Cost of Air Traffic Congestion*, a report released by the Partnership for New York City, the annual cost of flight delays caused by air traffic congestion at the New York Region's three major airports was

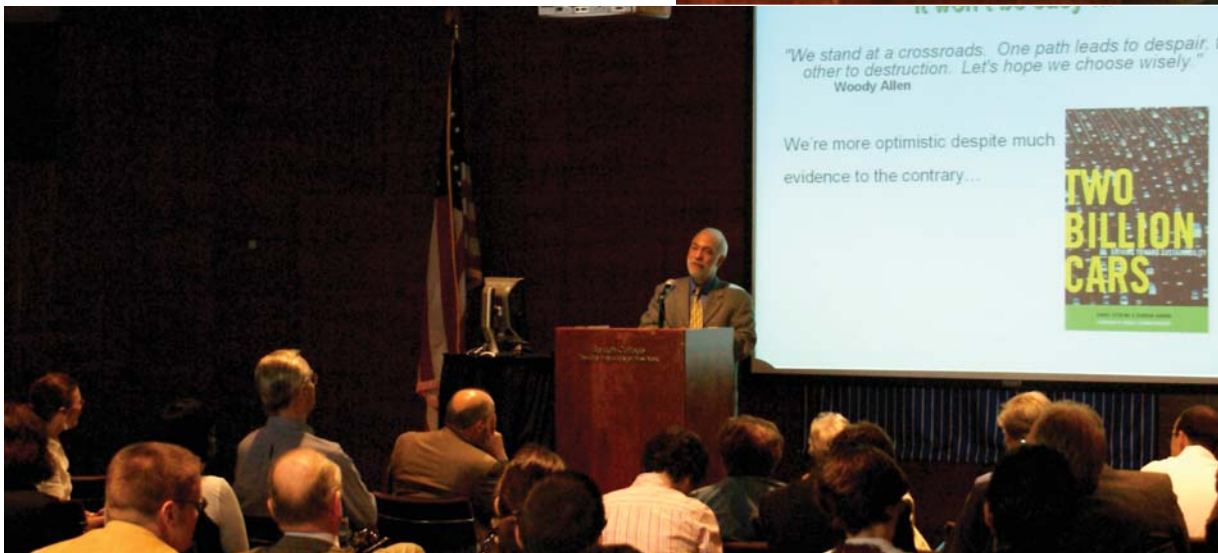
more than \$2.6 billion in losses to the regional economy in 2008. If no action is taken, it will total a staggering \$79 billion over the eighteen year span between 2008 and 2025 and by 2025, approximately 40 million passengers that would have flown in the absence of caps imposed by FAA, will be displaced and turned away from our region. As a result, the New York Metropolitan Region risks to lose its status as a thriving center of international business, finance and innovation.

It is thus incumbent upon those who work in the aviation industry and all stakeholders, to get the message out and call for the new leaderships at the FAA to implement NextGen now. As documented in *Grounded* and loudly stated by the speakers of this symposium, inaction, or short-term band-aid solutions, are no longer viable options. What is required is bold action by policy makers to restructure the way the system moves airplanes and passengers through the region. The PA urged the public to join together in calling on the federal government to immediately increase the investment in our national airspace system.



Two Billion Cars and the Transformation of Transportation

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.



Sex Changes Everything: On the Demographic Determinants of the U.S. Commute, 1985-2007

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.



A Bridge to Somewhere: Rethinking American Transportation for the 21st Century

On November 21, 2008, Robert Puentes, a fellow with the Brookings Institution Metropolitan Policy Program, was the speaker for the seminar hosted by UTRC. He presented on the topic of “A Bridge to Somewhere: Rethinking American Transportation for the 21st Century.”

If transportation policy is going to achieve critical national objectives around economic competitiveness, environmental sustainability, and social equity in an era of fiscal constraints it will require a 21st-century transportation vision. In this presentation, Robert Puentes presented a lay out such a vision and argue that by concentrating reforms on three major policy areas—federal leadership, empowerment of metropolitan areas, and optimization of the program—federal transportation policy can move from the anachronistic structure that exists today to something that actually works for the nation and metropolitan America.

Mr. Puentes also directs the Program’s Metropolitan Infrastructure Initiative. The Initiative was established to address the pressing transportation and infrastructure challenges facing cities and suburbs in the United States and abroad. Robert’s work focuses on the broad array of policies and issues related to metropolitan growth and development. He is an expert on transportation and infrastructure, urban planning, growth management, suburban issues and housing.



Using Configuration Management to Control Complex Transportation Projects

At the NJDOT Technology Transfer Seminar, on November 13, 2008, Dr. Trefor William, Professor, Civil and Environmental Engineering, Rutgers University gave a presentation on Using Configuration Management to Control Complex Transportation Projects.

This seminar provided an introduction to the use of configuration management to better control complex transportation construction projects. The various tasks required to implement a configuration management system was discussed in detail. Case studies from other transportation projects was provided. A discussion of computerized methods for implementing configuration management was also provided.



Safety and Behavior of Bridges Subjected to Blast in a Multi-hazard Environment

The significance and urgency of developing guidelines for blast resistant design of bridges has become more prominent due to increased security risks to our infrastructure. The recent collapse of the I-35W Mississippi River bridge in Minnesota has demonstrated the risk of substantial casualties, economic disruptions and other societal ramifications. Analyzing and designing bridges to sustain blast load effects requires the use of specialized and complicated computational tools. This task is more complicated by the fact that bridge components must be designed to sustain different hazards, many of which have conflicting demands. Bridge owners and their staff should also be trained in analyzing and in understanding effects of blast on the structure in a multi-hazard environment.

With these objectives in focus, the “Workshop on Safety and Behavior of Bridges Subjected to Blast in a Multi-Hazard Environment” was organized and held in New York City from February 18-19, 2009. The workshop, co-chaired by Professor Anil K. Agrawal of the City College of New York, Dr. Sreenivas Alampalli, Director of the Bridge Evaluation Services Bureau at NYSDOT, and Dr. Mohammed Ettouney of Weidlinger Associates, was sponsored by the Region 2 University Transportation Research Center (UTRC), Federal Highway Administra-

tion, NJ DOT, NYSDOT and the City College of New York.

The two-day workshop was attended by about 80 people, by invitation only, from state transportation agencies, federal government, consultants, and researchers. The first day of the workshop was filled with presentations from leading experts in the field on: (1) bridging the gap between state of knowledge and state of practice; (2) current status of blast analysis, design and detailing; (3) the role of multi-hazard design philosophy in blast mitigation; (4) design paradigm and emergence of performance-based design; (5) AASTHO and FHWA perspectives and ongoing efforts related to bridge security. The second day of the workshop consisted primarily of breakaway sessions. In these sessions, participants were divided into groups of bridge owners, federal stakeholders, researchers and consultants, and enforcement. Participants were provided with carefully designed questionnaires and discussion items. Representative chairs of each of the sessions then presented summaries of the discussions. In addition, presentations were given by Dr. Mary Ellen Hynes and Dr. John Fortune of the Department of Homeland Security where they discussed research initiatives taken by DHS towards improving the safety of our nation’s bridges and other infrastructure.

Multi-Hazard Seismic-Blast-Impact Load Effects on Highway Bridges for Performance Based Design

At the NJDOT Technology Transfer Seminar on November 20, 2008, Dr Anil Agrawal, Associate Professor, Civil Engineering, The City College of New York gave a presentation on Multi-Hazard Seismic-Blast-Impact Load Effects on Highway Bridges for Performance Based Design.

According to Dr. Agrawal, a highway bridge is expected to experience numerous extreme events during its lifetime. Several of these hazards, such as scour (and flood), earthquakes and impact, have not been considered adequately in the design of numerous existing structures because of the lack of sufficient engineering knowledge on these hazards. The severity of these hazards can significantly increase the costs of construction and maintenance, especially if they are considered for rehabilitation of existing bridges. These severe hazards have sometimes conflicting demands, with the resulting increase in costs being even higher. A recent study has reported that 503 bridges of various types failed during 1989 to 2000 in the United States. Flood and scour contributed to almost 53% of all failures. Bridge overload and lateral impact forces from trucks, barges/ships, and trains constitute 20% of the total bridge failures. Earthquakes have caused the failure

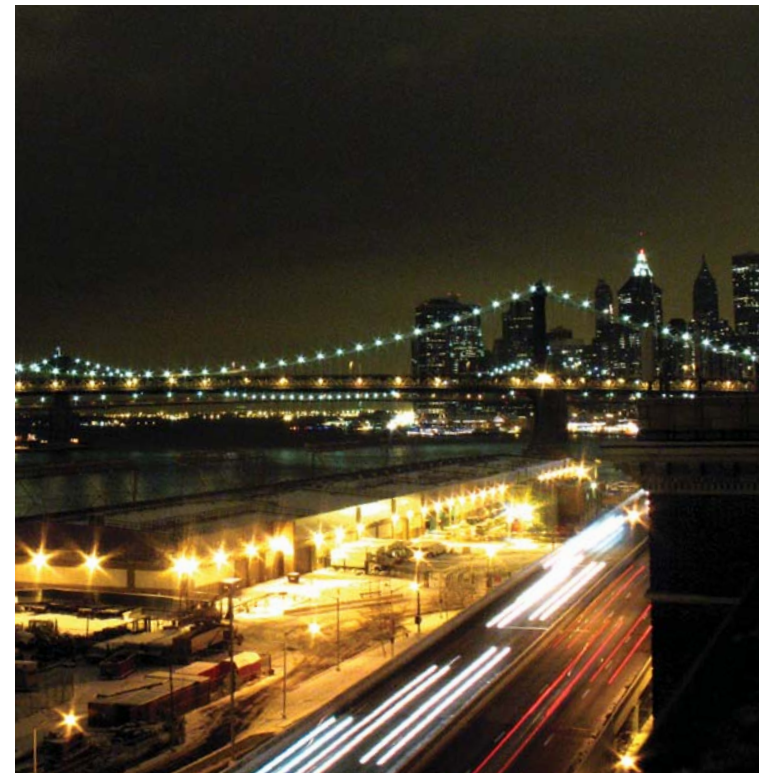
of 17 bridges (3.4%) during the 1989 to 2000 period, most prominently during 1989 Loma Prieta and Northridge earthquakes. These data show that a performance based design approach must be developed to consider multi-hazard seismic, blast and impact loads on highway bridge components. This presentation discusses performance based design issues for a highway bridge subject to seismic, blast and truck impact loads through finite element simulation of a three-span reinforced concrete bridge. Various failure modes of the bridge subjected to the three hazards and their comparisons are discussed to present a framework for the performance based design of bridge components subject to multi-hazards.



Making the Connection: Transit Oriented Development- A Blueprint for Success

Transit Oriented Development (TOD) is broadly described as higher density, mixed-use development located within walking distance of a transit station. According to Reconnecting America's Center for Transit-Oriented Development, successful TOD must also include location efficiencies, boost transit ridership, reduce traffic, and provide a mix of housing, shopping and transportation options. TOD enjoys widespread support among transportation, planning, and development professionals who view it as a way to reduce reliance on automobiles and urban sprawl, improve quality of life, and create and enhance mixed-income neighborhoods. In the New York-New Jersey-Connecticut metropolitan region, TOD takes on particular importance as communities increasingly look to reduce congestion and their carbon footprint. While TOD potentially has much to promise, there are many challenges to its successful implementation. "Making the Connection: Transit Oriented Development-A Blueprint for Success" was held on November 14, 2008. This symposium explored opportunities, challenges, and policy questions related to TOD. Speakers provided regional, national, and international examples about what works, what does not work—and why—when trying to implement such projects.

This event hosted at New York University was sponsored by New York Metropolitan Council and The Rudin Center at NYU. It was co-sponsored by the NY Metro Chapter of the American Planning Association, The Furman Center for Real Estate and Urban Policy at NYU, Pace University Land Use Law Center, and the University Transportation Research Center, Region 2.



Shifting Your Paradigm - Thinking for 2010 and beyond

At the NJDOT Technology Transfer Seminar, on November 5, 2008, Dr. Frederick Brodzinski, Associate Director, Institute for Transportation Systems at the City University of New York, gave a presentation on “Shifting Your Paradigm - Thinking for 2010 and beyond.”

In this presentation, Dr. Brodzinski examined the underlying concepts and perceptions that make one’s current paradigm -- its way of thinking, the way one view the world! Participants were challenged to adjust their thinking to the realities of today and tomorrow. Although no one can exactly predict the future, established trend lines show us the parameters, limitations, and probabilities for tomorrow. According to Dr. Brodzinski, we need to leave behind the thought processes that were based on old technology, old data, and old management techniques and embrace the new and transitional developments that are already in place. Communication, transportation, and technology now enable us to buy an item anywhere in the world and have it delivered anywhere in the world within 24 hours. Email and cell phones have changed human interactions and hand held computers, such as the I Phone; allow us to have previously unimaginable access to data and organized information. The music machine has evolved from the phonograph, to the portable radio, to the walkman, to the disc man, to the

MP3 player, to the iPod in less than a lifetime and the pace of technological change has quadrupled in the last 20 years. Do you pay all your bills electronically, have a GPS, download home movies to your flat screen, know where the tallest building in the world is today, and use voice recognition software? Even if you do you still need to come to this seminar.

The seminar addressed three areas that will impact someone paradigm: technology innovation, changes in human interaction, and demographic and economic trend lines



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.

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 a follow-up meeting designed to advance these goals will be posted on UTRC's website as it becomes available.

Infrastructure Security Workshop

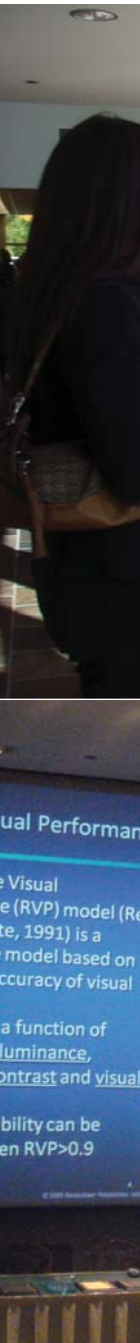
The two day workshop, held on October 13th and 14th, hosted by the Center for Advanced Information Processing (CAIP) at Rutgers University and co-sponsored by UTRC and NJDOT provided a forum to disseminate information on infrastructure security and evacuation planning for engineers, consultants, and owners.

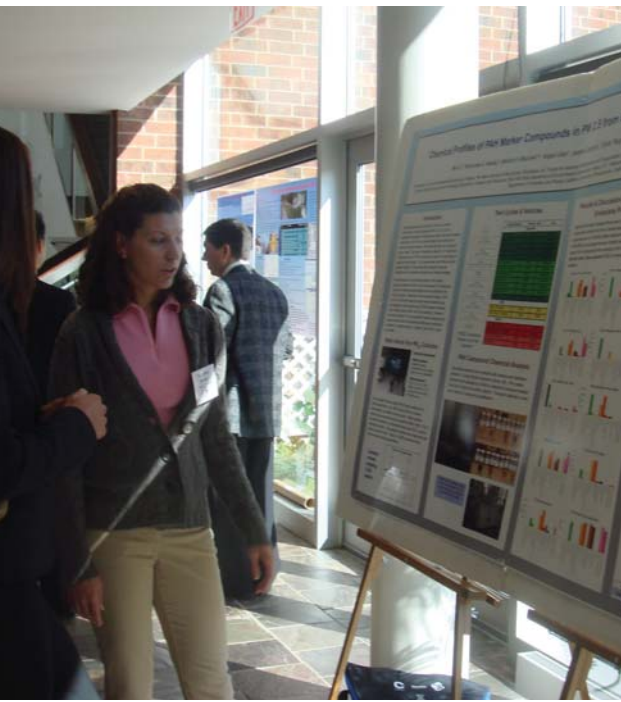
A number of relatively natural and manmade catastrophes have been instrumental in allocating funds to several research and development projects throughout the USA. These and other "infrastructure security" projects are generating very valuable and potentially lifesaving results. However, there is a need to communicate these results to public and private agencies as well to develop synergies among practitioners and researchers to share their results. This workshop provided a forum for the transfer of knowledge and experiences that can be used to improve evacuation planning, security and the safety of infrastructure facilities.

NJDOT 11th Annual Research Showcase

The NJDOT Bureau of Research held its 11th Annual Research Showcase on October 14, 2009 at the Conference Center at Mercer County Community College, New Jersey. The showcase is hosted by the New Jersey Department of Transportation, Federal Highway Administration, and the Center for Advanced Infrastructure and Transportation at Rutgers University. The Research Showcase aims to bring together transportation professionals from Federal, State and Local Governments, University Research Partners and Legislators to showcase the broad scope of the ongoing research program and to explore potential research ideas for the future. This year's event emphasized the value of research in transportation, in addition to, identifying issues and finding solutions related to Safety, ITS/Congestion Mitigation, Security, Infrastructure, and the Environmental issues impacting our State.

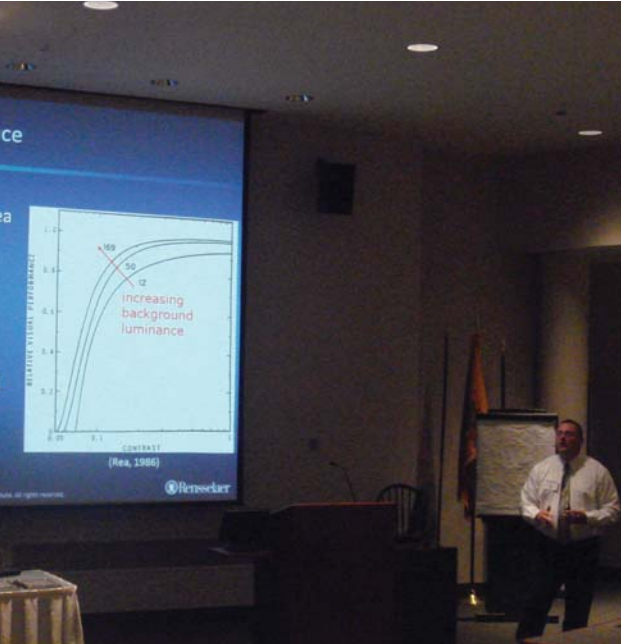
The NJDOT Research Showcase has become a model for other states who desire to showcase the work being conducted through their Research and Technology Programs. UTRC participated in this event by presenting its research to the audience. UTRC also presents its research on individual topics on separate occasions to staff of NJDOT as well. In Fall of 2009, UTRC organized seven exclusive technology transfer events at NJDOT headquarters.





NJ TransAction 2009

UTRC remained active in the region and in NJ by participating in the NJ TransAction 2009 Conference held in Atlantic City in May. UTRC managed its booth and participated in conference events while answering questions and facilitating discussions with conference attendees, presenters and vendors.



Transformational Infrastructure

Key Decisions on Transportation that will shape the NY Metro Region's Real Estate Future

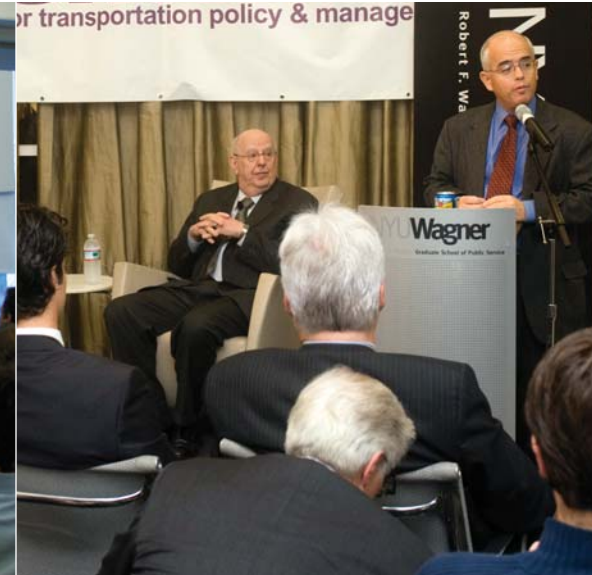
UTRC in conjunction with the CUNY Institute for Transportation Systems and the Steven L. Newman Real Estate Institute presented a half-day conference on "Transformational Infrastructure" on October 23rd. The region's highest level transportation officials came together with leading academics and influential real estate and economic development experts to discuss the state of NY's infrastructure and its impact on real estate market conditions. The interesting and lively debate between panelists and attendees from the ASCE, MTA, NYMTC, PANYNJ, NYSDOT, NY EDC and the Federal Reserve Bank was summed up by Robert Paaswell who gave the charge to stakeholders to collaborate to ensure the region's attractiveness and competitiveness in the global economy. All panelists were interviewed on camera by CUNY Television for inclusion in an hour long piece to air on the subject later in the year.

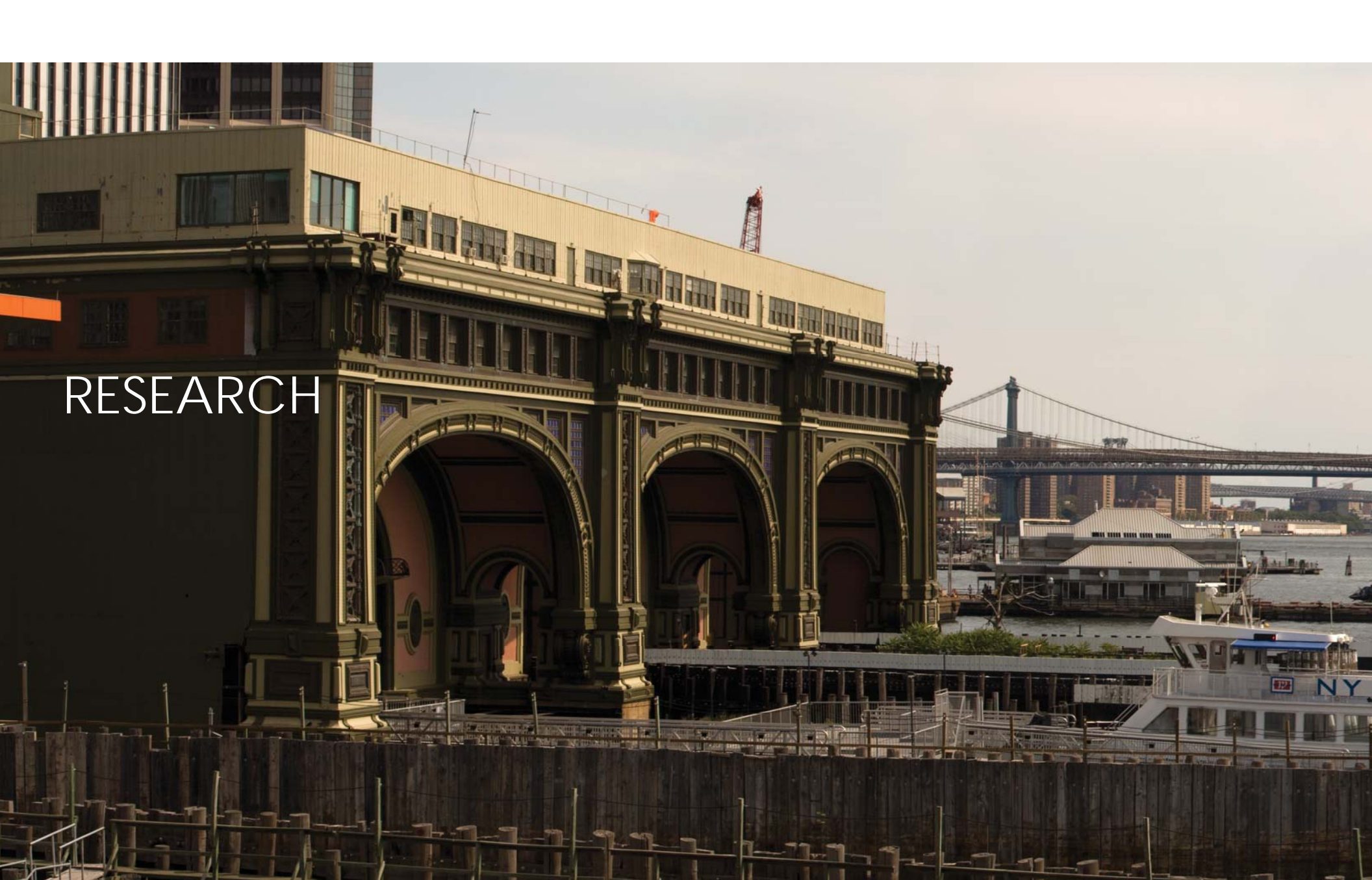


New Programs Held by NYU's Rudin Center and Co-Sponsored by UTRC

The Thinking and Doing Breakfast Series: Policy Makers Meet Policy Researchers is a new program initiated by NYU's Rudin Center for Transportation Policy and Management. This series links current New York area transportation leaders and practitioners with top academic thinkers to discuss challenging transportation topics: bridging theory with practice. "The Story of the Highline: A Conversation with Robert Hammond and Professor Ingrid Gould Ellen" was held on September 30 and "Funding Mass Transit with Richard Ravitch and Professor Charles Brecher" was held on October 28, 2009. Both events were very well attended.

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, 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. Andre Mondschein, of UCLA was the first candidate to present his topic "Cities in Mind: Processes and Access to Opportunity" on October 23, 2009".





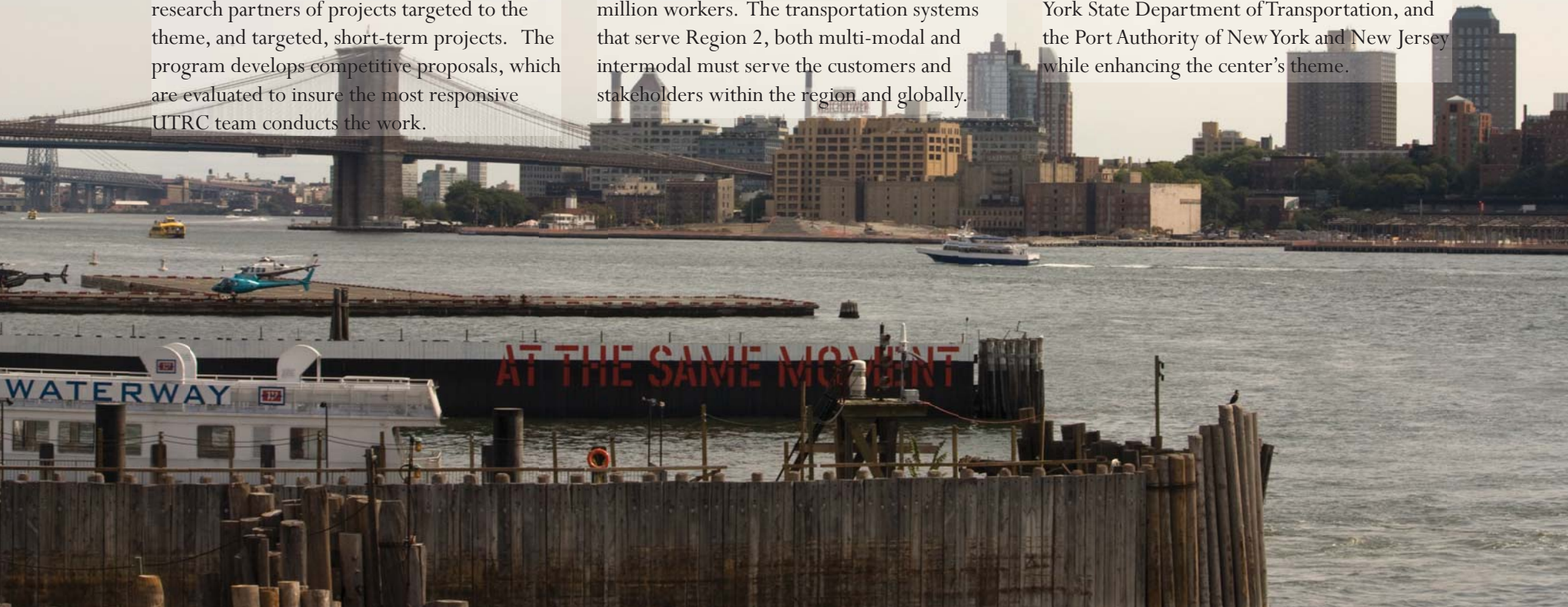
RESEARCH

Program Objectives

The research program objectives are (1) to develop a theme based transportation research program that is responsive to the needs of regional transportation organizations and stakeholders, and (2) to conduct that program in cooperation with the partners. The program includes both studies that are identified with research partners of projects targeted to the theme, and targeted, short-term projects. The program develops competitive proposals, which are evaluated to insure the most responsive UTRC team conducts the work.

The research program is responsive to the UTRC theme: “Planning and Managing Regional Transportation Systems in a Changing World.” The complex transportation system of transit and infrastructure, and the rapidly changing environment impacts the nation’s largest city and metropolitan area. The New York/New Jersey Metropolitan has over 19 million people, 600,000 businesses and 9 million workers. The transportation systems that serve Region 2, both multi-modal and intermodal must serve the customers and stakeholders within the region and globally.

Under the current grant, the new research projects and the ongoing research projects concentrate the program efforts on the categories of Transportation Systems Performance and Information Infrastructure to provide needed services to the New Jersey Department of Transportation, New York City Department of Transportation, New York Metropolitan Transportation Council, New York State Department of Transportation, and the Port Authority of New York and New Jersey while enhancing the center’s theme.



Mode Shift in Transit Under-served Neighborhoods in New York

Performing Organization:
New York University,
City College of New York

Sponsors: Research and Innovative Technology
Administration / USDOT

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In response to higher gas prices, continuously worsening road congestion in urban cores and major corridors, and increasing concern with greenhouse gas emissions and energy independence, more and more people are finding that alternative modes (such as transit, car sharing, non-motorized travel, etc.) are acceptable travel solutions. These alternatives indicate emerging market segments that could offer opportunities to build sustainable transportation systems in the decades to come, and therefore may warrant more investment. However, there is little understanding of what drives individuals to one of these alternatives rather than continue to use their personal automobiles. Moreover, there is little understanding of which alternatives work most effectively, and under which situations.

Given that New York City already has one of the most far-reaching transit systems in the country and that New York City Transit already has a high penetration rate, the greatest opportunities for moving even more people away from cars and onto transit will likely come from “transit under-served areas.” The term “transit under-served areas” (TUSAs) refers to areas in a metropolitan region with a development density not as high as downtown, but also not as low as most suburban communities. These medium-density areas are normally well served by local transit but still far away from rapid transit systems. TUSA residents often rely on local services or private modes to access rapid transit.

The central point that this research will make is that the under-served market has a great potential to contribute to mode shift and ridership increase in public transit. The penetration rate in the first-order market is already high, and the room for increase is limited (TCRP Report 37, 1998). Attracting new riders in the suburbs is costly and slow (TCRP Report 55, 1999). In contrast, TUSA residents have plausible public transit options, and their needs could be met cost-effectively without significant expansion of the existing network. This research aims to elaborate this point by exploring several TUSAs in New York City. The purpose is threefold: (1) to understand the multiple travel options that TUSA residents face; (2) to analyze current modal choice decisions and possible responses to policy interventions; and, (3) to draw policy implications that could help transit agencies recruit new customers from TUSAs, while retaining existing customers and building strong constituencies in this new era.

Analysis of Bicycling Trends and Policies in Large American Cities: Lessons for New York

Performing Organization: Rutgers University

Sponsors: Research and Innovative Technology Administration / USDOT

Principal Investigators:

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The US Department of Transportation (USDOT) has set a goal of increasing the percentage of trips by bicycle while improving safety. The rationale for promoting cycling is that it would shift some trips from the car, thus reducing roadway congestion, parking problems, air pollution, noise, and energy use. The USDOT and the Centers for Disease Prevention and Control also advocate active transport such as bicycling for physical activity that would help combat the worsening obesity epidemic.

Many states and cities across the USA have adopted similar goals and begun ambitious programs to improve cycling infrastructure. New York City has recently adopted a Bike Master Plan that would vastly expand cycling facilities and bike parking while implementing cycling training, traffic safety, and promotional programs. New York has already added 245 miles of bike paths and lanes in the past ten years and plans an additional 563 miles of bike paths and lanes in the coming ten years.

Cycling in New York has increased considerably in recent years. Annual cordon counts conducted by the City of New York at a wide range of locations indicate that cycling levels increased by 75% between 2000 and 2007. Nevertheless, cycling accounted for only 0.5% of work trips in 2006, compared to much higher bike mode shares for many other large cities: 3.5% in Portland, 2.4% in Minneapolis, 1.9% in San Francisco, 1.7% in Washington, DC, and 0.7% in Chicago (Thunderhead Alliance, 2007). Thus,

New York appears to be on the right path but has a long way to go, and could benefit from the experiences of more successful cities.

Over the past ten years, the principal investigators of this research project have conducted and published extensive studies of cycling in Europe and Canada, employing multivariate analysis of large datasets as well as in-depth case studies of cycling in 16 specific cities. On the basis of past experience examining cycling in the most successful European and Canadian cities, this research will now study cycling trends and policies in New York and five other American cities that have been among the most successful large American cities at promoting cycling.



Advanced Applications of Person-based GPS in an Urban Environment

Performing Organization:
State University of New York,
City University of New York

Sponsors: Research and Innovative Technology
Administration / USDOT

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Recent innovations in global positioning systems (GPS) make it possible to collect accurate person-based travel data using personal GPS units. However, little progress has been made in the migration of these data to geographic information systems (GIS) to make the use of personal GPS both practical and efficient in transportation. In a limited number of travel survey experiments, members of the research community have demonstrated the process of using the data to interpret travel patterns of individuals carrying personal GPS units. The GPS data includes data elements that accurately track the location and the time of travel, but not the essential mode information. To obtain mode information, the current practice is to conduct a modified survey on paper, phone, web, or directly on the GPS units.

The objective of the proposed research is to develop an algorithm in the GIS environment that will take the travel sequence data from personal GPS units and automatically identify the modes of transportation that were used by an individual in time and space. The study will be set in New York Metropolitan Region, where land use and the extent of transit services are the most intense in the nation. The results of this study will provide transportation agencies with new techniques to exploit during their future survey efforts, with the aim of significantly reducing survey cost, reaching out to underrepresented populations and maintaining a sufficient sample size. The deployment of an automatic GPS/GIS mode identification procedure will also make a

more frequent survey of the region's travel pattern possible in the near future.

This study proposes to develop a "best practice" approach to linking the various geographic data streams from off-the-shelf equipment to end users, including the modeling community and travel behavior analysts. The research will trace the movement of the data streams from the original equipment software data elements (e.g., HDOP, number of available satellites) through the interpretation of modes (e.g., walking, traveling on transit by type, traveling by auto) using an algorithm within a GIS context.

Customization of TELUS-base Project Information Management System (PIMS) for NYMTC

Performing Organization:
New Jersey Institute of Technology

Sponsors:
New York Metropolitan Transportation Council,
Research and Innovative Technology
Administration / USDOT

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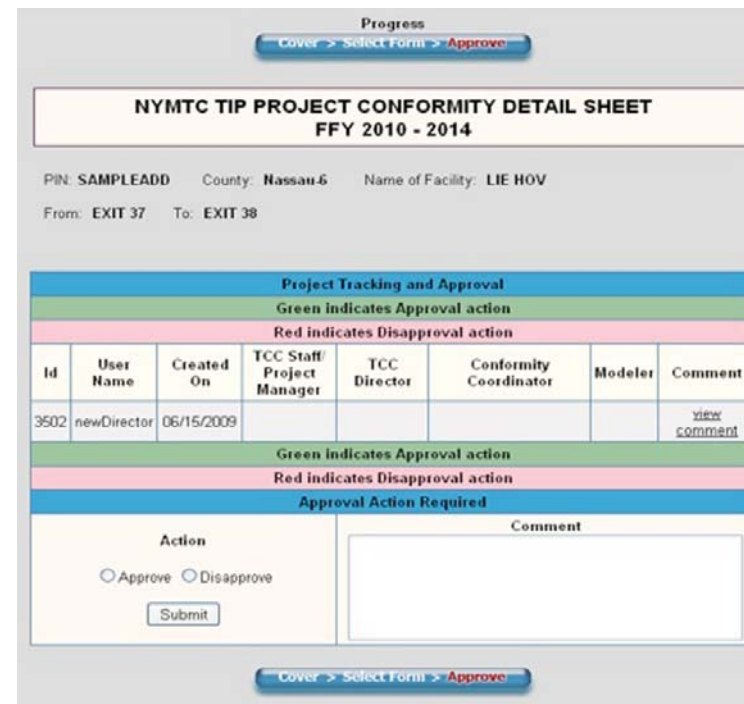
TELUS (Transportation, Economic & Land-Use System) is a fully integrated information-management and decision-support system designed to help Metropolitan Planning Organizations (MPOs) and State Departments of Transportation (SDOTs) prepare their annual Transportation Improvement Programs and to carry out other responsibilities under the Transportation Efficiency Act for the 21st Century (TEA-21). TELUS has been funded by a grant from the FHWA, which has recently started promoting TELUS as a “Priority, Market-Ready Technology.”

Web TELUS is an internet-enabled system that can be implemented at various levels. An MPO could use it in conjunction with local governments or an SDOT could use it with MPOs. The system essentially parallels the desktop system with the inherent advantages of a web-based environment that is highly customizable to meet most agencies requirements.

A customized version of Web TELUS called Project Information Management System (PIMS) was deployed at NYMTC in October 2006. The objective of that project was to customize Web TELUS to automate the workflow of NYMTC’s Conformity Project Information Management System (CPIMS). The developed system obtained project information from NYMTC member agencies, validated the information, incorporated with the NYBPM network coding procedure to update the highway and transit networks accordingly. It created

electronic sheets, which facilitated regular, effective and efficient communications among project managers, TCC staff and NYMTC staff with respect to all transportation projects being included in the air quality conformity process.

The result was an operational web-based PIMS application. After deploying the PIMS application and subsequent use of the system by Project Managers, TCC and NYMTC Staff, additional features such as reporting and improved user friendliness would be desirable and would further improve functionality and usability of the system. After numerous meetings with end-users and other interested stake-holders, this proposal was created to enhance PIMS by developing new functionality to the system.



Effectiveness of Traffic Calming Measures

Performing Organization:
City University of New York

Sponsors:
New York City Department of Transportation

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Although traffic crashes have been reduced significantly in New York City since 1990, safety continues to be a major concern. Traffic calming or similar measures have been shown to be effective countermeasures for improving safety and improving the multimodal street environment, and in fact New York City has successfully introduced numerous traffic calming measures. To increase the effectiveness of safety efforts, however, the New York City Department of Transportation needs to have better information on the expected impacts of the traffic calming measures on safety and other factors such as traffic volumes as well as which measures are most appropriate to specific situations. They also need a tool that will allow them to continue evaluating the appropriateness of traffic calming and other measures to specific locations beyond the end of this project.

The objective of this project is to allow NYC-DOT to proactively evaluate and address safety conditions throughout the city. More specifically, there are two main goals of this project:

- Develop an enhanced analytic tool for NYCDOT to identify and evaluate safety issues in problematic locations; and
- Determine the safety impacts of recently implemented and new candidate traffic calming measures.

New York City Park and Ride Study

Performing Organization: Rensselaer Polytechnic Institute

Sponsors:

New York State Department of Transportation,
Research and Innovative Technology
Administration / USDOT

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In the United States and Canada, park and ride (P&R) facilities have existed in one form or the other since mid-1920s. More recent public investment in P&R facilities is mainly a response to increasing global oil prices and an initiative by DOTs to provide alternative transportation services (facilitate the use of mass transit systems in particular). With the emergence of new technologies, innovative public-private partnerships and the need for “green transportation,” the role of P&R facilities is rapidly changing. In congested urban areas, for instance, there is a growing interest from both public and private sectors to build and operate P&R facilities Park and Ride facilities.

Park and ride is but one of several tools available to transportation officials to solve specific transportation problems. To put it plainly, the transportation problem in parts of New York City and its surrounding areas is not lack of park and ride facilities but rather more fundamental issues such as cost of travel, traffic congestion, limited downtown parking opportunities etc. Accordingly, we view this project not as advocacy for a specific transportation solution. Rather, this project will provide guidance to assure that if park and ride is a chosen through a robust planning process, that the best possible system and projects are developed.

Potential Long Island Intermodal Sites Study

Performing Organization: City University of New York / CUNY Institute for Urban Systems

Sponsors:

New York State Department of Transportation, Research and Innovative Technology Administration / USDOT

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New York State Governor Paterson has called attention to a complex set of transportation and environmental issues regarding a proposed truck/rail intermodal facility at the Pilgrim State Hospital site in Suffolk County, Long Island. These issues can be summarized as follows:

- Is an intermodal truck/rail facility needed to respond to the current and anticipated volume of goods movement in Nassau and Suffolk Counties?
- Where should such a facility be located?
- What are the economic, social, and environmental effects of such a facility and can any adverse effects be mitigated?

To address these questions, the CUNY Institute for Urban Systems (CIUS) has assembled a Study Team of highly qualified engineers, planners, and policy experts. They are experienced in multi-modal freight planning and operations, environmental impact assessments, planning and the political process. They are well-informed about Long Island, the New York Metropolitan Region and the issues cited above, and have extensive experience working with stakeholder groups as well as public agencies. Several Team members, including the Principal Investigator, are currently working on a major transportation and land use study in Nassau and Suffolk Counties.

Feasibility Study for Freight Data Collection

Performing Organization:
Rensselaer Polytechnic Institute

Sponsors:
New York Metropolitan Transportation Council
Research and Innovative Technology
Administration / USDOT

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To consider freight issues systematically and quantitatively, effective and efficient freight data collection plays a crucial role, especially for (a) improvement strategies evaluation for freight mobility, (b) system performance forecasting, (c) mitigating the impacts of truck traffic, (d) determining the impacts on air quality, and (e) improving the safety and security performance of the road network. This project proposes to establish an efficient and cost-effective freight data collection framework for NYMTC to address data needs in freight modeling. The framework is part of a comprehensive process that is comprised of a number of major components:

- Freight data needs and data sources.
- Estimation of total deliveries by ZIP code.
- Definition of data collection framework.
- Investigation of freight system characteristics of the NYMTC region.
- Estimation of data collection cost.

The proposed study shall be built upon the project team's extensive research activities on freight modeling, hand-on experiences on freight data collection and analysis, and knowledge of the characteristics of the region's freight transportation systems. The project shall produce an actionable set of recommendations regarding the most efficient and cost-effective freight data collection framework to support NYMTC's modeling objectives.

Potential for Natural Brine for Anti-Icing and De-Icing

Performing Organization: Rowan University

Sponsors:

New York State Department of Transportation

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This project focuses on the use of natural brine as an anti- and de-icing agent for winter highway maintenance. Specifically, the New York State Department of Transportation (NYSDOT), Onondaga County DOT and Village of Fayetteville, N.Y., will procure and utilize brine to evaluate the use of brine as an anti- and de-icing agent. In recent years natural brine has been tested by various transportation agencies in the USA and other countries. Results indicate that salt brine may have great potential as an anti-icing and de-icing agent in comparison to other conventional chemicals. Liquid salt brine applications are much more effective than solid applications in preventing ice from forming a bond with the road surface.

Because of the negative environmental impacts of conventional salts there is a growing interest in reducing the volumes of conventional salts used in highway maintenance. Pre-wetting with salt brine is an alternative that has been studied for quite a while. Results are very positive for the use of salt brine as a pre-wetting agent. Pre-wetting results are sometimes a function of the road site specifics such as volume of traffic, weather conditions etc.

This project focuses on detailed investigation of the feasibility of salt brine applications for winter highway maintenance globally and within the USA. It also focuses on a pilot study to be conducted at select sites in Syracuse, New York to collect real data to determine the impact of salt brine application.

The overall technical research objectives of this research are to:

- Conduct a thorough literature review of current practices employed by all states in the USA and select countries for use of natural brine in highway maintenance;
- Prepare a report summarizing the findings of the literature review;
- Investigate use of natural brine application via a pilot study;
- Prepare a brine application database
- Evaluate brine application rates, impacts, costs etc. and compare it to roadways using other conventional methods;
- Prepare deliverables such as handbooks, reports, presentations etc. to aid the transportation industry.

UTRC Faculty Development Minigrants

The University Transportation Research Center strives to stimulate innovative and imaginative research by faculty in new and emerging areas related to transportation. The UTRC Faculty Development Minigrants seeks to fund faculty members in the development of a research working paper in their area of interest. The topic of the paper can involve any area of transportation including engineering, policy,

economics, planning, travel behavior, sociology, management, law, and technology. The working papers are completed within a year and then independently peer-reviewed and ranked. The author of the best paper is then eligible to receive an additional substantial grant to serve as Principal Investigator for a full-scale study on the topic. In 2009, five minigrants were awarded and are listed below.

Research Paper	Faculty	Institution
Investigation of Rheological Behavior of Asphalt Binder Modified by Warm Mix Asphalt Additives	Dr. Huiming Yin	Columbia University
Estimating the Effects of Car Sharing on Household Travel and Parking Demand	Dr. David King	Columbia University
Modeling High-Emitting Events of Vehicular Ultrafine PM Number Emissions	Dr. Huaizhu (Oliver) Gao	Cornell University
Risk-Neutral Second Best Toll Pricing	Dr. Xuegang (Jeff) Ban	Rensselaer Polytechnic Institute
Investigation of RFID Based Sensors for Sustainable Transportation Applications	Dr. Michael Carpenter	State University of New York, Albany

UTRC'S NEWSLETTER & WEBSITE

UTRC's Newsletter, Research News, is published quarterly and provides information to transportation professionals about research, education, and outreach activities in Region 2. Research News is available online.

The University Transportation Research Center Region 2 maintains a Website at <http://www.utrc2.org> which contains a comprehensive overview of the center's objectives, purposes and functions for planning and management of regional transportation systems.

The Website serves as an information tool for those transportation agencies that are interested in the Center's research activities and as a bulletin board for students who are interested in pursuing transportation research studies toward advanced degrees.

The Website is a focal point for updated information presented in an accessible format which is visually pleasing and logically navigable.



Research News

Summer 2009

October 09, 2009 Region 2 University Transportation Research Center www.utrc2.org

IN THIS ISSUE

- Director's Letter
- News & Notes
- Research Highlights
- Recent Events
- Upcoming Events
- Recent Publications
- Call for Proposals

UPCOMING EVENTS:


October 14, 2009 - NJDOT
11th Annual Research Showcase

October 23, 2009 - CIUS/Newman to Host
Transformational Infrastructure

Director's Letter


The current President of the City College of New York has resigned to become President of the University of Cincinnati. The Chancellor of CUNY has asked me to serve as Interim President of CCNY for at least one year. So, my colleagues, this is my last letter to you as Director of UTRC. It has been a privilege to work, talk, argue, have coffee and just hang around with you. This will have been – in August – my 20th year, an appropriate time to step down and welcome new blood and ideas to UTRC. During the coming period, Dr. Camille Kamga, newly appointed as Assistant Professor of Civil Engineering at CCNY and the long time operational brains of the Center will serve as Interim Director. USDOT has been notified of and has approved of this transition. In my new office, I will still be just a few footsteps away from UTRC and hope to remain active in the





UNIVERSITY TRANSPORTATION RESEARCH CENTER

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About Us Directory Research Publications Events Education Search

New RFPs [full list]

- Nighttime Highway Construction Illumination (1/13/10)


Congratulations to Buz

UTRC is pleased to announce that the Board of Trustees of The City University of New York appointed Dr. Paaswell Interim President of The City College of New York, beginning October 15. Buz brings a thorough knowledge of City College, nationally recognized expertise in the fields of transportation and civil engineering, and invaluable executive-level experience to this position. Please click here for the University's announcement


Upcoming Events [full list]

- Neighborhood Design and the Energy Efficiency of Urban Lifestyle in China: Treating Residence and Mobility as Lifestyle Bundle (12/11/09)
- NDE/NDT for Highway Bridges: Structural Materials Technology (SMT) 2010 Conference (8/16/10)


AITE Graduate Scholarships




Sept. 11th Memorial Program




USDOT/RITA National UTC Program




Annual Report




In the News...




Our Consortium



UTRC WebMail



UTRC II Submission System



UTRC2 Board meeting
November 6, 2009
City College of New York





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