

# ANNUAL REPORT 2017



UNIVERSITY TRANSPORTATION  
RESEARCH CENTER • REGION 2



Annual Report – 2017

**UNIVERSITY TRANSPORTATION RESEARCH CENTER - REGION 2 | THE CITY COLLEGE OF NEW YORK**



This report represents the activity of the UTRC from January 1, 2017 – December 31, 2017.

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**Credits:**

**Nadia Aslam:** Editor

**Andriy Blagay:** Graphic Design and Photography

Event Photography By UTRC Staff or as noted

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## DIRECTOR'S MESSAGE



### CAMILLE KAMGA

Director  
Associate Professor,  
Civil Engineering  
The City College  
of New York, CUNY

Friends and Colleagues,

**W**ith the new year of 2018 upon us, this is a great time to look back at our Center's activities during the past year. It has been a roller coaster year across the board. Early this year, we lost Herbert (Herb) Levinson, our longtime serving Icon Mentor. Herb generously served our community for more than 15 years by sharing his priceless experience in engineering with our faculty, students, and researchers. He was always available for advice and support to me and my staff, and cared greatly about our center. We truly miss Herb.

During the past year, we participated in the limited UTC Grant Competition for Regional Centers in Federal Regions 1, 2, and 3. We believe that our team developed a very strong proposal that showcased the legacy of our center in the region while designing the blueprint for the future of transportation research and workforce development. We are therefore immensely proud of our work.

We are also profoundly thankful for the loyalty shown by most of our members through their continued support of our center and our vision. We appreciate that they have committed to provide their institutional resources, which will enable our center to successfully accomplish our proposed programs. We are also truly grateful for the support we have received from local and regional public agencies, political leaders, and diverse stakeholders.

This year marked the 30th anniversary of our center, established in 1987. Since its inception, UTRC has been successful in bringing together faculty and students from diverse disciplines and experiences to address transportation needs facing the region and the nation. The achievements of the center is a credit to our team and to the leadership of our past directors, Milton Pikarsky, Neville Parker, and Robert (Buz) Paaswell, and our chairman John Falcocchio. I am grateful to Buz and John as they graciously continue to serve UTRC.

I trust that as you view through the pages of this report, you will agree with me that 2017 has been a very productive year for the Center, owing to all of the significant events that took place. Despite the uncertainties of our federal funding, we have continued to organize and host events including seminars, workshops, symposiums, summits, and conferences, and provided financial support and internship opportunities to students. With funding from our local transportation agency-partners, we have initiated a substantial amount of new research projects, continued investigation through ongoing research projects, and successfully completed and disseminated final reports of completed research projects. These are only some of the achievements we attained during the 2017, but there are many others, too numerous to mention in these few words.

As we patiently wait for the decision of the USDOT about our application, we are looking forward with much optimism to continue the fabulous work started 30 years ago.

**“This year marked the 30th anniversary of our center, established in 1987. Since its inception, UTRC has been successful in bringing together faculty and students from diverse disciplines and experiences to address transportation needs facing the region and the nation. The achievements of the center is a credit to our team and to the leadership of our past directors, Milton Pikarsky, Neville Parker, and Robert (Buz) Paaswell, and our chairman John Falcocchio.”**

## CHAIRMAN'S MESSAGE



**JOHN C. FALCOCCHIO**

Chairman  
Professor, Transportation  
Planning and Engineering  
NYU Tandon School of  
Engineering

**A**s you read this annual report, you will be pleased to note the collective achievements of the faculty, students, and staff from our eighteen member university consortia toward continued progress in accomplishing the goals of our ongoing UTRC mission in education, research, and outreach.

Unfortunately, this year we have lost Herbert Levinson, a beloved UTRC icon mentor, a colleague and my trusted professional friend with whom I was fortunate to work together in many projects, including our latest collaboration in writing our book “Road Traffic Congestion – A Concise Guide,” that was published by Springer in 2015.

Herb would often argue that to find pragmatic solutions to transportation problems one should spend more time in observing and collecting data on ground conditions. He was concerned by transportation academics that rely on complex mathematical models while de-emphasizing the need to observe problem conditions on the ground and gaining insights from these observations.

Herb was a remarkable man – smart and creative; visionary and pragmatic – and always a gentleman. His insight in transportation problem-solving will be sorely missed.

## DIRECTOR EMERITUS'S MESSAGE



**ROBERT E. PAASWELL**

Director Emeritus, UTRC  
Distinguished Professor  
of Civil Engineering  
The City College of New York, CUNY

**U**TRC lost a great colleague and friend this year when Herb Levinson passed away. Herb, UTRC's Icon Mentor had an outsize influence on transportation planning and design. At the forefront of so many things, starting with traffic in towns and lately in Bus Rapid Transit, Herb approached each problem with a simple question, “What do we want to know?” and clarified all aspects of the problem. He was a delight to work with, and a great teacher. All of us who teach, discuss, and practice transportation planning, operations and policy will always have some of Herb in us. We miss him!

For the last several years (actually more than a decade) we have been discussing here how much the world of transportation is changing. It has left the mechanical age and gone to the digital age. This was brought home in a big way at a large meeting I recently attended sponsored by toll collectors. While they were discussing protocols, bandwidths, digital wallets, it begged the question of who will be paying the tolls. It is easy now – we have transponders in our personal cars. But when we become much more of mobility purchasers rather than car owners where does the responsibility lie for building and operating infrastructure. And if we look at two extremes, (1) personal car ownership is still high and (2) car ownership is low and mobility is purchased – perhaps from a mobility utility, we can abstract much different urban forms and lifestyles. The Millennials and younger might be opting for the second – and technology is making it ever easier for them to achieve environments of their liking.

Simple questions that pose difficult and serious questions for the Transportation Academics. How do I teach planning and engineering for environments I don't quite understand yet, but must make my students ready for. Exciting times for us Academics in all of our many disciplines and important roles for our Transportation Centers.

# CENTER'S THEME

## Planning and Managing a Regional Transportation System in a Changing World

**U**TRC's primary focus is the stewardship, management, and future evolution of its region's 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 se-

curity; 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.



## PLANNING TODAY

Planning today in Region 2 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; yet UTRC has the capability to provide "instantaneous programs" in response to critical needs (such as the conference organized for New York State on public-private partnerships).

## MANAGING TODAY

Managing today in Region 2 means 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 Board Chairpersons to line operators. UTRC has initiated and will develop programs ranging from Authority Board Member Training, to training in high technology for transit workers. UTRC will develop a major training program for the New York City MPO addressing technical issues and management. UTRC is also part of the national group of UTCs that have developed online leadership courses.

## 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. UTRC partners with leaders in innovation and deployment, including research labs and private firms. UTRC, through its continuing national leadership on new paradigms in transportation management, continues to integrate technology into transportation systems. This is also an era of meeting financial needs through new – and proven – fiscal approaches, many of which include public-private partnerships. UTRC's strong expertise in economic analysis has made national (and international) impacts and is used to assist regional agencies to address investment impacts. The institutions that have traditionally operated the regional assets must, themselves, begin to change. They must think multimodally, with integrated operating systems. UTRC, with its strategic capability, can assist the regional agencies (and be a model for national success) in organizational change organizational change that is responsive to new missions.

## 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. Camille Kanga, Associate Professor of Civil Engineering at The City College of New York, serves as the Director, 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 NYU Tandon School of Engineering and conducts its business through a well-organized committee structure.

## BOARD OF DIRECTORS

### CITY UNIVERSITY OF NEW YORK, NEW YORK

Dr. Robert E. Paaswell, Director Emeritus of UTRC  
Dr. Hongmain Gong - Geography

### CLARKSON UNIVERSITY, NEW YORK

Dr. Kerop D. Janoyan - Civil Engineering

### COLUMBIA UNIVERSITY, NEW YORK

Dr. Raimondo Betti - Civil Engineering  
Dr. Elliott Sclar - Urban and Regional Planning

### CORNELL UNIVERSITY, NEW YORK

Dr. Huaizhu (Oliver) Gao - Civil Engineering  
Dr. Richard Geddes - Cornell Program in Infrastructure Policy

### HOFSTRA UNIVERSITY, NEW YORK

Dr. Jean Paul Rodrigue - Global Studies and Geography

### MANHATTAN COLLEGE, NEW YORK

Dr. Anirban De - Civil & Environmental Engineering  
Dr. Matthew Volovski - Civil & Environmental Engineering

### NEW JERSEY INSTITUTE OF TECHNOLOGY, NEW JERSEY

Dr. Steven I-Jy Chien - Civil Engineering  
Dr. Joyoung Lee - Civil & Environmental Engineering

### NEW YORK INSTITUTE OF TECHNOLOGY, NEW YORK

Dr. Nada Marie Anid - Engineering & Computing Sciences  
Dr. Marta Panero - Engineering & Computing Sciences

### NEW YORK UNIVERSITY, NEW YORK

Dr. Mitchell L. Moss - Urban Policy and Planning  
Dr. Rae Zimmerman - Planning and Public Admin

### (NYU TANDON SCHOOL OF ENGINEERING)

Dr. John C. Falcocchio - Civil Engineering  
Dr. Kaan Ozbay - Civil Engineering  
Dr. Elena Prassas - Civil Engineering

### RENSSELAER POLYTECHNIC INSTITUTE, NEW YORK

Dr. José Holguín-Veras - Civil Engineering  
Dr. William “Al” Wallace - Civil Engineering

### ROCHESTER INSTITUTE OF TECHNOLOGY, NEW YORK

Dr. J. Scott Hawker - Software Engineering  
Dr. James J. Winebrake - Science, Technology,  
& Society/Public Policy

### ROWAN UNIVERSITY, NEW JERSEY

Dr. Yusuf A. Mehta - Civil Engineering  
Dr. Beena Sukumaran - Civil Engineering

### STATE UNIVERSITY OF NEW YORK (SUNY), NEW YORK

Michael M. Fancher - Nanoscience  
Dr. Catherine T. Lawson - City & Regional Planning  
Dr. Adel W. Sadek - Transportation Systems Engineering  
Dr. Shmuel Yahalom - Economics & Maritime

### STEVENS INSTITUTE OF TECHNOLOGY, NEW JERSEY

Dr. Sophia Hassiotis - Civil Engineering  
Dr. Thomas H. Wakeman III - Civil Engineering

### SYRACUSE UNIVERSITY, NEW YORK

Dr. Baris Salman - Civil Engineering  
Dr. O. Sam Salem - Construction Engineering and Management

### THE COLLEGE OF NEW JERSEY, NEW JERSEY

Dr. Thomas M. Brennan, Jr. - Civil Engineering

### UNIVERSITY OF PUERTO RICO – MAYAGÜEZ, PUERTO RICO

Dr. Didier M. Valdes-Diaz - Civil Engineering  
Dr. Ismael Pagan-Trinidad - Civil Engineering



## THE CENTER'S STAFF



**Dr. Camille Kamga**

Director  
Associate Professor  
of Civil Engineering



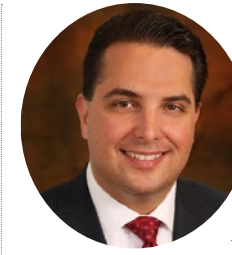
**Dr. Robert E. Paaswell**

Director Emeritus  
Distinguished Professor  
of Civil Engineering



**Dr. Alison Conway**

Associate Director  
of Education  
Associate Professor  
of Civil Engineering



**Matthew W. Daus, Esq**

Distinguished Lecturer



**Penny Eickemeyer**

Associate Director  
of Research



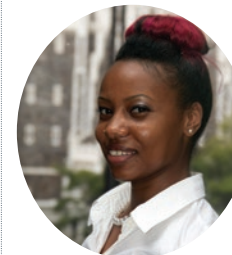
**Nadia Aslam**

Assistant Director for  
Technology Transfer



**Nathalie Martinez**

Research Associate  
Budget Analyst



**Tierra Fisher**

Office Manager



**Dr. Ellen Thorson**

Senior Research Fellow



**Dr. Sandeep Mudigonda**

Research Associate



**Dr. Rodrigue Tchamna**

Research Associate



**Andriy Blagay**

Graphic Design Intern



**Dr. Dan Wan**

Research Assistant



**Sabiheh Faghih**

Research Assistant  
Ph.D. Candidate  
Transportation Program



**Bahman Moghimi**

Research Assistant  
Ph.D. Student,  
Transportation Program



**Patricio Vicuna**

Research Assistant  
Ph.D. Candidate  
Transportation Program



**Dr. Wei Hao**

Research Fellow  
(Former)

## MEMBER UNIVERSITIES (UNDER MAP-21 ACT)



### CITY UNIVERSITY OF NEW YORK

The City University of New York is the nation's largest urban university: 11 senior colleges, 6 community colleges, a graduate school, a law school and a school of biomedical education. More than 450,000 degree-credit students and adult, continuing and professional education students are enrolled at campuses located in all New York City boroughs. CUNY, with more than 100 nationally recognized research centers, institutes and consortia, is also one of the nation's major research institutions. Because of its urban context, many of CUNY's campuses are involved in transportation research and education.

### CLARKSON UNIVERSITY

Clarkson is an institution of choice for 3,000 enterprising, high-ability students pursuing degrees in 50+ rigorous academic programs of study. Our faculty are on the leading edge of research of international relevance and we offer focused graduate programs in select disciplines, however, our primary mission is undergraduate education. Across the institution, faculty and students develop close, mentoring relationships and make lifelong connections that guide career success.

### COLUMBIA UNIVERSITY

Columbia University was founded in 1754 as King's College by royal charter of King George II of England. It is the oldest institution of higher learning in the state of New York and the fifth oldest in the United States. Today it has an enrollment 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.

### CORNELL UNIVERSITY

Founded in 1868 by Andrew White and Ezra Cornell as an institution where "any person can find instruction in any study," 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.

### HOFSTRA UNIVERSITY

Hofstra University can help you get where you want to go, with small classes, dedicated faculty and a beautiful, energized campus, plus all the opportunities of New York City within easy reach. Find your future by choosing from about 150 undergraduate and about 160 graduate programs, in Liberal Arts and Sciences, Business, Communication, Education, Health and Human Services and Honors studies, as well as a School of Law and School of Medicine. The student-faculty ratio of 14 to 1 and a priority on teaching excellence ensures you're part of creating your own success.

### MANHATTAN COLLEGE

Manhattan College is a Lasallian educational institution founded in 1853 by the De La Salle Christian Brothers, a Catholic religious teaching order started by Saint John Baptist de La Salle, the patron saint of teachers. De La Salle is known as the innovator of modern pedagogy for his work establishing schools to educate disadvantaged children in 17th century France.

### NEW JERSEY INSTITUTE OF TECHNOLOGY (NJIT)

The 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, as well as with other educational institutions, private enterprise and government agencies. NJIT hosts a number of publicly and privately funded research initiatives.

### NEW YORK INSTITUTE OF TECHNOLOGY (NYIT)

A global, private institution of higher education, NYIT has 14,000 students on campuses in North America, China, the Middle East, and online. Since 1955, NYIT has pursued its mission to: Provide career-oriented professional education. Give all qualified students access to opportunity. Support applications-oriented research that benefits the larger world.

### NEW YORK UNIVERSITY (NYU)

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 Tandon School of Engineering and the Robert F. Wagner Graduate School of Public Service. The Tandon School of Engineering specializes in Transportation areas; Urban Intelligent Transportation Systems, Transportation Systems Engineering, and Management of Congested Urban Networks. The Wagner Graduate School engages transportation issues through programs in Urban Planning, Public Management and Finance, and Negotiation and Conflict Resolution.

## MEMBER UNIVERSITIES (UNDER MAP-21 ACT)



### RENSSELAER POLYTECHNIC INSTITUTE (RPI)

RPI was established in Troy, NY in 1824. It has the oldest program in Civil Engineering in the English-speaking world. Today the university has 7,000 students and schools of Architecture, Engineering, Humanities, Management, and Science. RPI provides regional, national, and international leadership in research relating to intelligent transportation systems, transportation modeling, traffic operations, intermodal freight transportation, transportation economics, and analytical approaches to emergency management.

### ROCHESTER INSTITUTE OF TECHNOLOGY (RIT)

RIT is a place where brilliant minds assemble and collaborate, where they pool together their individual talents across disciplines in service of big projects and big ideas. It is a vibrant community teeming with students collaborating with experts and specialists: a hub of innovation. It is an intersection of disciplines, a launching pad for a brilliant career, and a highly unique state of mind. It is a perfect environment in which to pursue your passion. Here, the future is envisioned each day. And remade each day after.

### ROWAN UNIVERSITY

Established as a normal school in 1923, today Rowan is a comprehensive public university serving nearly 10,000 students in a Graduate School and colleges of Business, Communication, Education, Engineering, Fine & Performing Arts, and Liberal Arts & Sciences. 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.



### STATE UNIVERSITY OF NEW YORK (SUNY)

The State University of New York's 64 geographically dispersed campuses bring educational opportunity within commuting distance of virtually all New Yorkers and comprise the nation's largest comprehensive system of public higher education. Across this network, SUNY has many capabilities that relate directly and indirectly to transportation research. In addition to the major research clusters described below, UTRC works with individual faculty members at SUNY Colleges at Oneonta, Farmingdale, and Alfred.

### 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. It is named for a distinguished family in American engineering, dating back to the early days of the Industrial Revolution, that helped pioneer the development of the steamboat and railroad technology. Research at Stevens Institute includes structural dynamics, soil-structure interaction, freight transportation, and embedded, real-time, intelligent infrastructure systems.

### SYRACUSE UNIVERSITY

From its founding in 1870, Syracuse University has been the embodiment of Scholarship in Action-education that transcends traditional boundaries through a combination of innovative thinking, daring choices and entrepreneurial attitude. The iconic campus is nestled amongst the rolling hills of Central New York-itself a crucible of historic change and progress. Building on that foundation, SU continues to create opportunities for students and faculty to push limits, build pathways, and make connections that lead to new discoveries and transformational change.



### THE COLLEGE OF NEW JERSEY (TCNJ)

The College of New Jersey (TCNJ) is a highly selective institution that has earned national recognition for its commitment to excellence. Founded in 1855, TCNJ has become an exemplar of the best in public higher education and is consistently acknowledged as one of the top comprehensive colleges in the nation. TCNJ currently is ranked as one of the 75 "Most Competitive" schools in the nation by Barron's Profiles of American Colleges and is rated the No. 1 public institution in the northern region of the country by U.S. News & World Report.

### UNIVERSITY OF PUERTO RICO - MAYAGÜEZ (UPR)

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 in colleges of Agricultural Sciences, Engineering, Arts and Sciences, and Business Administration. Its Department of Civil Engineering has an active program in natural hazards research with applications in transportation, including research in structures, advanced materials, earthquake engineering, and construction management issues. Its Civil Infrastructure Research Center is funded by FEMA, FHWA, and the Puerto Rico Department of Transportation, and other partners.

## HIGHLIGHTS

### IN MEMORIAM TO THE UTRC'S LONG SERVING ICON MENTOR; HERBERT S. LEVINSON



*“Herb Levinson was a predominant influence on how we all think about and practice modern transportation planning and engineering. He was colleague, friend, mentor and just a wonderful person.”*

*Robert E. Paaswell  
Director Emeritus, UTRC*

Early this year, the University Transportation Research Center's lost its long serving Icon Mentor, Mr. Mentor, Herb Levinson who passed away on February 16, 2017. A giant in modern transportation engineering and planning, Herb served as problem solver, analyst, rational thinker, colleague, mentor and dear and beloved friend. Much of what we study and act on in addressing urban transportation planning – whether it be pedestrian movement, rational use of streets, BRT and LRT and common sense traffic analysis has its origins in work that Herb had done.

Mr. Levinson served as senior vice president of Wilbur Smith and Associates and served on the faculty of the University of Connecticut and Yale University.

Mr. Levinson was elected a member of the National Academy of Engineering in 1994, elected an Honorary Member of the Institute of Transportation Engineers in 1997, and received the ASCE Wilbur Smith Award.

Herb will be greatly missed. We pray his soul may rest in peace.

### AASHTO RESEARCH ADVISORY COMMITTEE SELECTED NYSDOT/UTRC FUNDED PROJECT FOR THE 2017 SWEET SIXTEEN - HIGH VALUE RESEARCH PROJECTS

**Principal Investigator(s):**  
Dr. Mark S. Rea

**Co-PI(s):**  
Dr. John D. Bullough

**Performing Organization:**  
Lighting Research Center, Rensselaer Polytechnic Institute

**Sponsor(s):**

- New York State Department of Transportation (NYSDOT)
- University Transportation Research Center (UTRC)

The project's full report is available on the UTRC's website at: <http://www.utrc2.org/sites/default/files/pubs/Energy-Efficient-Highway-Lighting-Retrofits.pdf>

To view the full list of the 2017 AASHTO's Sweet Sixteen, please visit the website at: <https://research.transportation.org/sweet-sixteen-2017/>

Each year, AASHTO's Research Advisory Committee (RAC) selects four projects from each of its four regions which then comprise a group called the "Sweet Sixteen". This year's recipients are invited to deliver a five-minute presentation at the Sweet Sixteen session at the 2017 AASHTO RAC/TRB Representative Annual Meeting in Louisville, KY.

The project titled "Analysis of Energy Efficient Highway Lighting Retrofits" performed by the Lighting Research Center (LRC) at Rensselaer Polytechnic Institute is among those selected for the 2017 Sweet Sixteen in Region 1. The project's investigators are Dr. Mark S. Rea and Dr. John Bullough.

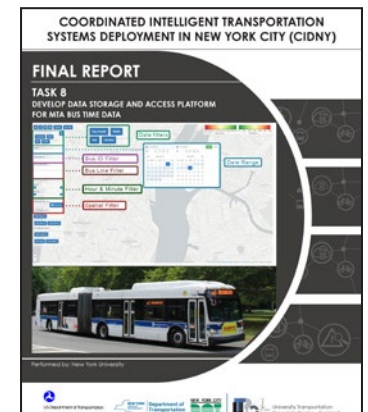
In order to assist the New York State Department of Transportation (NYSDOT) in identifying roadway lighting retrofit options for two types of highways, parkways and arterial roadways, the project team at LRC conducted field measurements, photometric analyses and energy analyses, using information about existing and alternative lighting configurations on two New York State highways.

## UTRC RESEARCHERS COMPLETED PROJECTS FOR THE FIRST PHASE OF NYC COORDINATED INTELLIGENT TRANSPORTATION SYSTEMS DEPLOYMENT (CIDNY)

The FHWA, through its New York Division/New York City Metropolitan office is promoting programs pertaining to urban Intelligent Transportation Systems (ITS) in the region. The NYCDOT and NYSDOT-Region 11 have taken the initiative to develop ITS related projects under this FHWA program. NYCDOT and NYSDOT have developed Training Courses and Research and Development Programs for the NYCDOT and NYSDOT Coordinated Intelligent Transportation Systems Deployment in New York City (CIDNY) which is a set of multi studies (task assignments) toward the fulfillment of the objectives of this program.

The studies are being performed by institutions of the Region 2 University Transportation Research Center (UTRC). The studies focused on the following program areas: Construction Management, Traffic Demand Management, Dynamic Data Collection, Traffic Incident Management, Traffic Signal Timing and Detection Technologies, Strategic ITS Deployment Plan, Pedestrians and Cyclists Safety, Data Storage and Access Platform for MTA Bus Time Data. The following tasks have been completed under the first phase of this program.

- **Task 2** – Develop a multi-agency/multi modal construction management tool to enhance coordination of construction projects citywide during planning and operation phases to improve highway mobility and drivers experience <http://www.utrc2.org/research/projects/develop-multi-agencymulti-modal-construction-management-tool>
- **Task 5** – Develop a comprehensive guide to traffic signal timing, new detection technologies and advanced signal timing concepts applicable in New York City <http://www.utrc2.org/research/projects/develop-comprehensive-guide-signal-timing-new-detection-technologies-and-advanced>
- **Task 6** – Strategic ITS Deployment Plan For New York City <http://www.utrc2.org/research/projects/strategic-intelligent-transportation-systems>
- **Task 7** – Research on Pedestrians and Cyclists Safety Using ITS Technology in NYC <http://www.utrc2.org/research/projects/research-pedestrians-and-cyclists-safety>
- **Task 8** – Develop Data Storage and Access Platform for MTA Bus Time Data. <http://www.utrc2.org/research/projects/develop-data-storage-and-access>



# UTRC Was Awarded The Following Agencies Initiated Research Projects In The Year 2017

## DRONE/UAS REGULATIONS & POLICIES FOR USE IN NEW JERSEY

**Principal Investigator(s):**

Dr. Anil Agrawal and Dr. Camille Kamga

**Sponsor(s):**

New Jersey Department of Transportation (NJDOT)

**Performing Institution(s):**

The City College of New York, CUNY

This project will provide analysis and recommendations to NJDOT for the purpose of developing regulations and policies for using Unmanned Aircraft Systems (UAS) for inspection, operation and management activities. The guidance will assist NJDOT on issues such as how to incorporate NJDOT's safety and risk management concerns and fully integrate with UAS best practices. The research recommendations will also advise on consistency with existing Federal regulations such as 14 CFR Part 107 and FAA Advisory Circular 107-2.



The study will consist of a literature review phase and a research phase. Research topics will include resolution of regulatory issues in the use of UAS by NJDOT and the development of recommended risk assessment and safety procedures. An implementation and training plan is also included in the project's scope of work.

Overall, this research is intended to provide further information and guidance into best practices in order to provide direction on issues such as:

1. How to ensure public UAS operations are held to a high standard of transparency and operational legitimacy?
2. How incidentally collected data should be handled, destroyed, retained, or utilized?
3. How should public UAS operators secure permission from private property owners for takeoff, landing, or the location of person(s) operating the system? What about in support of emergencies, disaster response, or other similar situations?
4. Regulations regarding privacy, hunting and fishing, and critical infrastructure.
5. Operations from an airport. Should include a survey to public use airports regarding UAS activities.
6. Permits for commercial UAS operators similar to the aviation activity permits under 16.55.
7. How do we setup UAS operations near a roadway, how close should we fly?
8. Changes to FAA legislation Drone/UAS Regulations & Policies for Use in NJ.

## HIGHLIGHTS

### TRAVELER INFORMATION APPLICATION FOR ROUTE 1 AND ROUTE 18 CORRIDORS

**Principal Investigator(s):**

Dr. Catherine Lawson

**Performing Institution(s):**

University at Albany, SUNY

**Sponsor(s):**

New Jersey Department of Transportation (NJDOT)

The objective of this project is to develop a hands-free Mobile Application (app) platform to aid travelers. The app will offer travel information that utilizes the data NJDOT currently collects from its real-time transportation information systems as well as additional travel related information such as transit and shuttle schedules and availability of parking. Input for this app will come from NJDOT's central data fusion engine that analyzes and prioritizes travel time source data from its various real-time transportation information systems,

Bluetooth, Transmit Travel Time System and vehicle probe data. This project will primarily provide information for the Route 1 corridor (from I-295 to Garden State Parkway), including sections of Route 18 (from New Jersey Turnpike to Rutgers University – Piscataway, NJ), specific to certain destinations such as colleges and/or large employment destinations. Other corridors and/or destinations could be added to the system later on.



### CALIBRATION / DEVELOPMENT OF SAFETY PERFORMANCE FUNCTIONS FOR NEW JERSEY

**Principal Investigator(s):**

Dr. Kaan Ozbay  
Dr. Hani Nassif

**Performing Institution(s):**

New York University Tandon School of Engineering  
Rutgers University

**Sponsor(s):**

New Jersey Department of Transportation (NJDOT)

This project will develop a methodology to enhance the predictive model in the AASHTO Highway Safety Manual(HSM) that estimates crash frequency at a variety of location types. This research is to develop a model that is better aligned with New Jersey-specific data. Predictive models in the HSM are based on Safety Performance Functions (SPFs). SPFs are variables used in statistical regression models to estimate a predicted average crash frequency related to base conditions at a location. However, the SPFs provided in the HSM are developed using data from many states and therefore to achieve predictive accuracy, calibration is necessary in order to capture local state or specific geographic conditions in the modeling process.

The objective of this project, therefore, is to either calibrate the SPFs in the HSM using New Jersey data or to develop new New Jersey-specific SPFs for at least twenty different facility types. A variety of facility types will be considered for this analysis including several that are not currently included in the HSM. Data sources needed to calibrate or develop The data required can be classified into three main categories: (1) Roadway Characteristics Data, (2) Traffic Data and (3) Crash Data.

The research team will identify all facility types that NJDOT experts are considering, and prepare a final list of all potential facility types for which the SPFs will be calibrated / developed. Based on the compiled data, the team will prioritize the final list of facility types and decide whether to calibrate the HSM SPFs or develop NJ-specific SPFs.

**UTRC RESEARCHERS FROM  
THE CITY COLLEGE OF  
NEW YORK RECEIVED  
TWO NYSERDA AWARDS  
FOR THE FOLLOWING  
RESEARCH STUDIES IN  
RESPONSE TO NYSERDA PON:  
MAKING TRANSPORTATION  
SMART AND SUSTAINABLE**

### **DEMONSTRATION OF VIRTUAL TRANSPORTATION MANAGEMENT STRATEGIES FOR SMART CITIES IN NY**

**Principal Investigator(s):**

Dr. Camille Kamga

**Sponsor(s):**

New York State Energy Research and Development Authority (NYSERDA)

**Performing Institution(s):**

The City College of New York, CUNY

New York State Department of Transportation (NYSDOT)

University Transportation Research Center (UTRC)

This study's goal is to effectively demonstrate the deployment of under utilized strategies and technologies to reduce congestion, and as a result, energy consumption, on the local roadway system in Mount Vernon. To do so, the study will include the demonstration of under utilized strategies and polices related to advanced traffic management and integrated corridor management. In both locations, the team will work closely with local officials to identify a signalized corridor that would be suitable to conduct this study and will also develop the important performance measures that will be used to define the effectiveness of the project.

The City of Mount Vernon, located about 13 miles north of Manhattan, encompasses 4.4 square miles and is home to almost 69,000 residents (according to 2010 U.S. Census numbers).

As a small city, it experiences issues related to heavy congestion, but lacks access to intelligent transportation technologies. Therefore, there is a need for the demonstration of an effective strategy to deploy advanced transportation management systems (ATMS). After corridor selection, the team will deploy wireless communication technologies, dynamic video detection and monitoring units, and a cloud-based ATMS solution. Wi-Fi and/or Bluetooth readers and environmental sensors will also be installed throughout the corridor so that performance measures and reduction of transportation GHGs/energy consumption can be validated.

One of the key elements of this demonstration will be the remote monitoring or the "virtual management" of the corridor. Since the ATMS technologies are managed through either a central software or direct IP address, they are accessible from anywhere that has an internet connection. Utilizing the FHWA's "Guidelines for Virtual Transportation Management Center Development," the researchers will remotely monitor the overall "health" of the signal system. Connecting remotely to the transportation infrastructure assets along the corridor, the researchers will assist in oversight, troubleshooting equipment issues, mitigating congestion conditions and improving operations. As an example, traffic flow will be assessed through the corridor by uploading traffic count data collected by the field devices and analyzing that data to provide better progression along the corridor.



## HIGHLIGHTS

### Connected, Autonomous, and Shared Vehicle Impacts Study

**Principal Investigator(s):**

Dr. Camille Kamga

**Performing Institution(s):**

The City College of New York, CUNY

**Sponsor(s):**

New York State Energy Research and Development Authority (NYSERDA)

New York State Department of Transportation (NYSDOT)

University Transportation Research Center (UTRC)

Connected and automated vehicles (CAVs) and shared mobility transitions are recognized as having potential to transform energy consumption and mobility dynamics through improved efficiency, better routing, lower traffic congestion, and the enabling of advanced technologies. Use of CAVs, however, can also increase fuel consumption through effects such as longer distances traveled, increased use of transportation to previously less accessible locations and increased trips by underserved populations, as well as increased travel speeds.

The National Renewable Energy Laboratory recently explored the long-term impacts of self-driving vehicles on the nation in terms of projected energy usage (Brown et al, 2014). This early research showed a wide variation of between a -90% and +200% impact in fuel use and greenhouse gas (GHG) emissions, relative to a business as usual case, by 2050. Differences in these results depended on changes in use intensity, energy intensity, or fuel intensity ((Brown et al, 2014.)

The goal of this new study is to perform a state-level CAV energy/GHG impacts assessment in New York. The methodology will be developed under consistent assumptions and be based on well-defined analyses and simulations. To fill a need for this type of analysis on the state level, this project will give an assessment of the potential influence of CAV technologies on the energy use of New York State on-road vehicles to the year 2050 under a range of deployment scenarios. It will provide upper and lower bounds for various future applications of CAV technologies by transportation segment, synthesizing results for many possible deployment scenarios, and using estimates of future changes in vehicle design, vehicle use at a local level, changes in regional travel patterns, and other system effects. This will enable estimate ranges of possible changes in vehicle activity, energy use, and GHG emissions that CAV technologies might produce. The research will be performed with the support of state and local providers such as state and local planners/DOTs, 'Mobility as a Service' providers, transit agencies, and rural-to-urban jurisdictions.

### UTRC'S SPONSORED RESEARCH PROJECT: "A NEW ROLE FOR RAIL TRANSIT: EVACUATION" WAS HIGHLIGHTED IN THE LATEST ISSUE OF UTC SPOTLIGHT

A research project from UTRC faculty member Dr. Rae Zimmerman of New York University was featured in the April 2017 issue of the USDOT's UTC Spotlight. Her research project titled, "Public Transit and Mandatory Evacuations Prior to Extreme Weather Events in NYC," was funded by the University Transportation Research Center (UTRC) The project's research team consisted of Professor Rae Zimmerman (PI and Director of ICIS); Senior Research Scientist Dr. Carlos E. Restrepo; and Senior Graduate Student Researchers Robert A. Joseph and Jimena Llopis.

This project describes how urban areas in the U.S. and around the world are facing increasing extreme events that often require decisions to move large numbers of people to safety. New York City (NYC) has experienced numerous extreme weather events associated with flooding, and one response was to provide evacuation resources. Following Hurricanes Irene and Sandy, NYC mandated evacuations. The City has defined evacuation zones based on severity of flooding risks from storms and storm surges, and has located 64 hurricane evacuation centers outside of these zones. Of NYC's six evacuation zones, Zone 1 is defined as having the most risk of exposure to flooding. Other centers and shelters supplement these evacuation centers.

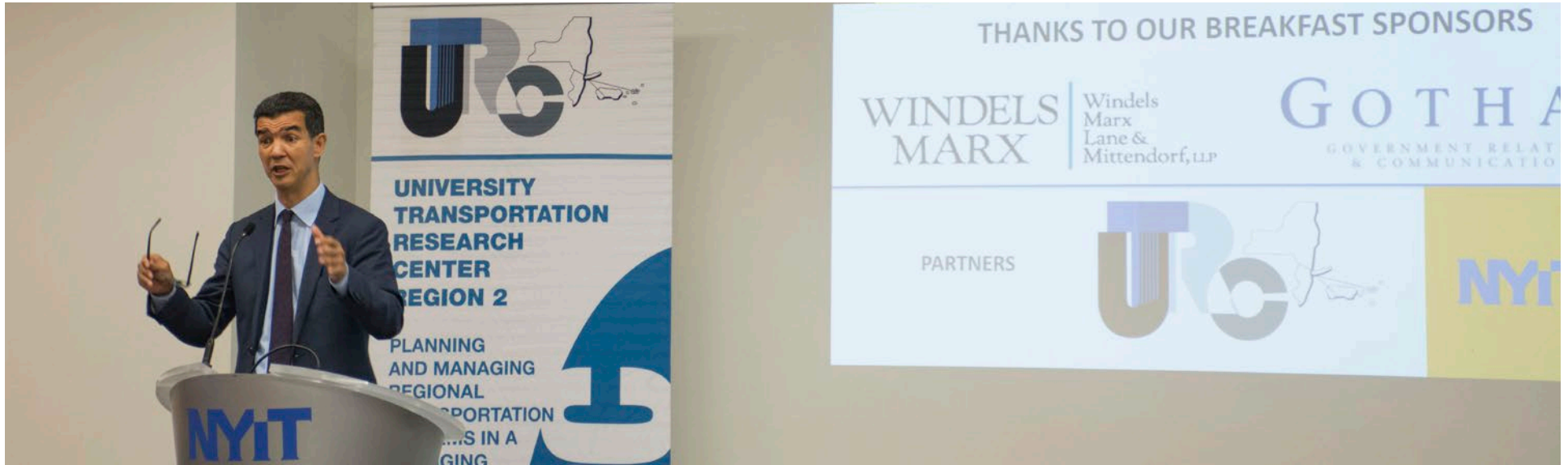
To access the full article, please follow the link: [https://www.transportation.gov/sites/dot.gov/files/docs/utc/April\\_2017\\_UTC\\_Spotlight.pdf](https://www.transportation.gov/sites/dot.gov/files/docs/utc/April_2017_UTC_Spotlight.pdf)

For additional information about the project, contact Prof. Zimmerman at [rae.zimmerman@nyu.edu](mailto:rae.zimmerman@nyu.edu)

## HIGHLIGHTS

# UTRC HOSTED A SECOND SUMMIT ON THE FUTURE OF THE TAXI MEDALLION SYSTEM AND FOR-HIRE GROUND TRANSPORTATION INDUSTRY

June 27, 2017 at New York Institute of Technology



Hon. Ydanis Rodriguez, NYC Council Member & Transportation Committee Chair, Delivered the Opening Keynote Address at the UTRC Taxi/FHV forum

UTRC hosted the second summit on this topic, focusing on facts and opinions from a wide variety of stakeholders, policymakers and researchers on the current state of the NYC taxicab medallion industry, including ridership, medallion values and marketplace trends. Panelists and participants shared observations, opinions and proposed solutions to help level the playing field, and to promote equity, accessibility and sustainability for all. Necessary legal, rulemaking and policy changes were discussed, including caps or growth limitations on For-Hire Vehicles, the possibility of a taxicab fare increase and flexible taxis fares, enforcement and implementation of the new upstate Transportation Network Company (TNC) law, and the future of business at NYC and New Jersey area airports. The impact of the new TNC law, expected airport fees and changes, and the policy reasons for the regulatory framework that defines taxicabs, liveries, black cars and limousines, commuter vans, paratransit service, shared rides, and smartphone apps (e-hails) were addressed.

Press Releases on the Event: [TAXIintell](#) and [TLC Magazine](#)

The event's videos, photos and the program can be accessed at:

<http://www.utrc2.org/events/second-summit-taxi-medallion-system>.



# HIGHLIGHTS

Images from the Summit on the Future of Taxi Medallion System and For-Hire Ground Transportation



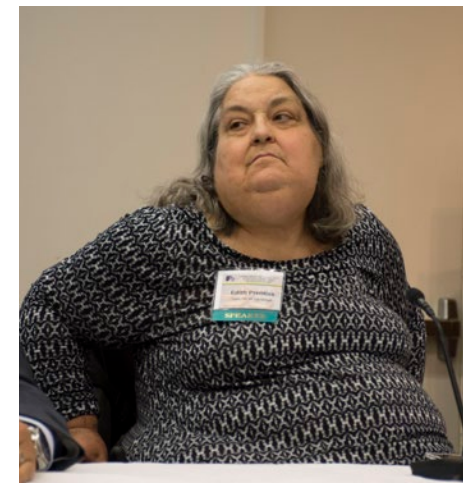
NYC TLC Board of Commissioner Member Nora Constance Marino (Board Member, Queens) Delivers the Closing Keynote Speech at the UTRC Forum.



Hon. Patricia Gatling (Former NYC Human Rights Commissioner & Deputy Secretary for Civil Rights to NY State Governor)



David Pollack (President, Taxicab Service Association)



Edith Prentiss (Chair, Taxis For All Campaign, President, 504 Democratic Club)




UTRC's Distinguished Lecturer; Matthew Daus Leads a Panel on "Medallion Industry Technology & Service Enhancements" with (left to right), Jason Gross (VP, Global Head of Product and Marketing at Verifone Taxi Systems) and Alex LaVoie (General Manager, Via).



Brad Gerstman, a Lobbyist from Gotham, Co-sponsor of the Forum with Windels Marx, UTRC, and NYIT, Leads a Panel on "Let's Hear from the Drivers & Independent Medallion Owners!" with (left to right), Sergio Cabrera, Marcelino Hervias and Surjit Gill.



# EDUCATION & WORKFORCE DEVELOPMENT



## UTRC prepares the workforce needed to plan and manage the complex transportation systems of the future.

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. 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 multi-disciplinary 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.

# NYMTC SEPTEMBER 11<sup>TH</sup> MEMORIAL PROGRAM SCHOLARSHIP

**The NYMTC September 11th Memorial Program Scholarship, administered by the University Transportation Research Center selected two recipients for the academic year 2017-2018.**



**Shirin Najafabadi**  
The City College of New York, CUNY

Shirin Najafabadi is a PhD student in Transportation Engineering at the City College of New York. Her 9/11 program internship is with NYMTC and she will work closely with NYMTC Planning Group to work on “Vertical Integration of Land Use and Transportation Planning” project. NYMTC’s members introduced the idea of Coordinated Development Emphasis Areas (CDEAs) in Plan 2045, the recently adopted Regional Transportation Plan. These are areas within the NYMTC planning area, where land development and transportation investment planning are to be coordinated to achieve environmental sustainability, local economic revitalization, and improved quality of life. Her role is to research methods to establish the influence of NYMTC’s regional transportation plans on municipal land use planning decisions. Conversely, she will

also research methods to help NYMTC ensure that municipal planning efforts are incorporated into the regional planning perspective.

Ms. Najafabadi has received her M.S. in Transportation Planning on May 2014 from the State University of New York at Albany, and has been admitted to the CCNY Ph.D. program through an extremely competitive selection process. Ms. Najafabadi’s record in transportation planning, modeling and analysis has been outstanding. Her research involves the application of mathematical optimization, machine learning and statistics to transportation problems.



**Siddharth Shah**  
New York University

Siddharth Shah is a student in the Masters of Urban Planning at New York University’s Robert F. Wagner Graduate School of Public Service. As part of the 9/11 Memorial Scholarship program, he will intern at the New York City Department of Transportation (NYCDOT) in their Research, Safety and Implementation team. At NYCDOT, his work will involve updating the Vision Zero Pedestrian Safety Borough Plans, first published in 2015, by analyzing the progress on the previous commitments and the impacts on pedestrian safety in Vision Zero priority locations. He shall simultaneously help the Research, Safety and Implementation team in their ongoing policy research to make the streets of New York City safer for all.

Mr. Shah obtained a Master of Science in Civil Engineering from University of Illinois at Urbana-Champaign and a Bachelors of Technology from CEPT University (India), where he received the convocation award for Academic Excellence. He has a broad interest in the built environment of cities with a focus on the areas of transportation, environment, and infrastructure in developed as well as developing economies.

## UTRC SUPPORTED THE 2017 ITS-NY BEST STUDENT PAPER ESSAY AWARD

Continuing its long tradition, UTRC supported the 2017 ITS-NY Best Student Essay Award. The award was given to Mr. Bahman Moghimi who is a Ph.D. Student in Transportation Engineering at the City College of New York. Bahman is also a Research Assistant at the University Transportation Research Center. The award was announced at the 24th IT-NY Annual Meeting and Technology Exhibition in Saratoga Springs, NY, held on June 15-16, 2017. Bahman's winning essay titled; A Review of Recent Technologies for Applications of Connected and Autonomous Vehicles was selected as the winner of the 2017 ITS-NY Best Student Paper Competition.

**Paper Abstract:** Traffic congestion, safe mobility and environmental impact are three very important



From (L) to (R): Jeff Randall, ITS-NY Retiring President; Bahman Moghimi, Ph.D. Student in Transportation Engineering, CCNY; and Dr. Camille Kanga, UTRC Director

considerations of the current day transportation. Connected and autonomous vehicles (CAVs) are rapidly

becoming a reality to ensure that all the three factors are satisfied. Government agencies, private car manufacturers and technology industry are working together to bring CAVs to fruition. Seamless functioning of CAVs and their applications require a thorough understanding of diverse fields. Hence, CAVs are currently one of the most hotly researched areas in many specializations. Given the CAVs are being realized at a fast pace, a transportation professional needs a good understanding of these various facets. This paper aims to provide the transportation professional with a holistic understanding of the field of CAVs. We review various technologies involved in the various functions in the implementation of CAVs ranging from sensing, communication, computing and security. We discuss various pros and cons of existing technologies and discuss the state-of-the-art in research.

## UTRC SUPPORTED THE 2017 WTS'S LEONARD BRAUN MEMORIAL GRADUATE SCHOLARSHIP

Trilce Encarnación is the 2017 awardee of the WTS of Greater New York Leonard Braun Scholarship, which is co-sponsored by UTRC and WTS. Trilce is currently a Ph.D. student in Transportation Engineering at Rensselaer Polytechnic Institute. She holds an M.E. in Industrial and Management Engineering from Rensselaer Polytechnic Institute, and an M.S. in Scientific Computing (Statistics) from the University of Puerto Rico at Mayaguez.

Trilce's research interests are in humanitarian logistics and sustainable urban freight. Her work in humanitarian logistics is highly multi-disciplinary, integrating principles from management, economics, engineering, and social sciences. Trilce has also participated in projects in the area of urban freight including involvement in the VREF (Volvo Research Educational Foundations) Center of Excellence for Sustainable Urban Freight at RPI.



UTRC's Associate Director for Education; Dr. Alison Conway Presenting the 2017 WTS's Leonard Braun Scholarship to Ms. Trilce Encarnacion

Some of Trilce's professional accomplishments so far include serving as a Fellow at the Eno Center for Transportation and recipient of the Academic Excellence Award from the Capital District Council of Supply Chain Management Professionals. She has also been awarded the 2017 Franz Edelman Finalist Award for her work in the "Off-Hours Delivery Project in New York City" and has been selected to participate in the MIT Civil and Environmental Engineering Rising Stars Workshop. Prior to starting her Ph.D. studies, she had been a consultant and adjunct professor of systems engineering in the Dominican Republic. After graduation, Trilce plans to pursue a career in academia, where she hopes to establish a research program that proposes solutions to transportation issues. As a volunteer, Trilce is involved in outreach to encourage young women to pursue STEM careers.

# 26<sup>TH</sup> ANNUAL OUTSTANDING STUDENT OF THE YEAR AWARDS AT THE 96<sup>TH</sup> TRANSPORTATION RESEARCH BOARD (TRB) MEETING AWARD RECIPIENTS: DAN WAN, THE CITY COLLEGE OF NEW YORK AND LERONE SAVAGE, HUNTER COLLEGE, CUNY

For the year 2017, CUTC has selected two students from Region 2; Ms. Dan Wan and Mr. Lerone Savage at the CUTC Banquet awards which were held on Saturday, January 7th in Washington. Both of them were awarded the **26th CUTC outstanding student of the year award (Sponsored by the U.S. Department of Transportation (U.S. DOT) and administered by the Office of the Assistant Secretary for Research and Technology (OST-R)).**

CUTC, established in 1979, works to advance the state-of-the-art in all modes and disciplines of transportation. Its membership consists of 93 of the nation's leading university-based transportation centers. The event was held in conjunction the Transportation Research Board's (TRB) 96th annual meeting.



*CUTC Outstanding Students of the year award from Region 2 – Dan Wan (L), CCNY, CUNY and Lerone Savage (R), Hunter College, CUNY*

## Dan Wan

Ph.D. Student, Transportation Engineering  
Department of Civil Engineering  
The City College of New York, CUNY

Dan Wan is currently a Civil Engineering Ph.D. Student at the City College of New York. She earned her master's and bachelor's degrees at Huazhong University of Science and Technology in China.

Dan has worked on travel demand of taxis, toll elasticity, rider's perception of Select Bus service, and intersection safety. From 20154 to 2015. Dan plans to pursue a career in either the private sector or academia. Her broad research interest area is Transport Policy and traffic engineering with specific research areas in Public bus service' intersection safety; toll elasticity; travel demand of taxi, connected vehicle, bike lane, and freight. Dan participated in the New York City's Work Zone coordination and Management project, published three papers, and co-authored three other papers. Two of the papers related the Selected Bus Service in the New York City were accepted by the Journal, Transport Policy, and Public Transport. Her thesis titled, "Calibrating Safety Performance Functions for the Intersections in New York City Relaxing the Functions in Space" will rigorously analyze intersection crashes in New York City. By regressing local safety data at the jurisdiction level, this study will additionally explore the spatially varying Safety Performance Functions (SPFs) that can largely account for the geographical heterogeneity of intersection safety.

Ms. Dan Wan is also the recipient of University Transportation Research Center's (UTRC) and New York Metropolitan Trans-

portation Council's (NYMTC) scholarship; September 11th Memorial Scholarship for the year 2014-2015. NYMTC established the September 11th Memorial Program for Regional Transportation Planning to honor the memory of Ignatius Adanga, Charles Lesperance, and See Wong Shum, the three employees it lost during the attack on the World Trade Center. It is administered by the University Transportation Research Center (UTRC). As part of this scholarship, she interned with the public transit development group in the New York City Department of Transportation (NYCDOT).

## Lerone Savage

Geography Master's Program  
Hunter College, CUNY

Lerone Savage is enrolled in the Geography Master's program at Hunter College, the City University of New York (CUNY). As an undergraduate, Lerone received a \$41,000 fellowship from Hunter College President Jennifer Raab to conduct a research project under Dr. Hongmian Gong's supervision. Lerone used the fellowship to develop a Python script for detecting carpooling using geographic information system (GIS) and Global Positioning System (GPS) traces collected by smartphones, which he discussed in his senior thesis.

Lerone received his Bachelor's degree in Geography/Geographic Information Science and Cartography from Hunter College. He is pursuing his Master's degree in Geography from Hunter College, CUNY. He plans to pursue his Ph. D., and then has plans to work in academia, the public or private sector. His thesis titles, "Travel Mode Detection in New York City Using Smartphones and Cyber Geographic Information Systems (GIS): Case Study of New York City" involves the use of smartphone data for travel mode detection in New York City. This research focuses on how accelerometer data can be incorporated into mode detection algorithms to differentiate travel modes.

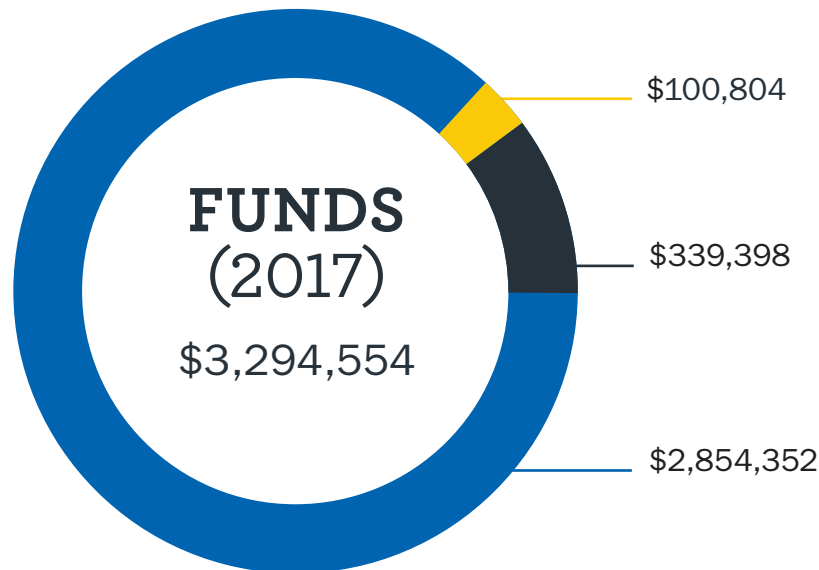
Lerone is also the recipient of University Transportation Research Center's (UTRC) Advanced Institute for Transportation Education (AITE) Scholarship for the year 2014-2015. The purpose of UTRC's AITE scholarship program is to increase the knowledge and capabilities of transportation professionals by supporting the pursuit of master's degrees in transportation-related fields. The program supports both full-time master's students and professionals working at participating agencies who are looking to increase their expertise through pursuit of a master's degree.



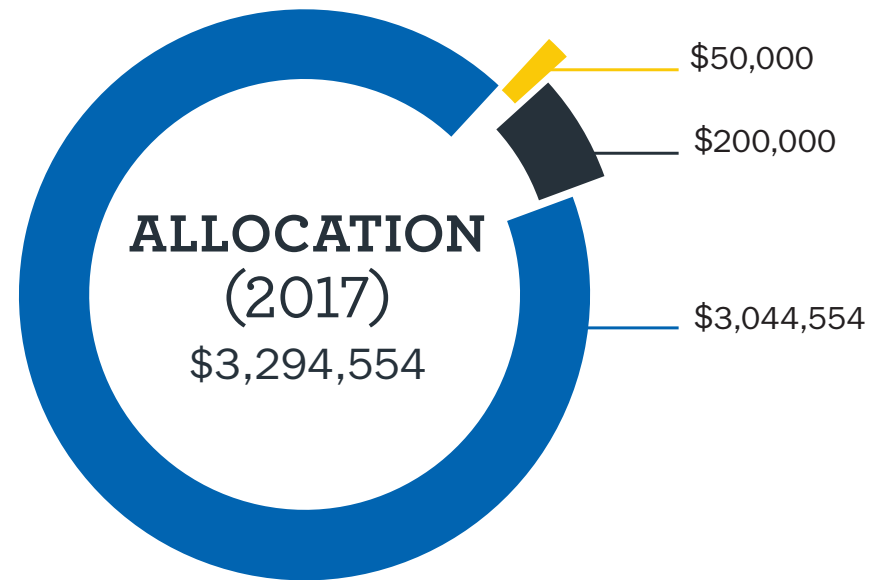
# FINANCIAL REPORT

The following charts summarize the UTRC funding and allocations for the calendar year 2017. The University Transportation Research Center Region 2 has continued to support its core programs with funding from grants under The Moving Ahead for Progress in the 21st Century Act (MAP-21). During 2017, the annual Federal grant allocated to our programs was approximately \$340,000. This amount reflects the decision by USDOT to withhold award for federal funds to run a limited grant competition for our region. We were allocated \$2.85M of support from regional public agencies and \$100,000 of cost share from academic institutions and other entities.

With strong partnerships and solid financial commitment from state and local transportation agencies, UTRC allocated 95% to support and carry out many research projects and educational initiatives. The remaining 5 percent was applied to support administration and technology transfer programs.



- FEDERAL** \$339,398
- AGENCIES** \$2,854,352
- IN-KIND** \$100,804



- RESEARCH PROJECTS** \$3,044,554
- ADMINISTRATION AND TECHNOLOGY TRANSFER** \$200,000
- EDUCATION** \$50,000

# RESEARCH





## The UTRC research program addresses the needs of regional transportation.

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 these 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 that 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 Area has over 19 million people, 600,000 businesses and 9 million workers. The Region's intermodal and multimodal systems must serve all 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 New York State Energy and Research Development Authority and others, all while enhancing the center's theme.

# COMPLETED RESEARCH PROJECTS

For the year 2017, UTRC has completed the following projects and published their final reports online which are available for a free download on the UTRC's website.

Project Title / PI(s) / Institution(s)	Sponsor(s)	Project Title / PI(s) / Institution(s)	Sponsor(s)
<b>Techniques for Efficient Detection of Rapid Weather Changes and Analysis of their Impacts on a Highway Network</b> <i>Dr. Catherine T. Lawson, Feng Chen</i> SUNY - University at Albany	UTRC	<b>Alkali Silica Reaction (ASR) in Cement Free Alkali Activated Sustainable Concrete</b> <i>Dr. Sulapha Peethamparan</i> Clarkson University	UTRC
<b>Public Transit and Mandatory Evacuations Prior to Extreme Weather Events in New York City</b> <i>Dr. Carlo E. Restrepo, Dr. Rae Zimmerman</i> New York University (NYU)	UTRC	<b>Evaluation of Public-Private Partnership Contract Types for Roadway Construction, Maintenance, and Rehabilitation</b> <i>Dr. Panagiotis Anastasopoulos, Dr. Adel Sadek, Dr. Nallan Suresh</i> SUNY - University at Buffalo	UTRC
<b>A Case Study of High Speed Rail in Florida: Implications for Financing Passenger Railways</b> <i>Dr. James Cohen</i> CUNY -	UTRC	<b>Empirical Analysis of Consumer Aspects of Autonomous Cars</b> <i>Scott LeVine</i> SUNY - New Paltz	UTRC
<b>A Random Utility Based Estimation Framework for the Household Activity Pattern Problem</b> <i>Dr. Jee Eun Kang</i> SUNY - University at Buffalo	UTRC	<b>Effect of Plug-in Hybrid Electric Vehicle Adoption on Electric Vehicle Adoption on Gas Tax Revenue, Local Pollution, and Greenhouse Gas Emissions</b> <i>Dr. William T. Riddell</i> Rowan University	UTRC
<b>Effect of Implementing Lean-On Bracing in Skewed Steel I-Girder Bridges</b> <i>Dr. Andrew J. Bechtel</i> The College of New Jersey (TCNJ)	UTRC	<b>The Ties that Bind: Bi-national Trade and its Implications of the U.S. and Canada Using Bi-national Freight Movement Network via Border Crossings</b> <i>Dr. JiYoung Park, Dr. Changhyun Kwon</i> SUNY - University at Buffalo	UTRC
<b>Truck Driver Fatigue Assessment using a Virtual Reality System</b> <i>Dr. Ayman Ali, Dr. Yusuf Mehta</i> Rowan University	UTRC	<b>Panama Canal Expansion: The Effect of Imports and Exports Diverted from California Seaports on the Port of New York and New Jersey</b> <i>Dr. JiYoung Park</i> SUNY - University at Buffalo	UTRC
<b>Freight Costs at the Curbside</b> <i>Dr. Alison Conway, Dr. Xiakun Wang</i> The City College of New York (CUNY) Rensselaer Polytechnic Institute (RPI)	UTRC	<b>Effect of Implementing Lean-On Bracing in Skewed Steel I-Girder Bridges</b> <i>Dr. Andrew J. Bechtel</i> The College of New Jersey (TCNJ)	UTRC

Project Title / PI(s) / Institution(s)	Sponsor(s)
<b>Drainage Identification Analysis and Mapping, Phase 2</b> <i>Dr. Jay Meegoda, Dr. Thomas M. Juliano, Dr. Laramie Potts, Chi Tang</i> New Jersey Institute of Technology (NJIT)	NJDOT UTRC
<b>Smarter Multi-modal Traffic Signal Control with both Floating Sensor Network and Fixed Sensor</b> <i>Dr. Qing He</i> SUNY - University at Buffalo	UTRC
<b>Innovative Travel Data Collection Recommendations</b> <i>Dr. Catherine T. Lawson</i> SUNY - University at Albany	UTRC NYMTC
<b>Metrics, Models and Data for Assessment of Resilience of Urban Infrastructure Systems</b> <i>Dr. Patricia Nelson</i> New Jersey Institute of Technology (NJIT)	UTRC
<b>Integrated Incident Management System (IIMS) Web Client Application Development, Deployment and Evaluation Staten Island (Si) Demonstration Project</b> <i>Dr. Elena Prassas</i> New York University	NYSDOT UTRC
<b>A GIS-Based Performance Measurement System for Assessing Transportation Sustainability and Community Livability</b> <i>Dr. Qian Wang, Dr. Le Wang</i> SUNY - University at Buffalo	UTRC
<b>Integrated Incident Management System (IIMS) Web Client Application Development, Deployment and Evaluation: An Evaluation of a Potential IIMS Deployment in Western New York</b> <i>Dr. Adel Sadek</i> SUNY - University at Buffalo	NYSDOT UTRC
<b>The Role of Social Media in Improving the Safety and Efficiency of Traffic Operations During Non-Routine Events Such as Incidents and Planned Special Events</b> <i>Jeffrey Wojtowicz, William (Al) Wallace, Jeff Ban</i> Rensselaer Polytechnic Institute (RPI)	UTRC

Project Title / PI(s) / Institution(s)	Sponsor(s)
<b>Possibility of Sidewall Collapse of Underground Structures Due to Loss of Lateral Support Under Internal Blast Loading</b> <i>Dr. Huabei Liu</i> CUNY - The City College of New York	UTRC
<b>Review of Asset Hierarchy Criticality Assessment and Risk Analysis Practices</b> <i>Dr. Mohsen A. Jafari</i> Rutgers University	MTA UTRC
<b>Characterizing and Quantifying the Shrinkage Resistance of Alkali-Activated (Cement-Free) Concrete and Evaluating Potential Methods for Reducing Early-Age Cracking in Pavements and Bridges</b> <i>Dr. Sulapha Peethamparan</i> Clarkson University	UTRC
<b>Integration of Bus Stop Counts Data with Census Data for Improving Bus Service</b> <i>Dr. Catherine T. Lawso</i> SUNY - University at Albany	NJDOT UTRC
<b>Integrating Real-Time GIS and Social Media for Qualitative Transportation Data Collection</b> <i>Dr. Hongmian Gong, Carsten Kessler</i> CUNY - Hunter College	UTRC
<b>Real-Time Estimation of Transit OD Patterns And Delays Using Low Cost Ubiquitous Advanced Technologies</b> <i>Dr. Neveen Shlayan, Dr. Hani Nassif</i> New York University	NYSDOT UTRC
<b>Major Workforce Challenges Confronting New York City Transit Industry</b> <i>Lesley Hirsch, Pamela Hoberman, Ronnie Kauder</i> CUNY - The City College of New York	UTRC
<b>Broadband Hybrid Electromagnetic And Piezoelectric Energy Harvesting From Ambient Vibrations And Pneumatic Vortices Induced By Running Subway Trains</b> <i>Dr. Ya Wang</i> SUNY - Stony Brook University	UTRC

Project Title / PI(s) / Institution(s)	Sponsor(s)
<b>Feasibility Assessment for Battery Electric Vehicles Based On Multi-Day Activity-Travel Patterns</b> <i>Dr. Jee Eun Kang, Anpeng Zhang, Dr. Changhyun Kwon</i> SUNY - University at Buffalo	UTRC
<b>Quantitative Analysis of Residential Parking Intrusions by Passenger Vehicles In New York City</b> <i>Dr. Zhan Guo, Dr. Jianhao Zhou</i> New York University	UTRC
<b>Impacts Of Freight Parking Policies In Urban Areas: The Case Of New York City</b> <i>Dr. José Holguín-Veras</i> Rensselaer Polytechnic Institute (RPI)	UTRC
<b>Heterogeneous Regional Signal Control</b> <i>Dr. Qing He</i> SUNY - University at Buffalo	UTRC
<b>A Probability-Based Approach For Assessment Of Roadway Safety Hardware</b> <i>Dr. Qian Wang, Hongbing Fang</i> Manhattan College, The University of North Carolina at Charlotte	UTRC
<b>Building A Sense of Place in an Information Era: Accessibility, Connectivity And Travel</b> <i>Dr. Roger Chen, Ming Hu</i> Rochester Institute of Technology (RIT)	UTRC
<b>Risk Analysis Of Autonomous Vehicles In Mixed Traffic Streams</b> <i>Dr. Parth Bhavsar</i> Rowan University	UTRC
<b>Exploring Applications for Unmanned Aerial Systems and Unmanned Ground Systems in Enhanced Incident Management, Bridge Inspection, And Other Transportation-Related Operations</b> <i>Dr. Camille Kamga</i> CUNY - The City College of NY	NYSDOT UTRC

Project Title / PI(s) / Institution(s)	Sponsor(s)
<b>Assessing NJ Transit's Mobile App for User's Receptiveness To Geotargeting pneumatic Vortices Induced By Running Subway Trains</b> <i>Dr. Candace Brakewood, Dr. Robert Paaswell</i> CUNY - The City College of New York	NJDOT UTRC
<b>Using Mobile Computers to Automate The Change Order Prediction Cost For Highway Construction Projects</b> <i>Dr. Jose L. Perdomo</i> University of Puerto Rico - Mayagüez (UPR)	UTRC
<b>Long-Term Infiltration Capacity of Different Types of Permeable Pavements</b> <i>Dr. Kirk R. Barrett</i> Manhattan College	UTRC
<b>Secure and Private Sensing for Driver Authentication and Transportation Safety</b> <i>Dr. Jonathan Voris, Dr. Sertac Artan, Dr. Wenjia Li</i> New York Institute of Technology (NYIT)	UTRC
<b>Innovative Techniques for Maintenance Repair and Reconstruction (MRR) Of Asphalt Roadways</b> <i>Dr. Baris Salman, Dr. O. Sam Salem</i> Syracuse University	UTRC

To read about these projects, please visit our website at:  
[www.utrc2.org/research/projects-all-completed](http://www.utrc2.org/research/projects-all-completed)

# FEATURED PROJECTS AT UTRC IN THE YEAR 2017

## HUNTS POINT TERMINAL MARKET: THE DEMAND FOR WATERBORNE TRANSPORTATION AS A PART OF THE OUTBOUND DISTRIBUTION SYSTEM

**(COMPLETED)**

**Principal Investigator(s):**

Dr. Shmuel (Sam) Yahalom, SUNY Maritime

**Co-PI(s):**

Capt. Eric Johansson, SUNY Maritime  
Dr. Changqian Guan, SUNY Maritime  
Dr. Camille Kamga, CCNY, CUNY

**Performing Institution(s):**

Maritime College, The State University of New York:  
The City College of New York, CUNY

**Sponsor(s):**

New York State Energy Research and  
Development Authority (NYSERDA)  
University Transportation Research Center (UTRC)

The goal of the study was to explore an alternative to the primary use of trucks for outbound delivery or pick-up of food products in the Metropolitan area from Hunts Point Terminal Market (HPTM.) The alternative proposed was the use of waterborne transportation, e.g., barges or freight ferries, as part of the food outbound distribution system. The study's objective was to quantify the potential demand for waterborne services from which vehicle mile savings will be determined. The assumption was that the waterborne vessel would be loaded with food products at HPTM and moved (self-propelled or pulled) to a strategically located predetermined site in the Metropolitan area. Customers would pick up their pre-ordered food products from this site. After the waterborne vessel was discharged, it would move back to HPTM for the next day's operations.

**Findings:** An outbound waterborne transportation system moving produce from HPTM to its consumers will significantly reduce the surface transportation traffic in New York east of the Hudson River and will reduce emissions as well. A fully operating waterborne system, fully replacing the present surface transportation system, would have a net effect estimated east of the Hudson of

- savings of 39,500 miles per day (10.3 million per year)
- emissions reduction of 37.3 thousand pounds of CO2 per day (9.7 million pounds a year)
- savings of 2,076 gallons a day (540 thousand gallons per year and \$1.35 million at \$2.50 per gallon)
- savings of 1,000 to 1,500 hours of driving per day

**Challenges:** In order to obtain a reliable outbound waterborne operation system, there is a need to overcome a few major challenges: trust, scale, schedule, and local delivery. There are some other

challenges as well such as: community objections, service quality and customer relations and the loss of toll revenues for the City agencies.

The conclusions and recommendations for this preliminary study of the potential demand for waterborne outbound produce distribution from HPTM indicate that, there are severe multiple challenges in developing an outbound produce distribution from HPTM to New York sites east of the Hudson. Thus, it is difficult to envision them resolved in the near future.

To get more information, please visit the project's page at: <http://www.utrc2.org/research/projects/feasibility-waterborne-distribution-hunts-point>



# ASSESSING NJ TRANSIT'S MOBILE APP FOR USERS' RECEPTIVENESS TO GEOTARGETING (COMPLETED)

## Principal Investigator(s):

Dr. Candace Brakewood  
Dr. Robert E. Paaswell

## Performing Institution(s):

The City College of New York, CUNY

## Sponsor(s):

New Jersey Department of Transportation (NJDOT)  
University Transportation Research Center (UTRC)

The objective of this research project was to assess NJ TRANSIT passengers' receptiveness to geotargeting in NJ TRANSIT's mobile app.

A three-part method was used.

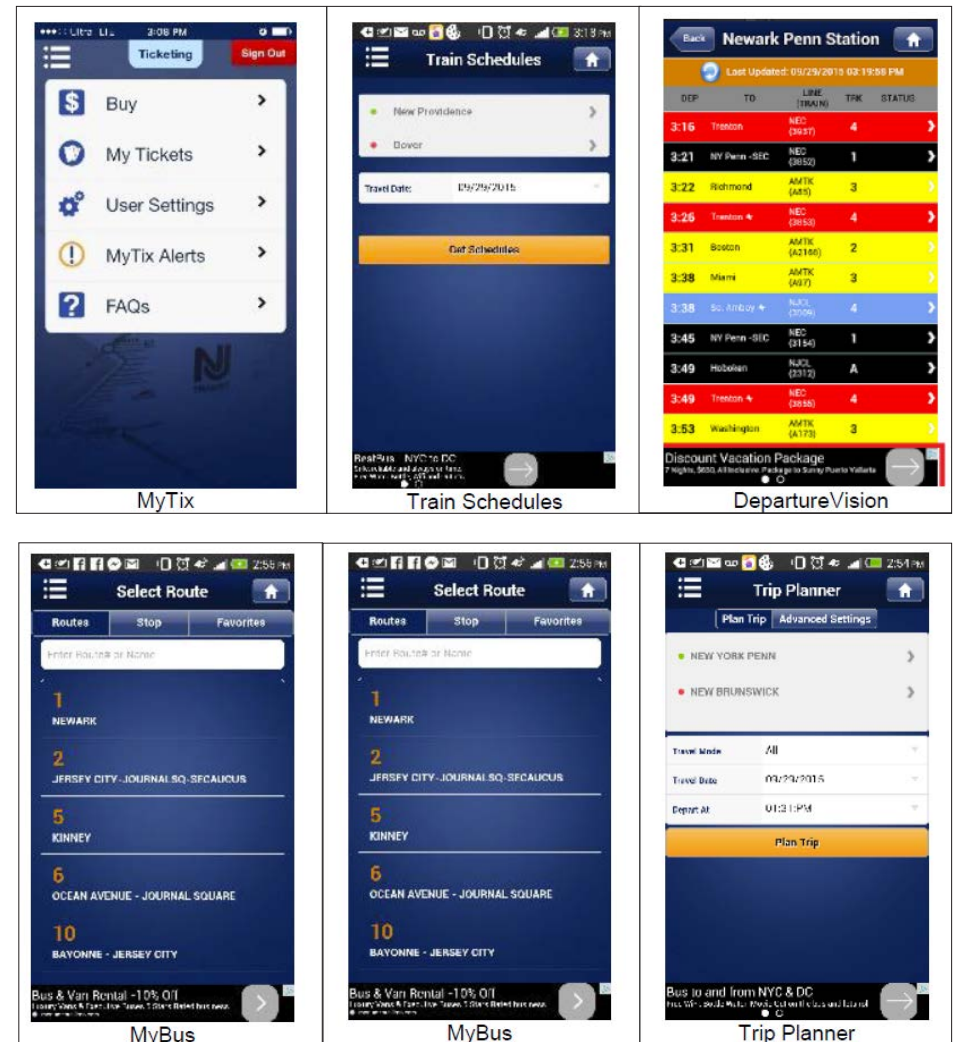
**First**, an industry scan of transit smartphone apps was conducted by downloading publicly available apps from four peer transit agencies. The results reveal that most of the peer transit agency apps are location aware; however, this functionality appears to be used in a limited number of features within the app, such as detecting a user's location when they request nearby real-time vehicle arrival information.

In the **second** part of the research, focus groups of NJ TRANSIT passengers were conducted, and the results of this qualitative research were used to guide the **third** part of the project, in which an online survey of NJ TRANSIT customers was conducted. The results of the survey revealed that most customers under-

stand that their smartphone can detect their location, and most respondents find it acceptable for NJ TRANSIT's app to detect their location.

In summary, the results suggested that NJ TRANSIT passengers find it acceptable for NJ TRANSIT's app to know their location, and they are particularly receptive to receiving targeted transit information relevant to their NJ TRANSIT trip. The project's final report can be accessed at:

<http://www.utrc2.org/sites/default/files/Final-Report-Assessing-NJ-Transit-Mobile-App-Geotargeting.pdf>





## DEVELOPMENT OF SOFTWARE FOR ANALYSIS OF TRAFFIC SIGNAL SUPPORT STRUCTURES

(ACTIVE)

### Principal Investigator(s):

Dr. Michael Symans

### Performing Institution(s):

Rensselaer Polytechnic Institute (RPI)

### Sponsor(s):

New York State Department of Transportation (NYSDOT)  
University Transportation Research Center (UTRC)

Currently, structural analysis of traffic signal poles is currently performed manually at NYSDOT. The objective of this project is to develop a computer program to perform various load and stress analyses of existing and proposed Mast Arm and Span Wire pole installations (which checks all requirements of the latest AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and NYSDOT Specifications) with the ability to enter an array of inputs at different locations including, but not limited to: traffic signal heads, backplates, overhead signs, traffic cameras, vehicle detectors, complex web wire spans, and multiple arms.

Deliverables for this project will include a computer program that will include several modules. Some of these modules include software for computing loads on mast arm and span wire traffic signal support structures based on information entered by the user; software for computing forces and displacements in traffic signal support structures when subjected to the load combinations defined in Section 3 of the AASHTO Specifications and a module to perform capacity assessment (comparison of capacity relative to demand) of mast arm and span wire traffic signal support structures.

<https://www.utrc2.org/research/projects/development-software-analysis-traffic-signal>

## PHASE 2 BIOLOGICAL CONTROL OF INVASIVE PHRAGMITES AUSTRALIS

(ACTIVE)

### Principal Investigator(s):

Dr. Bernd Blossey

### Performing Institution(s):

Cornell University

### Sponsor(s):

New York State Department of Transportation (NYSDOT)  
University Transportation Research Center (UTRC)

Phragmites australis plant growth and rapid expansion causes negative impacts including public safety and interference with New York State Department of Transportation (NYSDOT) maintenance operations. More broadly, the growth and expansion of Phragmites australis interferes with NYSDOT's Landscape Stewardship Policy to promote biodiversity. Current practices to control Phragmites australis include the application of herbicides followed by burning or mechanical removal of dead stalks. Success of eradication using herbicides has only been achieved for small infestations covering less than 1 acre. For larger areas, eradication has not been successful; plants re-grow and require re-treatment with herbicide application at a 3-5 year rotation. These practices pose problems to the maintenance budget and can cause negative ecological side effects for non-target plants.

The current project is Phase 2 of a multi-year project. The objective of this research is to continue and complete development of effective biocontrol for Phragmites australis and disseminate the results to stakeholders. The focus of this host specificity biological control research is with two promising highly specific species of moths, (*A. geminipuncta* and *A. neurica*), which are widespread and abundant in their native range in Europe with major impacts on Phragmites australis. In order to advance the biological control program, by conducting a study of the effectiveness of the specified moths, the Consultant shall prepare a petition to allow the introduction and field release of *A. geminipuncta* and *A. neurica* in the United States. If the necessary permit(s) are approved, the study shall proceed with the development of assessment procedures, as well as mass production and release techniques for land managers as anticipated users of this biological control option.

<http://www.utrc2.org/research/projects/phase-2-biological-control-invasive-phragmites-australis>

# RISK ANALYSIS OF AUTONOMOUS VEHICLES IN MIXED TRAFFIC STREAMS

**(COMPLETED)**

**Principal Investigator(s):**

Dr. Parth Bhavsar  
Dr. Rouzbeh Nazari

**Performing Institution(s):**

Rowan University

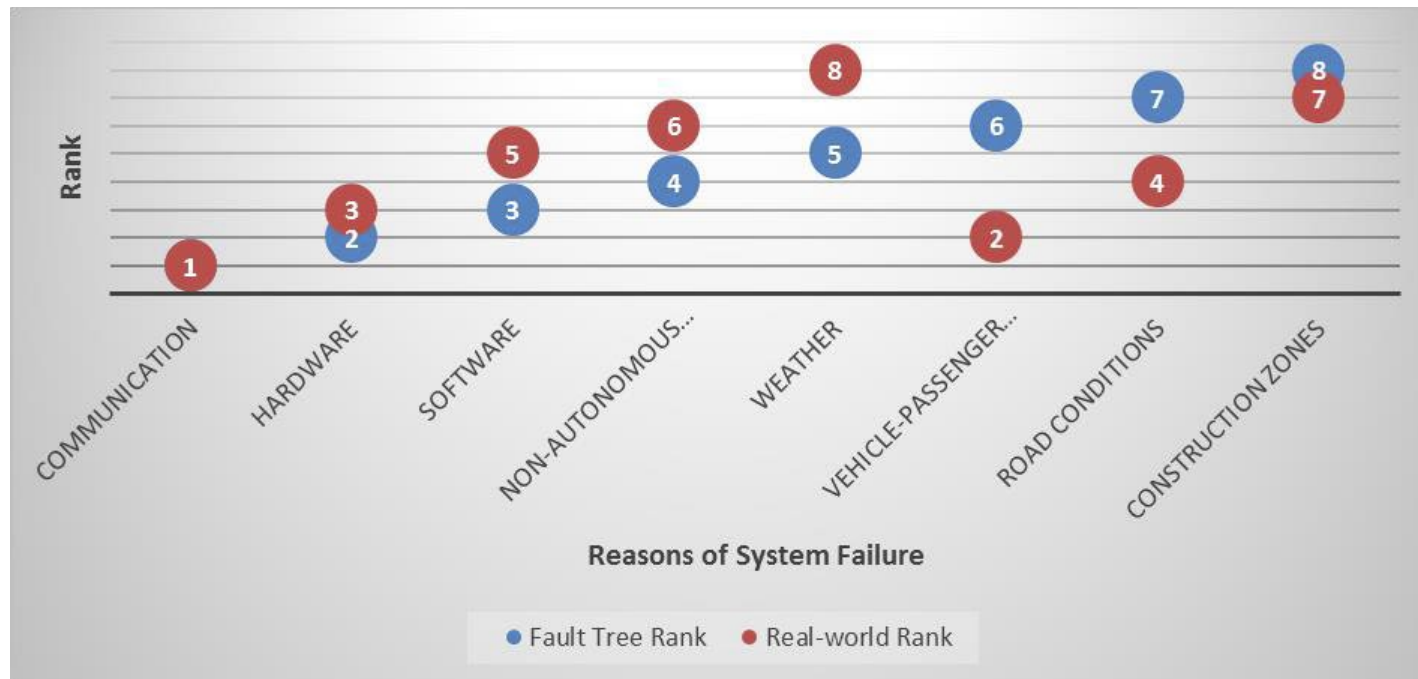
**Sponsor(s):**

University Transportation Research Center (UTRC)

The objective of this study was to identify the risks associated with the failure of autonomous vehicles in mixed traffic streams and develop strategies to minimize these risks. Three distinct and interconnected phases were used to conduct the risk analysis; i) risk identification, ii) risk estimation and iii) evaluation. To identify the risks, the autonomous vehicle system was first disintegrated into vehicular components (i.e., sensors, actuators and communication platforms). Because an autonomous vehicle will share the roadways with human drivers for many years after their deployment, transportation infrastructure components play an important role in the final risk analysis. A fault tree model was developed for each vehicular component failure and each transportation infrastructure component failure. The failure probabilities of each component were estimated by reviewing relevant literature and publicly available

data. The fault tree analysis revealed the autonomous vehicle failure probability to be about 14% resulting from a sequential failure of vehicular components (i.e., particularly those responsible for automation) in the vehicle’s lifetime. Subsequently, the failure probability due to autonomous vehicle components and due to transportation infrastructure components were combined. An overall failure probability of 158 incidents per

1 million miles of travel was determined possible as a result of malfunctions or disruptions in vehicular or infrastructure components, respectively. To validate the results, real-world data from the California Department of Motor Vehicles autonomous vehicle testing records were utilized in this study. The most critical combinations of events that could lead to failure of autonomous vehicles, known as minimal cut-sets, were also identified and ranked based on their corresponding failure probabilities. Based on the fault tree analysis, 22 strategies were identified that would minimize the failure probability of autonomous vehicles. Finally, these identified strategies were evaluated using benefit-cost analysis.



A Comparison between the Results of Risk Analysis and Real-world Incident Percentages

<http://www.utrc2.org/sites/default/files/Final-Report-Risk-Analysis-of-Autonomous-Vehicles.pdf>

## USING VISUAL INFORMATION TO DETERMINE THE SUBJECTIVE VALUATION OF PUBLIC SPACE FOR TRANSPORTATION: APPLICATION TO SUBWAY CROWDING COSTS IN NEW YORK CITY

(ACTIVE)

### Principal Investigator(s):

Dr. Ricardo A. Daziano  
Dr. Linda Nozick

### Performing Institution(s):

Cornell University

### Sponsor(s):

University Transportation Research Center (UTRC)

The objective of this proposal is to explore the role of visual information in determining the users' subjective valuation of multidimensional trip attributes that are relevant in decision-making, but are neglected in standard travel demand models. The subjective valuation estimates that will be produced in this project –and the methodology proposed to produce those estimates– are relevant in assessing welfare improvements that come from a more efficient use of public space devoted to transportation. In particular, a case study in New York City will be conducted to analyze the effect of using images to describe train and platform passenger congestion scenarios in discrete choice experiments to value subway crowding perceptions. Although the concept of congestion is usually associated with cars, transit congestion is a growing problem.

In fact, the motivation for this project comes from the rising subway demand in NYC (1.8 billion trips in 2014), with overcrowding delays that have extended to non-peak hours and weekends (weekend overcrowding delays grew 141.2% in 2014-2015). In addition, quality of service of public transportation systems is difficult to measure and model, and hard to illustrate in standard preference surveys.

<http://www.utrc2.org/research/projects/using-visual-information-determine-subjective-valuation>

## TECHNIQUES FOR EFFICIENT DETECTION OF RAPID WEATHER CHANGE AND ANALYSIS OF THEIR IMPACTS ON A HIGHWAY NETWORK

(COMPLETED)

### Principal Investigator(s):

Dr. Catherine T. Lawson  
Dr. Feng Chen

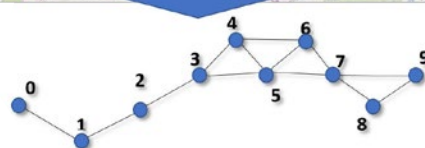
### Performing Institution(s):

The State University of New York at Albany

### Sponsor(s):

University Transportation Research Center (UTRC)

This project develops techniques for efficiently detecting rapid weather change events and analyzing their impacts on the traffic flow characteristics of a highway network. It is composed of three components, including 1) detection of rapid weather change events in a highway network using the streaming weather information from a sensor network of weather stations; 2) detection of rapid change events on the traffic



Software for Analysis of Traffic Signal Support Structures

flow characteristics (e.g., travel time) of the highway network; and 3) analysis of correlations between the detected weather and traffic change events in space and time.

The proposed approach was applied to a weather dataset provided by New York State Mesonet and a traffic flow dataset, the National Performance Management Research Data Set (NPMRDS), provided by NYSDOT, from Mar. 1, 2016 to Dec. 31, 2016. The empirical results provide potential evidence about the significant impacts of rapid weather change events on traffic flow characteristics of the Interstate 90 (I-90) Highway in the state of New York. The limitations of the proposed approach and the empirical study are also discussed.

<http://www.utrc2.org/sites/default/files/Final-Report-Techniques-for-Efficient-Detection.pdf>

## USING MOBILE COMPUTERS TO AUTOMATE THE CHANGE ORDER PREDICTION COST FOR HIGHWAY CONSTRUCTION PROJECTS (COMPLETED)

### Principal Investigator(s):

Dr. José L. Perdomo

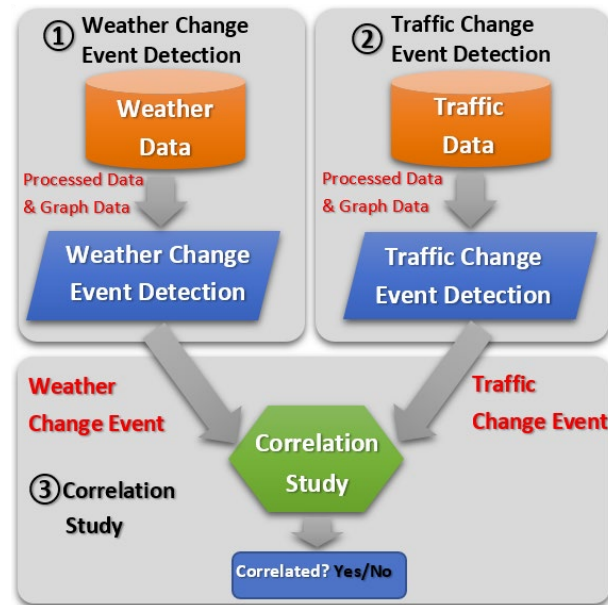
### Performing Institution(s):

University of Puerto Rico, at Mayaguez

### Sponsor(s):

University Transportation Research Center (UTRC)

Currently, UPRM is working on a mobile computing application for automating the collection process of field inspection data using iPads or Android Tablets. The application contains standard forms of the specifications that appear in the Standard Specification of Road and Bridge Construction book. Because of their high mobility characteristics and due to their small size and light weight, these mobile devices can be used in the construction field to perform various tasks including development and evaluation of a change order and extra work. This study presents an extension to the application by automating the prediction of the project cost by the implementation of change orders and extra work in highway construction projects. The proposed prediction models would allow the officers along the decision-making chain to consider not only the technical aspects of a required change order, but also, the opportunity cost of their timely decision. This would streamline the decision process and has the capability to generate important cost and time savings predictions



that could allow finishing highway construction projects in a timely manner and within the expected budget. The development of this application could also result in faster transfer of information between the parties along the decision-making chain in a highway construction project, therefore improving the current communication process. In addition, automating the change order process and subsequent reporting and information transfer flow could result in improvements in the overall process, reducing the overall project delivery cycle. In order to accelerate project delivery, there is a need to improve the current methodology to consider and approve change order and extra work. Once the application has been developed, the research team will test it using the information of a recently finished highway construction project to verify its suitability and perform any adjustment to fit the models to the real world.

<http://www.utrc2.org/sites/default/files/Final-Report-Using-Mobile-Computers-to-Automate-Change.pdf>

## MOBILE BRIDGE SCOUR MONITORING USING AUTONOMOUS UNDERWATER VEHICLE (ACTIVE)

### Principal Investigator(s):

Dr. Brent Horine  
Dr. Mehdi Omidvar

### Performing Institution(s):

Manhattan College

### Sponsor(s):

University Transportation Research Center (UTRC)

In this proposal, a cost-effective methodology is presented to conduct bridge scour assessment using autonomous underwater vehicles (AUV). There are several advantage to using AUVs in bridge scour monitoring, including (1) the proposed AUV is designed to be ruggedized and cost-effective, allowing states to deploy multiple units under unfavorable conditions, such as those experienced during a flooding event; (2) AUVs are portable units, and can be re-deployed at different locations; (3) they are able to produce bathymetric data from the entire channel, in addition to pier, contraction, and abutment scour hole depth; (4) they are equipped with optical cameras, which can be used to replace or supplement diving activities for bridge pier health monitoring, in

addition to scour assessment; (5) AUVs can be equipped with multiple other sensors in the future, allowing them to sample the stream bed, and to collect data regarding stream bed hydraulic properties, which is time-consuming and expensive to acquire by other means. In the proposed study, an existing AUV will be adapted for use in bridge scour monitoring. Details of software and hardware development, as well as the required instrumentation will be described. The AUV will be deployed at a bridge site to demonstrate the capabilities of the device in obtaining bathymetric data, in addition to optical imaging of the bridge piers.

<http://www.utrc2.org/research/projects/mobile-bridge-scour-monitoring>

## BUILDING A SENSE OF PLACE IN AN INFORMATION ERA: ACCESSIBILITY, CONNECTIVITY, AND TRAVEL

(COMPLETED)

### Principal Investigator(s):

Dr. Roger Chen

### Performing Institution(s):

Rochester Institute of Technology

### Sponsor(s):

University Transportation Research Center (UTRC)

This research work examines the relationships among: (i) Sense of Place (SOP); (ii) non-motorized sustainable travel choices and accessibility; and (iii) adoption and use of information and communication technologies (ICT). A guiding principle in designing the built environment for sustainability and livability is the latent construct of Sense of Place (SOP) which leads visitors to perceive and associate a strong identity or character with a particular location. With respect to this context, the research work addresses the following research questions:

- 1) Does access to and use of ICT facilitate Sense of Place, and if so, through which mechanisms do they operate and function?
- 2) Do non-motorized or public travel modes, such as bikes or walking, and perceived accessibility of a setting impact Sense of Place?

To address these research questions a combination of survey instruments and economic models are developed and estimated. The final findings indicate that while Sense of Place is statistically linked to non-motorized travel and visits, and in general, travel that allows visitors to experience their surroundings, the effects of ICT are less pronounced. Furthermore, sites that have less conformity in design lead to more uniform attitudinal responses, with respect to SOP. In contrast, designs that are more organic, lead to a wider range of SOP attitudinal response, which span both positive and negative perceptions.

<http://www.utrc2.org/sites/default/files/Final-Report-Building-a-Sense-of-Place.pdf>

## REDUCING INCIDENT-INDUCED EMISSIONS AND ENERGY USE IN TRANSPORTATION: USE OF SOCIAL MEDIA FEEDS AS AN INCIDENT MANAGEMENT SUPPORT TOOL

(COMPLETED)

### Principal Investigator(s):

Dr. Camille Kamga (CUNY)  
Dr. M. Anil Yazici (SUNY)

### Performing Institution(s):

The City College of New York, CUNY  
  
The State University of New York:  
Stony Brook University

### Sponsor(s):

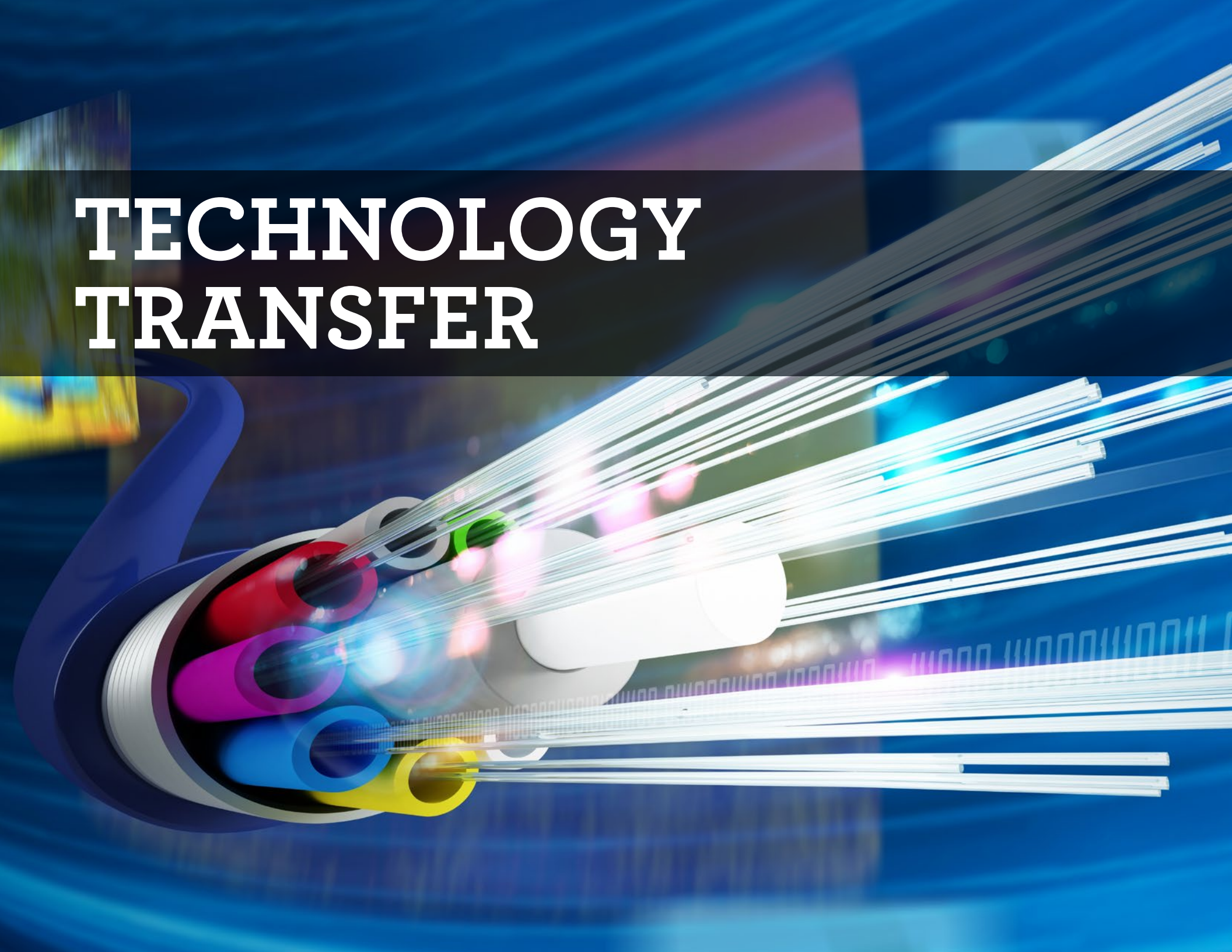
New York State Energy Research and Development Authority (NYSERDA)  
New York State Department of Transportation (NYSDOT)  
University Transportation Research Center (UTRC)


This study investigated the use of Twitter feeds in providing information for Transportation Incident Management (TIM). Ubiquitous connected devices and microblogging platforms e.g., Twitter, are providing a huge amount of user-generated information that has a great potential and very minimal infrastructure required, for applications in transportation incident management. Publicly posted Twitter posts are gathered using relevant keywords. Organizational Twitter accounts (e.g. DOT, news outlet) disseminate traffic information after an incident is reported and confirmed. Tweets of personal accounts (e.g. individual, private, etc.) were particularly investigated because they are more likely to contain previously unreported traffic information that is more useful in terms of TIM. A variety of information such as location, time, severity, extent of damage, presence of debris and evolution of congestion can be extracted from the text. Such information is especially useful for TIM as the traditional sources such as loop detectors and sensors are expensive to construct and maintain for local and rural

roads. Accident delay, emissions and fuel consumption were calculated using comprehensive incident data from California Highway Patrol to demonstrate the benefits of using Twitter for TIM. As a result of the early detection, 4,046 vehicle-hours of delay savings, reduction in 5.9 kg of ROG, 133kg of CO, 16.3 kg of NOx and 0.3 kg of PM2.5 and 1,939 gal of gasoline and 622 gal of diesel were estimated to be saved – monetary value of \$75,600 or \$0.5 per mile per week in California. For incidents in NY, for each accident record accident delay, emissions and fuel consumption were estimated in order to benchmark the potential delay, fuel consumption and emission savings due to early incident detection. Recommendations were made for the application of social media for TIM.

<http://www.utrc2.org/research/projects/reducing-incident-induced-emissions-and-energy-use-transportation-use-social-media>

# TECHNOLOGY TRANSFER





## UTRC's Technology Transfer program goes beyond what might be considered traditional.

**U**TRC's Technology Transfer Program goes beyond what might be considered "traditional" technology transfer activities.

Its main objectives are (1) to increase the awareness 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; and 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 disseminating 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.

# 30<sup>TH</sup> INTERNATIONAL ASSOCIATION OF TRANSPORTATION REGULATORS (IATR) 2017 ANNUAL CONFERENCE

September 24-27, 2017, Austin, Texas

The 30th IATR Annual Conference was held on September 24-27, 2017 in Austin, Texas. The conference theme was “Keeping Regulation Weird?”! The presentations included all the major issues facing regulators. The conference program highlighted many new IATR members and sister organizations of government transportation professionals in the public transit, motor vehicle administration, airport, public utilities and traffic management arenas.

UTRC’s Distinguished Lecturer Matthew W. Daus, who serves as the IATR president, and IATR’s Board Chair, James Ney welcomed the conference participants. The IATR conference began with its first-ever entry-level training for new regulators, called “Regulatory Boot Camp” to aspiring professionals who have recently joined government agencies. The Boot Camp was comprised of the following training sessions.

1. Understanding the Regulatory Paradigm,
2. Regulatory Management: Licensing, Enforcement, Data Management, and Performance Measure, and
3. Regulatory Policymaking & Legislative /Rule-making Drafting & Procedures

UTRC’s Director, Dr. Camille Kamga who is also a member of the IATR Advisory Board, actively participated in the conference. Dr. Kamga also moderated plenary sessions on Automated & Connected Vehicles – The Future Role of Regulation and Accessible Solutions – A Future of Equity and Service for All. He also co-moderated a breakout session on the IATR’s upcoming Accessible Data Challenge. The conference was very well attended by international regulators and many presenters shared their best state/ city practices with attendees.



From left to right: Dr. Camille Kamga, University Transportation Research Center, City College/CUNY; IATR President Matthew W. Daus, Esq.; Keynote Luncheon Speaker Hon. Daphne Y. Jefferson, Deputy Administrator of the Federal Motor Carrier Safety Administration (FMCSA); Selika Gore, Senior Advisor, DOT/FMCSA; and Dr. Alain Kornhauser, Princeton University



From (L) to (R): Dr. Camille Kamga, UTRC Director; Xinwu Qian, Purdue University; Mahmoud Saleh, NYIT; Matthew Daus, IATR President; and James Ney, IATR Board Chair



From (L) to (R): Dr. Camille Kamga, UTRC Director; Dr. Alain Kornhauser, Princeton University; Casey Gerber, AAMVA; Matthew Daus, IATR President; and Paul Brubaker, AT121



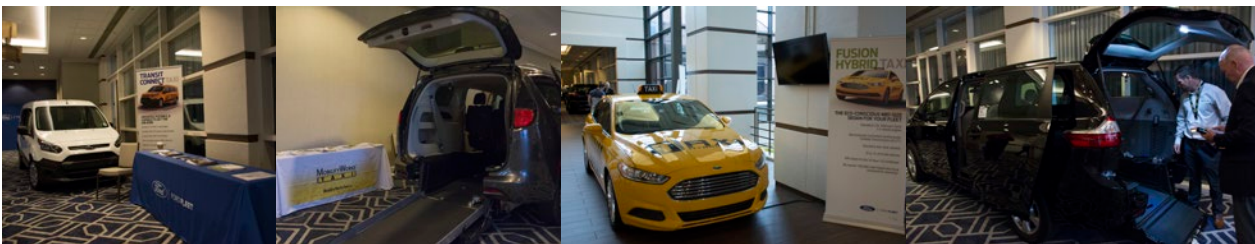


From (L) to (R): Dr. Camille Kamga, UTRC Director; Dr. Alain Kornhauser, Princeton University; Casey Gerber, AAMVA; Matthew Daus, IATR President; and Paul Brubaker, AT121



Matthew W. Daus, IATR President

Formed in 1987, through the merger of two separate groups of U.S. and Canadian regulators, the IATR held its first conference in Tampa, Florida, and then held conferences in North America and beyond, from as far as Strasbourg, France, to Anchorage, Alaska. As IATR turns 30 at one of the most exciting times in transportation history, where technology is causing inter-related transport modes and businesses to merge and work together, IATR took a major step in forming an Advisory Board including the following: international organizations such as the International Public Transportation Association (UITP), the International Transport Forum (ITF-OECD) and Keroul; U.S. groups such as APTA, AAMVA, the Airport Ground Transportation Association (AGTA), the National Conference of State Transportation Specialists (NCSTS), the Responsible Hospitality Institute (RHI), and the National Conference on Weights and Measures (NCWM); and Universities such as the City University of NY and the University of California, Berkeley. The IATR has broadened its membership base well beyond taxi regulators to include airports, Public Utilities Commissions, Motor Vehicle Departments, Transit and Traffic agencies, on a federal, state and local level, including members from all around the world on almost every continent. Membership is open to any transportation government agency and associate membership to industry groups and stakeholders, so if you are thinking of joining, visit [www.iatr.global](http://www.iatr.global) or email [info@iatr.global](mailto:info@iatr.global) with any questions or comments.



Vehicles Display during the IATR 2017 Conference Exhibition

Finally, IATR announced the next phase of IATR's regulatory liberty in the "City of Brotherly Love" – Philadelphia – where regulatory freedom will be on full display in 2018 for its 31st Annual Conference. While there is no way to predict the next 30 years, 30 days or 30 minutes, as technology and regulatory developments are moving at lightning speed, let's wish IATR a "Happy 30th Birthday!"

To read the full article authored by Matthew W. Daus, please visit the **TaxiCab Times** article [here](#).

# CAR FREE DAY - A PANEL DISCUSSION ON STATE TOWARDS A SUSTAINABLE TRANSPORTATION FUTURE IN NYC

April 12, 2017 at the New York Institute of Technology

UTRC organized a half-day Car-Free Day symposium on April 12th, 2017 at the New York Institute of Technology, entitled, A Panel Discussion on Steps towards a Sustainable Transportation Future in NYC. Dr. Nada Anid; Dean, School of Engineering and Computing Sciences at the New York Institute of Technology welcomed the attendees and introduced the keynote speaker; Honorable Ydanis Rodriguez, Transportation Committee Chair.



Keynote Speaker: Honorable Ydanis Rodriguez,  
Transportation Committee Chair

Photos Credit: Aaron D. Hernandez

Hon. Rodriguez addressed a three pronged plan to address congestion caused by truck deliveries:

1. The legalization of E-Bikes in New York State, with the intention to use e-bikes to transport goods, packages and more, as is being done in cities such as Portland, Oregon.
2. Distribution centers should be located outside of NYC, where delivery bikes can be dispatched from, instead of trucks traversing the city.
3. If goods are to be delivered by truck, they should be delivered between 7pm and 7am, to avoid rush hour on city streets.

The full text of the Hon. Rodriguez's full speech can be found here: [conta.cc/2otvNwM](https://conta.cc/2otvNwM)





**Policy Panel:**

Car Free Day Policymaking – How Will the Data and Research Influence Future Transport Policy

**Moderator:** Matthew W. Daus, Esq., Distinguished Lecturer, CCNY/UTRC

- **Pierina Ana-Sanchez**, NY Director for the Regional Plan Association
- **Michael Replogle**, NYC DOT Deputy Commissioner for Policy
- **Caroline Samponaro**, Deputy Director of Transportation Alternatives
- **Nilda Mesa**, Former Director of NYC Mayor’s Office for Sustainability & Professor at Columbia University



**Research Panel:** Research Opportunities and What the Data Shows

**Moderator:** Dr. Camille Kamga, CCNY/UTRC

- **Dr. John Falcocchio**, Professor, NYU Tandon School of Engineering
- **Dr. Alison Conway**, Associate Professor, City College of NY, CUNY
- **Sarah Kaufman**, Adjunct Professor, NYU Rudin Center for Transportation

The symposium was very well attended by various transportation experts. The event was organized as part of the countdown to Car Free Day on Earth Day held this year on April 22, 2017. The event was videotaped, accessible at: <http://www.utrc2.org/events/2017-car-free-day-panel-discussion>



**DR. ROBERT E. PAASWELL, UTRC’S DIRECTOR EMERITUS PRESENTED AT THE TRANSIT FORUM: GETTING BACK ON TRACK: THE NEW YORK TRANSIT CRISIS, HOSTED BY MURPHY INSTITUTE, CUNY**

October 13, 2017 at Murphy Institute, CUNY

This forum explored the nature and causes of the current mass transit crisis with a focus on solutions that will enable New York City to sustain itself as a world-class city. During the course of two panels, speakers offered strategies to modernize and maintain the City’s transit systems, with responses from local elected leaders on the crisis and policies to remedy it. To access Dr. Paaswell’s Panel Video, please visit the link at: <http://murphyinstituteblog.org/cal/gettingback-on-track-the-new-york-transit-crisis/>

Photo Courtesy: The Murphy Institute

## NYMTC HOSTED PRESENTATIONS FOR SEPTEMBER 11<sup>TH</sup> MEMORIAL PROGRAM FOR REGIONAL TRANSPORTATION PLANNING

September 27, 2017, NYMTC



*NYMTC's September 11th Memorial Program's 2016-2017 Interns with NYMTC, NYSDOT, and UTRC Staff at the Brown Bag Presentation (Photo Credit: John Lopez, NYMTC)*

The 11th Annual September 11th Memorial Program Brown Bag presentation was held on September 27, 2017 at NYMTC. The scholarship recipients of the academic year 2016-2017; Bahman Moghimi and Patricio Vicuna who are Ph.D. Candidates in Transportation Engineering at the City College of New York presented their research work during their internship.

"The September 11th Memorial Program for Regional Transportation Planning is a living memorial to the three NYMTC staff members – Ignatius Adanga, Charles Lesperance and See Wong Shum -- who died in the terrorist attacks on the World Trade Center on September 11th, 2001. The program provides financial assistance to students for projects and research beneficial to NYMTC's planning process. The Program is a means to educate and motivate those who are interested in transportation technology and planning."

Bahman Moghimi received his master's degree from Northeastern University in Boston. While there, he was a recipient of the Dean's Fellowship award and worked as a Research Assistant at the Northeastern University

for two years working on the project; Self-Organizing Traffic Control and Signal Priority for Transit, prior to joining CCNY for his Ph.D.

Bahman interned at the NYMTC office under the supervision of Mr. Ali Mohseni, Acting Manager, Model Development. During his internship, Bahman produced a full documentation and reporting on the impact of Transit Signal Priority (TSP) on Transit Service and Regional Transportation Planning (i.e. travel speed, congestion and air quality). The overall internship responsibilities included surveying the TSP projects undertaken in the NYMTC region including tactics used and extent to which they could achieve the objective. In addition, Bahman studied planning tools used in the New York Best Practice Model (NYBPM), (Post Processor System for Air Quality) PPS-AQ, and Congestion Management Process (CMP). He ran the applications to explore how these tools could potentially be used for TSP at the regional level. He suggested the potential scenarios that could utilize the benefits of TSP in the NYBPM modeling process, performing a pilot test. To access his presentation, please click here.

Patricio received his B.Sc. in Statistics and Computer Science, M.Sc. in Operations Research, and an Advanced Diploma in Data Mining and Project Management. His research was focused on the Development of a Decision Support Tool to Evaluate Transit Improvements Using a Metaheuristic-based Model.

Patricio interned at a NYMTC partner agency, the New York City Department of Transportation (NYCDOT), under the supervision of Ms. Susan McSherry, Program Director of Alternative Fuels Program at NYCDOT. Patricio's research involved the analysis and the implementation of automatic vehicle location data mining, visualization, and dashboard functionality for evaluating the NYCDOT's Clean Truck Program and improving regional freight delivery efficiency. To access his presentation, please click here.

## UTRC ORGANIZED NYMTC PEER EXCHANGE MEETING WITH MPOS

May 18, 2017 at NYMTC's Office

With the assistance of the University Transportation Research Center (UTRC), the New York Metropolitan Transportation Council (NYMTC) hosted a Metropolitan Planning Organization (MPO) Peer Exchange meeting, which included MPOs from Northern Illinois, the Greater Philadelphia Region, the San Francisco Bay Area and the Northern New Jersey.

MPO Peer Exchange participants included NYMTC, the Chicago Metropolitan Agency for Planning (CMAP), the Delaware Valley Regional Planning Commission (DVRPC), the Metropolitan Transportation Commission (MTC) and the North Jersey Transportation Planning Authority (NJTPA).

NYMTC Executive Director, Jose M. Rivera, along with members of NYMTC's Program, Finance, and Administration Committee (PFAC) participated in a lively discussion regarding MPO critical issues, funding, operations and challenges.



(Photo Credit: John Lopez, NYMTC)



Member agency representatives – as delegated by the Council – make up PFAC, which is responsible for overseeing NYMTC's day-to-day activities.

Dr. Robert Paaswell, Dr. John Falcocchio, and Dr. Camille Kamga from UTRC organized and moderated the MPO peer exchange meeting.

## MOVING GOODS AND PEOPLE TO, FROM, AND ALONG THE BROOKLYN WATERFRONT

March 31st, 2017, Brooklyn Borough President Hall, Brooklyn



From (L) to (R): Richard Hanley, BWRC; Congressman Jerrold Nadler; Dr. Camille Kamga, UTRC

The full day conference, sponsored by Brooklyn Waterfront Research Center (BWRC) and the University Transportation Research Center (UTRC), had as its goal a comprehensive conversation about the transportation needs of the communities, businesses, and visitors along the Brooklyn waterfront. Some of the questions that were discussed at the event are: Have those needs been studied? Who are the community-based actors working on these issues and what are they saying? How are city, state, and local officials planning to address the issues?



Councilmember Carlos Menchaca (D-Sunset Park-Red Hook)



From (L) to (R): Dani Simons, of Motivate; Dr. Robert E. Paaswell, UTRC Director Emeritus; and Adam Giambrone of Brooklyn Queens Connector (BQ) Project



Christopher Clott of SUNY Maritime College (Left) and Richard Hanley, BWRC Director (Right)

Trying to answer these and other transportation questions were the keynote lunch speaker, Congressman Jerrold Nadler, representatives of maritime industries, elected and appointed officials, representatives from waterfront communities, developers of residential, commercial, and industrial properties, and transportation scholars. For more information, please visit the website at: <http://www.utrc2.org/events/conference/moving-goods-and-people-along-brooklyn-waterfront>

The event recap and Press' articles on the event are available in the following links: <http://brooklynwaterfront.org/>

Brooklyn Daily Eagle: [A changing, uncertain future for the Brooklyn waterfront addressed at CUNY conference](#)

Exclusive: [Critics, advocates of BQX go head-to-head in heated panel](#)



Matthew W. Daus, UTRC/CCNY Distinguished Lecturer Moderated a Panel at the Conference

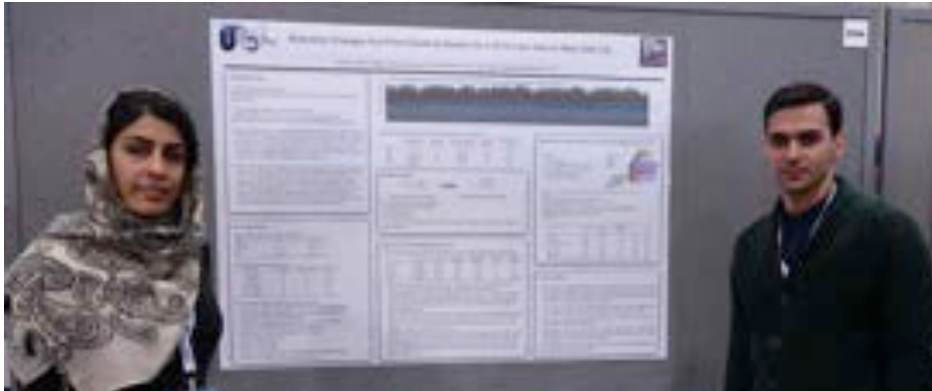
There are many means of transportation and transportation infrastructures in place or proposed: subways, barges, buses, trucks, ferries, private shuttles, freight rails, the Brooklyn Greenway, bicycles, a light rail system, car sharing services such as Uber and Lyft, and even a gondola to replace the L line. Are, or could, these systems be sufficient to meet the needs?

*Photos Credit: Robin Michals*

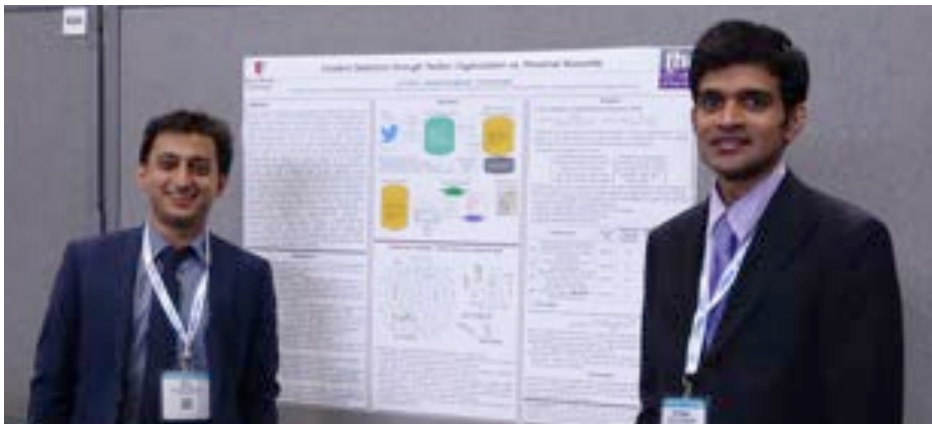
## 2017 TRB ANNUAL MEETING

January 10-14, 2016, Washington, DC

UTRC was very well represented at the Transportation Research Board's (TRB) 96<sup>th</sup> Annual Meeting held from January 8-12, 2017 in Washington, D.C. UTRC faculty, researchers, and students participated in the lectern and poster sessions, and also presided over many sessions. UTRC also developed a compendium of presentations & papers by the Center's faculty, covering topics from all transportation modes.



UTRC Ph.D. Candidates; Sabiheh Fagih (L) and Bahman Mohgimi (R) Presenting at the 2017 TRB Poster Session



UTRC Researcher from Stony Brook, SUNY; Dr. Anil Yazici (L) and UTRC Post Doc; Dr. Sandeep Meegoda at the 2017 TRB Poster Session

The 2017 TRB Compendium is available to download at:  
<http://files.constantcontact.com/08b78404201/ef503a49-f364-4ec4-a6ed-83af-408b73d5.pdf>

## 2017 NJ TRANSACTION CONFERENCE

April 4-6, 2017, Tropicana Hotel, NJ



UTRC participated at the 2017 NJ Transaction Conference that took place on April 4-6, 2017 at Atlantic City, New Jersey. This year, nearly 1000 transportation management, directors, planners, engineers, grant writers, operators, elected officials, municipal, county and state representatives, scholars, consultants and administrators attended the conference. UTRC shared the floor with many other exhibitors in order to display the center's vision, programs, and research work to the conference attendees from more than 32 states and 4 provinces of Canada. For more information, please visit the NJ Transaction conference webpage at: <https://www.njtransaction.com/>



## BOOK TALK: AUTOMATED TRANSIT: LESSONS TO BE LEARNT FOR TODAY'S DRIVERLESS CAR DEVELOPMENT

April 17, 2017 at the New York Institute of Technology



*Dr. Rongfang (Rachel) Liu; Professor at NJIT Delivering a Presentation at the UTRC's Book Talk Event*

UTRC organized a Book Talk with Dr. Rongfang (Rachel) Liu. Dr. Liu is a transportation professor in the Department of Civil and Environmental Engineering, New Jersey Institute of Technology (NJIT). Her primary research interests are in the areas of multimodal and intermodal transportation planning, which focus on the interaction and coordination of various transportation modes, such as walkways, highways and private cars, buses, rails, and airlines.

Rachel presented the findings of her latest book on Automated Transit. This book analyzes the successful implementations of automated transit in various international locations, such as Paris, Toronto, London, and Kuala Lumpur, and investigates the apparent lack of automated transit applications in the urban environment in the United States. The book begins with a brief definition of automated transit and its historical development. After a thorough description of the technical specifications, the author highlights a few applications from each sub-group of the automated transit spectrum. International case studies display various technologies and their applications, and identify vital factors that affect each system and performance evaluations of existing applications. The book then discusses the planning and operation of automated transit applications at both macro and micro levels. Finally, the book covers a number of less successful concepts, as well as the lessons learned, allowing readers to gain a comprehensive understanding of the topic. To access the Rachel's presentation, please visit the webpage at:

<http://www.utrc2.org/events/book-talk-automated-transit>

## UTRC DIRECTOR, DR. CAMILLE KAMGA PRESENTED AT THE NJTPA SYMPOSIUM ON SMART CITIES & TRANSPORTATION SYMPOSIUM

April 26th, 2017 at North Jersey Transportation Planning Authority



*Dr. Camille Kamga Talking About Efforts to Pilot ITS Projects Through Public/Private Partnerships*

Dr. Camille Kamga, UTRC's Director and an Assistant Professor at the City College of New York presented at the NJTPA hosted symposium on Smart Cities and Transportation. The event took place on April 26th, 2017 at North Jersey Transportation Planning Authority, NJ. Dr. Kamga presented in a panel discussion addressing the public sector experience.

The symposium aimed to address transportation issues on how our transportation networks will adapt to a world of self-driving vehicles, expanded ride hailing services, smart parking, adaptive traffic signals and advanced traveler information.

The NJTPA's Plan 2045: Connecting North Jersey will include recommendations on how we can incorporate these technologies to make our region more Competitive, Efficient, Livable and Resilient. Audio and video files from the event

For more information, please visit the NJTP's website at: <http://www.njtpa.org/home>



## UTRC'S Video Briefings on Completed Research

UTRC is continuing the initiative on developing Video Briefing of Research Projects. This is one of our endeavors to meet our commitment to broadly disseminate our research-related publications to the public, which already includes the following channels:

- Press Releases to our listserv of 5000+ people
- Website portal
- Social Media Sites
- Transportation Research Libraries

As a requirement of our new research grant under MAP 21, we must provide a research briefing on all completed research projects. UTRC has committed to accomplish this by disseminating research results through the posting of all project-related publications, written research briefs, and short video briefings. The intent of the video tool is to provide our interested readers/audience with a quick overview of the projects.

To view videos, please visit our Vimeo channel at: [vimeo.com/utrcregion2](http://vimeo.com/utrcregion2)



## UTRC'S Newsletter

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. [www.utrc2.org](http://www.utrc2.org)



