



REGION II
New York., New Jersey,
Puerto Rico, Virgin Islands

Marshak Hall Room 910
The City College of NY
New York, NY 10031

Tel: 212-650-8050
Fax: 212-650-8374
Website: www.utrc2.org

PROGRAM PROGRESS PERFORMANCE REPORT

*Submitted to the Office of the Assistant Secretary for Research
and Technology*

Federal Grant # DTRT12-G-UTC02

Project Title: University Transportation Research Center – Region 2

Name of Grant: University Transportation Center

Program Director: Camille Kamga, Ph.D, Director UTRC, Assistant Professor of
Civil Engineering, The City College of New York, ckamga@utrc2.org, 212-650-8087

Submitting Official: Penny Eickemeyer, peickemeyer@utrc2.org, 212-650-8074

Submission Date: July 30, 2015

DUNS: 064932676

EIN: 13-1988190

Recipient Identifying Number or Account Number: 49997-00-24 and 49997-00-25

Project/Grant Period: Start Date: January 1, 2012 End Date: January 31, 2017

Reporting Period Start Date: January 1, 2015

Reporting Period End Date: June 30, 2015

Report Term or Frequency: six months

Signature

Signature _____

Penny Eickemeyer, Associate Director for Research, UTRC

CONSORTIUM MEMBERS

City University of New York, Clarkson University, Columbia University, Cornell University, Hofstra University, Manhattan College, New Jersey Institute of Technology, New York Institute of Technology, New York University, Polytechnic Institute of NYU, Rochester Institute of Technology, Rowan University, Rensselaer Polytechnic Institute, Rutgers University*, State University of New York, Stevens Institute of Technology, Syracuse University, The College of New Jersey, University of Puerto Rico

*Member under SAFETEA-LU Legislation

Table of Contents

1. ACCOMPLISHMENTS	2
A. GOALS AND OBJECTIVES:	2
B. ACCOMPLISHMENTS UNDER THESE GOALS:	2
a) <i>Research</i>	2
b) <i>Education and workforce development</i>	7
c) <i>Technology Transfer</i>	7
C. DISSEMINATION OF RESULTS:	10
D. PLANS FOR NEXT REPORTING PERIOD:	11
2. PRODUCTS	11
3. PARTICIPANTS AND COLLABORATING ORGANIZATIONS	12
4. IMPACT	18
5. CHANGES/PROBLEMS	18
6. SPECIAL REPORTING REQUIREMENTS	18

This report will cover UTRC’s three mission areas: Research, Technology Transfer, and Education for activities that occurred under the Grant# DTRT12-G-UTC02 during this reporting period.

1. ACCOMPLISHMENTS

A. Goals and objectives:

- a) Research: To support the USDOT Strategic Goals and to advance the state of practice in planning and management of regional transportation systems; the research program consists of both agency-initiated and faculty-initiated studies
- b) Education and workforce development: To improve the knowledge base and approach to problem solving of the region's transportation workforce
- c) Technology transfer: To increase the awareness and level of information concerning transportation issues facing Region 2 to the education, research and practicing community; disseminate project reports, studies, analysis, and use of tools to the community; and provide unbiased information and testimony to decision-makers concerning regional transportation issues consistent with the UTRC theme.

B. Accomplishments under these goals:

a) Research

Ongoing projects under Grant# DTRT12-G

- Broadband Hybrid Electromagnetic and Piezoelectric Energy Harvesting from Ambient - Stony Brook
- Characterizing Highway Corridor Length to Evaluate Travel Time Reliability using Probe Vehicle Data –TCNJ
- Characterizing and Quantifying the Shrinkage Resistance of Alkali Activated (Cement Free) Concrete –Clarkson
- Development of the Household Activity Pattern Problem as an Activity-Travel Simulator-UB
- Effect of plug in hybrid electric vehicle adoption on gas tax revenue, local pollution, and greenhouse gas emissions-Rowan
- Demonstrations of Urban Outdoor Lighting for Pedestrian Safety and Security-RPI
- Evaluation of Public-Private Partnership Contract Types for Roadway Construction, Maintenance, Rehabilitation, and Preservation-UB
- Freight Demand Forecasting in the Context of the Built Environment: An Integrated Land Use-UB
- Impacts of Freight Parking Policies in Urban Areas: the Case of New York City –RPI
- IIMS Staten Island Web and Smartphone Development, Deployment and Evaluation –UB
- Improving Freight System Performance in Metropolitan Areas - RPI(remove, not research)
- Integration of Bus Stop Count Data with Census data for Improving Bus Service – Albany
- Investigating the Network System Effects of Mileage Fee-RPI – Ban
- Laser Scanning Aggregates for Real Time Property Identification –Rowan
- Modeling Emissions and Environmental Impacts of Transportation Activities Associated with High Volume Horizontal Hydraulic Fracturing Operations in the Marcellus Shale Formation –RIT

- Modeling Disaster Operations from an Interdisciplinary Perspective in the New York-New Jersey Area –NYU
- Metrics and Performance Response Functions for Assessment of Resilience of Urban Infrastructure System-NJIT
- Nitrogen Dioxide Sequestration Using Demolished Concrete and Its Potential Application in Transportation Infrastructure Development –Stony Brook
- Nondestructive Evaluation of Pavement Structural Condition for Rehabilitation Design - Rutgers
- Omitted variable bias in crash data analysis –Rutgers
- Optimizing Work Zones for Highway Maintenance with Floating Car Data (FCD) – NJIT
- Panama Canal Expansion and the Economic Impacts on New York and New Jersey States – UB
- PPS-AQ and PPS-CMP hosting, maintenance, and technical support - Cornell
- Port Resilience: Overcoming Threats to Maritime Infrastructure and Operations from Climate Change-Stevens Institute of Technology
- Real-time Estimation of Transit Origin-Destination Patterns and Delays Using Low-Cost Ubiquitous Advanced Technologies-NYU
- Relationships between public-private financing, speed, and rail infrastructure development
- Requirements, Model and Prototype for a Multi-Utility Locational and Security Information Hub-NJIT
- Smarter Multi-modal Traffic Signal Control with Both Floating Sensor Network and Fixed Sensor Network
- Street Standards as Parking Policy: Identifying Residents’ Willingness to Pay –NYU-
- Suburban Poverty, Public Transit, Economic Opportunities and Social Mobility –NYU
- Techniques for Information Extractions from Compressed GPS Traces - Albany
- The Economy of Preventive Maintenance of Concrete Bridges –Syracuse
- 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—RPI
- The Ties that Bind: Developing a Bi-national Transportation-Combined Economic Simulation Model to Assess Security and Policy Implications of US-Canada Border Bridges-UB
- Truck Driver Fatigue Assessment using a Virtual Reality System-Rowan

Completed Projects during this period include:

- Empowering Individuals to Make Environmentally Sustainable and Healthy Transportation-Queens College
- Robotic Inspection of Bridges Using Impact Echo Technology - CCNY
- The Effects of Public-Private Partnerships on Traffic Safety: Evidence from Mexico -Cornell
- Analysis of Environmental, Economic, and Infrastructure Impacts of Transportation Activities Associated with High Volume Horizontal Hydraulic Fracturing Operations in the Marcellus Shale Formation Using the Geospatial Intermodal Freight Transport (GIFT) - RIT

- Financing high speed rail in the US and France project – John Jay College
- National Aviation Security to Cyber-terrorism: An Integrated Framework to Quantify the Economic Impacts of Cyber-terrorist Behavior-UB

Quarterly Reporting

As part of its partnership with regional agencies, UTRC continued its quarterly meeting process with NJDOT and NYSDOT. UTRC also requires written quarterly progress reports on both agency-initiated and faculty-initiated projects. During this reporting period, these were requested for work completed through March 30, 2015 and June 30, 2015.

As examples of project progress, excerpts from these written reports for several projects are provided below.

Impacts of Freight Parking Policies in Urban Areas: The Case of NYC

This project focuses on the issue of parking for freight vehicles in Manhattan. In most city centers and business districts (including Manhattan), parking is very limited which causes truck drivers to double park, idle, circle blocks, or extend into sidewalks and roadways while using undersized loading areas. Ideal policy should maximize the net social benefits of freight activity by ensuring efficient freight flows, while mitigating the negative impacts associated with freight activity. This study will assess the conditions and policies in Manhattan related to parking and freight vehicles. During the past reporting period, the following was accomplished:

- Conducted a pilot test survey in the study area to assist with building the choice scenarios for the Initial analysis
- Still cameras are in the process of being placed to collect traffic conditions in the study area
- Gathered relevant information related to freight activities, including: large traffic generators (LTG) inside the study area, parking availability, and parking regulations.
- Started the design of the Freight Microsimulation by defining data structures and data needs for the simulation to recreate the decision-making process of each truck entering the study area.

Analyzing Willingness to Improve the Resiliency of New York City’s Transportation System

This proposal will determine the community’s willingness to pay for improvements for resiliency to extreme events of the transportation system in New York City. This objective seeks to provide better tools to enable better informed planning investments to improve both resilience and security of transportation infrastructure and services. A structural choice model will be derived aiming at a more general representation of decision-making under risk and uncertainty, using non-compensatory decision rules to determine the community’s willingness to pay for improvements in the resiliency to extreme events of the transportation system in New York City. Choice microdata will be collected in coastal communities in the NYC area, while aiming at advancing the state-of-the-art in choice modeling for addressing different attitudes toward risk. During the reporting period, the following was accomplished:

- A survey was designed to explore if New Yorkers are willing to financially support investment to make the transportation system more resilient to extreme weather.
- Data was collected for the first sample of 1,552 adults living in the NYC metro area during January through April 2015; validation of the data was undertaken in May 2015; and preliminary models were estimated in May and June 2015.

Integrating Real-time GIS and Social Media for Qualitative Transportation Data Collection

In transportation planning, the activity-based model system is considered as the next-generation demand forecasting model and requires the input of trip modes and purposes of individuals. GPS-based travel surveys can avoid many problems in traditional paper and phone surveys and are becoming increasingly popular in major cities worldwide. In the past few years, Dr. Hongmian Gong of has developed a computing system consisting of a smartphone app that transmits GPS data to an Amazon cloud server where GIS algorithms detect travel modes and trip purposes of individuals. Because of the urban canyon effects and mixed land use typical in high-density cities such as New York, speculating trip purposes has proved to be very challenging without qualitative information from survey participants. This study will integrate the GIS data with a travel survey for a better understanding of trip purpose. According to the PI, the following was accomplished during the past reporting period:

- An online survey tool was implemented that makes use of the Twitter API to look for terms related to public transport ('bus', 'train', 'station'). When a user posts a tweet containing any of the search terms, the tool automatically sends a reply to the user, asking them to participate in a classification survey. The reply contains a link to a web page that shows the users tweets, and asks them to classify the tweet into one of a set of predefined classes (see <http://spatialdeviant.com/tc/?q=2n0qlj2> for an example). The user can then pick from the following classes: 1. work/school at regular location; 2. work/school activities at other places; 3. Shop; 4. drop off/pick up someone; 5. eat meal out at restaurant/diner; 6. recreation/entertainment; 7. social/visit friends/relatives; 8. other family or personal business. The goal of this tool is to collect a user-generated training dataset for the tweet classifier developed before.

Smarter Multi-modal Traffic Signal Control with Both Floating Sensor Network and Fixed Sensor Network

In transportation planning, the activity-based model system is considered as the next-generation demand forecasting model and requires the input of trip modes and purposes of individuals. GPSbased travel surveys can avoid many problems in traditional paper and phone surveys and are becoming increasingly popular in major cities worldwide. In the past few years, Dr. Gong has developed a computing system consisting of a smartphone app that transmits GPS data to an Amazon cloud server where GIS algorithms detect travel modes and trip purposes of individuals. Because of the urban canyon effects and mixed land use typical in high-density cities such as New York, speculating trip purposes has proved to be very challenging without qualitative information from survey participants.

The project team plans to work closely with Niagara International Transportation Technology Coalition (NITTEC), the City of Buffalo, and New York City on how the proposed algorithms and models could help in the development of a multi-modal traffic management and operations

Decision Support System (DSS). The results will be disseminated to transportation authorities through webinars or workshops for workforce training. During the reporting period, the following was accomplished:

- VISSIM Simulation Model. To validate signal control algorithms, the PI has developed a VISSIM model for parts of downtown Buffalo where traffic modes involve rail, buses, pedestrians and passenger cars.
- Signal control algorithms
- Network Wide Trajectory Prediction
- Regional traffic pattern recognition by fixed sensor network

Development of the Household Activity Pattern Problem as an Activity-Travel Simulator

Activity-based travel demand models, which have their theoretical foundation explicitly rooted in the accepted notion that travel is derived from daily activities, offer an attractive, but complex, alternative to the conventional four-step forecasting models. Recent implementations of such approaches via microsimulations have shown promise for practical application of this theoretical construct. This study involves development of a framework of an activity-travel microsimulator based on the Household Activity Pattern Problem (HAPP). The structure of the framework is an optimization model that matches both the system and individual household level data. During the reporting period, the following was accomplished:

- Final framework of model is made.

Omitted variable bias in crash data analysis

The objective of this project is to evaluate omitted variable bias in crash data analysis. Specifically, whether the omission of spatial determinants associated with road crashes leads to incorrect conclusions in models that use road links as the basis of the analysis. The following has been accomplished:

- Compiled all the data required for the analysis and processed it accordingly.
- Interpretation of the results is on-going. The research team is currently compiling a detailed literature review and will be writing up the results over the summer.

The Ties that Bind: Developing a Bi-national Transportation-Combined Economic Simulation Model to Assess Security and Policy Implications of US-Canada Border Bridges

- Completing freight transportation policy and history for the U.S. and Canada
- A revised paper has been accepted with minor revision in *Research in Transportation and Business Management* (RTBM) (Jun. 24, 2015).
- Competed the U.S. and Canadian freight transportation history and policy as an qualitative study

Techniques for Information Extraction from Compressed GPS Traces

- The researchers implemented a new trajectory compression technique which ensures that the time and location errors caused by compression are within user-specified bounds. In contrast to previous approaches that tolerate only location errors, our new technique can trade both time and location accuracy for a higher compression ratio.

- The researchers have progressed on the literature survey focusing on known methods for multi-attribute compression. A section on time-series compression was added to the document, along with relevant references.

b) Education and workforce development

- NYMTC/UTRC September 11th Memorial Program Academic Initiative –Year 10 interns continued, Year 11 interns were selected in July 2015.
- AITE- The AITE scholarship awardees for 2015 are continuing their studies. 2015-16 applicants have been selected: three students and five agency employees.
- Professional development in collaboration with the New York State Association of MPOs continues. The initial course has been completed. Additional courses are in the process of selection in collaboration between NYSAMPO, UTRC, and the CUNY School of Professional Services.
- Year 10 interns, Dan Wan of CUNY Graduate Center and Gauri Jumde of NYU will present the results of their research at a Brownbag Seminar on September 16, 2015.

c) Technology Transfer

- **NJDOT Technology Transfer Presentations**
UTRC and NJDOT sponsored an In-House Lecture Series at the NJDOT Offices at Trenton, NJ. During the Fall 2014, four UTRC faculty researchers presented at NJDOT. These presentations were very well attended and generated a lot of interest within NJDOT for future research in the region.

The following topics were presented during 2015.

DATE	TOPIC	PI(S)	UNIVERSITY
June 22, 2015	Integration of Bus Stop Count Data with Census Data for Improving Bus Services and Efficiency	Dr. Catherine Lawson	University at Albany, SUNY
July 14, 2015	Smartphone-Based Teen Driver Support System: Results from a 300 teen driver field operational test	Dr. Max Donath	Roadway Safety Institute, University of Minnesota
July 23, 2015	Workzone Operations, Planning and Safety: The road from	Dr. Kaan Ozbay	New York University

	research to implementation		
--	-------------------------------	--	--

- **Investing in an accessible New York: A Conference on Public Transportation and New York's Future**

This event was held on May 8, 2015 and included the following topics/speakers:

8:30 am - 8:45 am	<p>Welcoming Remarks Camille Kamga, Director, University Transportation Research Center Robert Paaswell, Distinguished Professor of Civil Engineering, Director Emeritus, UTRC</p>
8:45 am - 9:10 am	<p>Global Competitiveness and the Future Robert D. Yaro, President Emeritus, Regional Plan Association</p>
9:10 am - 9:30 am	<p>A Business Perspective Jesse M. Keenan, Director, The Center for Urban Real Estate</p>
9:30 am - 10:30 am	<p>Transit Capital - Its Role for Urban Competitiveness Moderator: Robert E. Paaswell</p> <p>What Happens when you Disinvest Beverly Scott, CEO Beverly Scott Associates, LLC</p> <p>Rebuilding the MTA Mortimer Downey, Chair, Washington Metropolitan Transit Authority</p> <p>Institutional Issues Joshua Schank, President & CEO, Eno Center for Transportation</p> <p>The Dimensions of the Crisis Emil Frankel, Assistant Secretary for Transportation Policy, US DOT, 2002-2005, Senior Fellow of Eno</p>
10:45 am - 11:30 am	<p>Transit, Jobs and Housing: Benefits of Transit Martin Wachs, Distinguished Professor Emeritus, UCLA Luskin School of Public Affairs</p> <p>Elliott Sclar, Professor of Urban Planning, Columbia University and Director, Center for Sustainable Urban Development, The Earth Institute</p>
11:30 am - 12:30 pm	<p>Where's the Money Moderator - Matt Daus, Distinguished Lecturer, UTRC</p> <p>Alternative Financing, Debt Service Concerns Jonathan Peters, Professor, College of Staten Island, CUNY</p> <p>Move NY and Fair Housing David King, Assistant Professor, Columbia University</p> <p>From Need to Needed legislation Peter Derrick, Senior Fellow, NYU Rudin Center for Transportation Management and Policy</p>

12:30 pm - 12:45 pm	The Future of NY Rosemary Scanlon, Dean, NYU Schack Institute of Real Estate
12:45 pm - 1:00 pm	Closing Remarks

- **The Future of the Taxi Medallion System and For-hire Services in a Disruptive Technology**

UTRC hosted a half-day summit on June 23, 2015 at SUNY Global Center to discuss facts and opinions from a wide variety of stakeholders, policy-makers, and academics on the current state of the NYC taxicab medallion industry, including the valuation of medallions in NYC and beyond. Also, the manner by which the for-hire vehicle industry (liveries, black cars and limousines) are coping with smartphone technology disruption was discussed. Finally, a primer or review of how NYC's handling of smartphone app regulation fares against the rest of the country was discussed, including the release of a seminal report on criminal background check best practices conducted by professors at the UTRC and John Jay College of Criminal Justice. The Keynote Speaker was Hon. Michael Balboni, Former Deputy Secretary for Public Safety for New York State, Former New York State Senator and Chair of the New York State Senate Committee on Veterans, Homeland Security and Military Affairs.

- **2015 AASHTO Subcommittee on Bridges & Tunnels Annual Meeting**

UTRC, in collaboration with the New York State Department of Transportation organized the 2015 AASHTO Subcommittee on Bridges & Structures Annual meeting that was held from April 19-24, 2015 at the Saratoga Hilton, NY. The conference was well attended by 500 people across the nation including state DOT employees and consultants. The Annual AASHTO Subcommittee on Bridges and Structures (SCOBS) working meeting is a 4 day event comprised of two days of technical committee meetings and two days of general session.

- **Ceremonies of the student chapter of the Institute of Transportation Engineers**

Dr. Camille Kamga and Dr. Robert Paaswell represented UTRC at the UTRC Consortium school, University of Puerto Rico-Mayagüez, to celebrate Annual Transportation Week on March 17-19, 2015. Transportation Week provided an opportunity for the students, faculty, and transportation professionals to join together for greater awareness and appreciation of the transportation sector. They met with students and shared their experience as transportation professionals. Dr. Didier Valdes and Dr. Benjamin Colucci of UPR organized meetings and visits with Puerto Rico's transportation Agencies at San Juan with the Secretary of the Department of Transportation and Public Works of Puerto Rico and executives from the Highway and Transportation Authority (ACT) and the Metropolitan Bus Authority (AMA). During these meetings, UTRC and the representative of the transportation agencies discussed ways to work together on critical transportation problems and to provide opportunities to students to get involved.

- **TRB presentations**

Most of UTRC's faculty from each of the 17 institutions were involved in presenting at TRB in January 2015.

Some examples of presentations are included below. Please see attached UTRC Compendium of sessions in which UTRC Faculty and staff presented.

- Thomas H. Wakeman, Stevens Institute of Technology-189, Evolving to address Resilience, Reliability and Response to Disasters
 - Alison J. Conway, City College of New York, Opportunities for Young Participants
 - Jeff Ban, RPI, Advances in Traffic Assignment and Equilibrium
 - Catherine Theresa Lawson, State University of New York, Albany, Transformative Applications of Transit Data
- **Newsletter publications released**
The Spring 2015 UTRC Research News in June 2015.
Winter 2015 Research News in March 2015.
 - Brief video clips of interviews with PIs during this reporting period
 - Determine Viscoelastic Mechanical Properties of Warm Mix Asphalt (WMA)-Reclaimed Asphalt Pavement (RAP) Mixes under High Stresses in Airfield Flexible Pavements and Its Impact on Design Life-Rowan University
 - Nighttime Highway Construction Illumination-RPI Lighting Center
 - Energy Savings from Transit Passes: An Evaluation of the University at Buffalo NFTA Transit Pass Program for Students, Faculty, and Staff | University Transportation Research Center
 - **Annual report**
UTRC published the annual report for 2014 during this reporting period.

d. **Opportunities for Training and Development**

Our seminars and workshops are designed to educate the transportation community on current issues in policy and best practices as well as foster meaningful discussion on these topics. We also provide funding to the September 11th Memorial Program to select current students to serve in internship positions in regional and local agencies to enhance their educational experience.

C. **Dissemination of results:**

A draft paper has been submitted, *Effect of plug in hybrid electric vehicle adoption on gas tax revenue, local pollution and greenhouse gas emissions*, William Riddell, PI, Rowan University.

A paper was submitted to *Research in Transportation and Business Management (RTBM)* based on research from the UTRC-funded project, *The Ties that Bind: Developing a Bi-national Transportation-Combined Economic Simulation Model to Assess Security and Policy Implications of US-Canada Border Bridges*.

D. Plans for next reporting period:

The following events are planned for the next reporting period:

- Innovation and Disruption in Urban Mobility, Dr. Susan Shaheen, October 9, 2015
- Transportation Technology Symposium: Innovative Mobility Solutions, November 20, 2015,

2. PRODUCTS

Products this period

Products this period have included newsletters, press releases announcing final reports that were submitted, and short interviews of PIs regarding completed projects (see technology transfer section above).

In addition to the above, The UTRC project, *Robotic Inspection of Bridges Using Impact-echo Technology* piloted the use of robots for inspection of concrete structures to scan measurements. The project focused on developing NDT Rover, a mobile robot equipped with an impact-echo NDT device. The project also focused on developing a wall-climbing robot prototype named Rise-Rover, a heavy-duty vertical mobility cart that uses two drivetrain modules to carry the NDE instrument in the middle payload compartment for detecting subsurface defects.

3. PARTICIPANTS AND COLLABORATING ORGANIZATIONS

Partner (University)	Agency Sponsor	Location (see attached)	Project(s) (# funded)	Contribution	Other Collaborators	Role
Clarkson	N/A	Potsdam, NY	Faculty-initiated (1)	Research		
Columbia						
Cornell	N/A	Ithaca, NY	Faculty-initiated (2)	Research		
Cornell		Ithaca, NY	Agency Initiated (1)			
CUNY:						
Queens College	N/A	Flushing, NY	Faculty-initiated (1)	Research		
John Jay	N/A	New York, NY	Faculty-initiated (1)	Research		
CCNY		New York, NY	Faculty-initiated (3)			
CUNY Graduate Center NYC Labor Information Service		New York, NY				
Manhattan College		Bronx, NY				
NJIT	N/A	Newark, NJ	Faculty Initiated (3)	Research		
NJIT	NYSDOT			Research		
NYIT	N/A	New York, NY				
NYU	N/A	New York, NY	Faculty Initiated (3)	Research		
RIT	N/A	Rochester, NY	Faculty-initiated (1)	Research		
Rowan University		Glassboro, NJ	Faculty-initiated (2)	Research		
RPI	N/A	Troy, NY	faculty initiated (6)	Research	NYSDOT	
RPI	NYSDOT			Research	Siemens, Sensys,	technology/ devices
Rutgers	N/A	New Brunswick, NJ	Faculty-initiated (6)	Research		
Rutgers	NJDOT				For Landfill Closure: Birdsall and the Richard Stockton College Coastal Research Center,	

SUNY:						
Albany		Albany, NY	Faculty-Initiated (1)	Research		
Albany NJDOT agency initiated(1) Buffalo		Buffalo, NY	faculty Initiated (10)	Research		
Buffalo	NYSDOT			Research	NYU/Poly, General Dynamics Information Technology	research, technology
Stonybrook	N/A	Stonybrook, NY	faculty Initiated (2)	Research		
Maritime	N/A	Throgs Neck, NY	faculty Initiated (1)	Research	Halcrow, Douglas Westwook, CWS and Kaan Ozbay (Rutgers)	
Stevens Institute of Technology	N/A	Hoboken, NJ	Faculty-initiated (1)	Research		
Syracuse		Syracuse, NY	Faculty-initiated(2)	Research		
The College of New Jersey	N/A	Ewing Township, NJ	Faculty-initiated (1)	Research		
University of Puerto Rico		Mayaguez PR				
Agency Partners:						
NYSERDA				Research sponsor	CCNY	
NYMTC		New York, NY		education (Sept. 11th Memorial Program)	UTRC	
NYMTC		New York, NY		Sponsor	UTRC	
NYSDOT		Albany, NY		research	UTRC	
NJDOT		Ewing, NJ		Research sponsor, tech transfer	UTRC	
NYCDOT		New York, NY		Advisor	UTRC	
Port Authority of NY and NJ		New York, NY		General sponsor collaboration	UTRC	
ITS-New York				education, tech transfer	UTRC	

<u>Partner addresses</u> <u>Partner</u>	<u>Street</u>	<u>City, State, Zip</u>
Clarkson	8 Clarkson Avenue	Potsdam, NY 13699
Columbia	116 th Street and Broadway	New York, NY 10027
Cornell	Cornell University	Ithaca, NY 14853
CCNY	160 Convent Avenue	New York, NY 10031
Hunter College	695 Park Avenue	New York, NY 10065
John Jay College	524 W. 59th Street	New York, NY 10019
Queens College	65-30 Kissena Blvd	Flushing New York 11367
CUNY Graduate Center	365 5th Avenue	New York, NY 10016
NJIT	323 Martin Luther King Blvd	Newark, NJ 07103
NYU	726 Broadway #350	New York, NY 10003
NYU/POLY	6 Metrotech Center	Brooklyn, NY 11201
RPI	110 8th Street	Troy, NY 12180
RIT	One Lomb Memorial Dr	Rochester, NY 14623
Rowan	201 Mullica Hill Rd	Glassboro, NJ 08028
Rutgers	57 US HWY 1	New Brunswick, NJ 08901
SUNY Albany	1400 Washington Avenue	Albany, NY 12222
SUNY Buffalo	12 Capen Hall	Buffalo, NY 14260
Stony Brook	100 Nicolls Rd	Stonybrook, NY 11794
SUNY Maritime	6 Pennyfield Avenue	Throggs Neck, NY 10465
Stevens Institute of Technology	9th Street	Hoboken, NJ 07030
Syracuse University	303 University Pl #335	Syracuse, NY 13244
The College of New Jersey	2000 Pennington Rd.	Ewing Township, NJ 08618
University of Puerto Rico	Puerto Rico, 65	Mayaguez 00860
Agencies:		
NYSDOT	50 Wolf Road	Albany, New York 12205
NYSERDA	17 Columbia Circle	Albany, New York 12203-6399
NYMTC	199 Water Street	New York, New York 10038
NYCDOT	55 Water Street	New York, New York 10041
NJDOT	1035 Parkway Avenue	Trenton, NJ 08625
NYCDOT	55 Water Street	New York, NY
PANYNJ	225 Park Avenue South	New York, NY 10003
ITS-NY	14 Loveland Court	Cranbury, NJ 08512
NYCT	2 Broadway	New York, NY 10004
USC/Volvo		

PROJECTS BY PARTNERS

<u>Partner(s)</u>	<u>Project(s)</u>		
Clarkson	Characterizing and Quantifying the Shrinkage Resistance of Alkali Activated (Cement Free) Concrete		
Columbia			
Cornell	The Effects of Public-Private Partnerships on Traffic Safety: Evidence From Mexico	PPS-AQ and PPS-CMP hosting, maintenance, and technical support	Street Standards as Parking Policy: Identifying Residents' Willingness to Pay
CCNY	Support for NYMTC for CMAQ Application and Documentation	Adaptive Traffic Signal Control System (ACS-Lite) for Wolf Road	
Hunter College	Empowering Individuals to Make Environmentally Sustainable and Healthy Transportation Choices in Mega-Cities through a Smartphone App		
John Jay College	Relationships between public-private financing, speed, and rail infrastructure development		
Queens College	Empowering Individuals to Make Environmentally Sustainable and Healthy Transportation Choices in Mega-Cities through a Smartphone App		
CUNY Graduate Center			
NJIT	Optimizing Work Zones for Highway Maintenance with Floating Car Data (FCD)	Metrics and Performance Response Functions for Assessment and Resilience of Urban Infrastructure Systems	Requirements, Model and Prototype for a Multi-Utility Locational and Security Information Hub
NYU	Suburban Poverty, Public Transit, Economic Opportunities and Social Mobility	Real-time Estimation of Transit Origin-Destination Patterns and Delays Using Low-Cost Ubiquitous Advanced Technologies	Street Standards as Parking Policy: Identifying Residents' Willingness to Pay
NYU(formerly NYU/POLY)	Subsurface Imaging of Corrosion in Painted Steel Bridges	IIMS Staten Island Web and Smartphone Development, Deployment and Evaluation Modeling Disaster Operations	

RPI	Improving Freight System Performance in Metropolitan Areas	The Role of Social Media in Improving the Safety and Efficiency of Traffic Operations	Investigating the Network System Effects of Mileage Fee	Demonstrations of Urban Outdoor Lighting for Pedestrian Safety and Security	Adaptive Traffic Signal Control System (ACS-Lite) for Wolf Road	Impacts of Freight Parking Policies in Urban Areas: the Case of New York City		
RIT	Modeling Emissions and Environmental Impacts of Transportation Activities Associated with High Volume Horizontal Hydraulic Fracturing Operations in the Marcellus Shale Formation							
Rowan	Effect of plug in hybrid electric vehicle adoption on gas tax revenue, local pollution, and greenhouse gas emissions			Truck Driver Fatigue Assessment using a Virtual Reality System				
Rutgers	<p>Omitted variable bias in crash data analysis</p> <p>Non-destructive Evaluation of Pavement Structural Condition for Rehabilitation Design</p>	Effectiveness Based Pavement Preservation Selection Based on Statistical Analysis of Long- Term Payment Performance Data	Real-time Estimation of Transit Origin-Destination Patterns and Delays Using Low-Cost Ubiquitous Advanced Technologies	Landfill Closure With Dredged Materials	Impact Analysis of Recreational Transit Services on Local Community Economic Development, Employment and Spending			
SUNY Albany	Integration of Bus Count Data with Census Data							
SUNY Buffalo	<p>Freight Demand Forecasting in the Context of the Built Environment: An Integrated Land Use</p> <p>IIMS Staten Island Web & Smartphone Development, Deployment and Evaluation</p>	<p>Real-time Dynamic Pricing for Bicycle Sharing Programs</p> <p>Evaluation of Public-Private Partnership Contract Types for Roadway Construction, Maintenance, Rehabilitation, and Preservation</p>	National Aviation Security to Cyber-terrorism: An Integrated Framework to Quantify the Economic Impacts of Cyber-terrorist Behavior	Panama Canal Expansion and the Economic Impacts on New York and New Jersey States	Smarter Multi-modal Traffic Signal Control with Both Floating Sensor Network and Fixed Sensor Network	The Ties that Bind: Developing a Bi-national Transportation-Combined Economic Simulation Model to Assess Security and Policy Implications of US-Canada	A GIS-based Performance Measurement System for Assessing Transportation Sustainability and Community Livability	Development of the Household Activity Pattern Problem as an Activity-Travel Simulators

Stonybrook	Broadband Hybrid Electromagnetic and Piezoelectric Energy harvesting from Ambient Vibrations and Pneumatic Vortices Induced by Running Subway Trains	On-Road Energy Harvesting for Traffic Monitoring
Maritime	Real-time Estimation of Transit Origin-Destination Patterns and Delays Using Low-Cost Ubiquitous Advanced Technologies	
Stevens Institute of Technology	Port Resilience: Overcoming Threats to Maritime Infrastructure and Operations from Climate	
Syracuse University	Investigation of the Carrs Creek Geofoam Project	The Economy of Preventive Maintenance of Concrete Bridges
The College of New Jersey	Characterizing Highway Corridor Length to Evaluate Travel Time Reliability using Probe Vehicle Data	
University of Puerto Rico		
Agencies:		
NYSDOT	IIMS Staten Island Web and Smartphone Development, Deployment and Evaluation	ACS-Lite for Wolf Road
NYSERDA		
NYCDOT		
NJDOT	Impact Analysis of Recreational Transit Services on Local Community Economic Development, Employment and Spending	Landfill Closure With Dredged Materials
NYMTC	PPS-AQ and PPS-CMP hosting, maintenance, backup and technical support	Support for NYMTC for CMAQ Application and Documentation

4. IMPACT

UTRC programs impact the transportation community in several ways. Through seminars, workshops, and conferences, information is disseminated and interdisciplinary discussions are fostered; which enable transportation professionals to gain knowledge and varying perspectives on issues. This, in turn, helps practitioners to implement policies that bring about efficient and effective solutions to meet local, regional, and national transportation needs. UTRC programs also have an impact on preparing the next generation of transportation professionals through internships and classroom- based instruction. Likewise, dissemination of research findings helps to foster collaboration between academic researchers and practitioners, which assists practitioners in implementing innovative solutions that meet their specific needs.

5. CHANGES/PROBLEMS

We are working to collect final reports for two projects where the PIs have left the UTRC consortium and have finished their UTRC projects.

6. SPECIAL REPORTING REQUIREMENTS

Nothing to report