

**REGION II
UNIVERSITY TRANSPORTATION RESEARCH CENTER**



**Program Progress Performance Report by the University Transportation Research Center,
Region 2
Submitted to RITA**

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

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Project/Grant Period: Start Date: January 1, 2012 End Date: January 31, 2016

Reporting Period Start Date: January 1, 2014

Reporting Period End Date: June 30, 2014

Report Term or Frequency: six months

A handwritten signature in blue ink that reads "Penny Eickemeyer". The signature is written in a cursive style and is contained within a rectangular box.

Signature _____

Penny Eickemeyer, Associate Director for Research, UTRC

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

New awards under the Grant# DTRT12-G-UTC02 were made in January 2014.

These projects include:

- Laser Scanning Aggregates for Real Time Property Identification
- Freight Demand Forecasting in the Context of the Built Environment : An Integrated Land Use
- Development of the Household Activity Pattern Problem as an Activity-Travel Simulator
- Broadband Hybrid Electromagnetic and Piezoelectric Energy Harvesting from Ambient - Stony Brook
- Characterizing Highway Corridor Length to Evaluate Travel Time Reliability using Probe Vehicle Data
- Relationships between public-private financing, speed, and rail infrastructure development
- Improving Freight System Performance in Metropolitan Areas - RPI
- PPS-AQ and PPS-CMP hosting, maintenance, and technical support - Cornell-----CHECK CONTRACT STATUS
- Panama Canal Expansion and the Economic Impacts on New York and New Jersey States
- Characterizing and Quantifying the Shrinkage Resistance of Alkali Activated (Cement Free) Concrete
- Optimizing Work Zones for Highway Maintenance with Floating Car Data (FCD) – NJIT
- Omitted variable bias in crash data analysis
- Nitrogen Dioxide Sequestration Using Demolished Concrete and Its Potential Application in Transportation Infrastructure Development
- Suburban Poverty, Public Transit, Economic Opportunities and Social Mobility
- Impacts of Freight Parking Policies in Urban Areas: the Case of New York City
- The Economy of Preventive Maintenance of Concrete Bridges
- Requirements, Model and Prototype for a Multi-Utility Locational and Security Information Hub
- Investigating the Network System Effects of Mileage Fee
- Demonstrations of Urban Outdoor Lighting for Pedestrian Safety and Security

- Smarter Multi-modal Traffic Signal Control with Both Floating Sensor Network and Fixed Sensor Network
- Modeling Emissions and Environmental Impacts of Transportation Activities Associated with High Volume Horizontal Hydraulic Fracturing Operations in the Marcellus Shale Formation
- Techniques for Information Extractions from Compressed GPS Traces - Albany
- Effect of plug in hybrid electric vehicle adoption on gas tax revenue, local pollution, and greenhouse gas emissions
- The Ties that Bind: Developing a Bi-national Transportation-Combined Economic Simulation Model to Assess Security and Policy Implications of US-Canada Border Bridges
- Evaluation of Public-Private Partnership Contract Types for Roadway Construction, Maintenance, Rehabilitation, and Preservation
- Truck Driver Fatigue Assessment using a Virtual Reality System
- Real-time Estimation of Transit Origin-Destination Patterns and Delays Using Low-Cost Ubiquitous Advanced Technologies
- Port Resilience: Overcoming Threats to Maritime Infrastructure and Operations from Climate Change

Ongoing projects under Grant# DTRT12-G-UTC02

- IIMS Staten Island Web and Smartphone Development, Deployment and Evaluation
- Adaptive Traffic Signal Control System (ACS-Lite) for Wolf Road
- Landfill Closure with Dredged Materials Desktop Analysis Multiple Sources Development
- Support for NYMTC for CMAQ Application and Documentation
- Impact Analysis of Recreational Transit Services on Local Community Economic Development, Employment and Spending
- Investigation of the Carrs Creek Geofom Project
- Metrics and Performance Response Functions for Assessment of Resilience of Urban Infrastructure System
- Modeling Disaster Operations from an Interdisciplinary Perspective in the New York-New Jersey Area -Rutgers
- 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
- A GIS-based Performance Measurement System for Assessing Transportation Sustainability and Community Livability
- Empowering Individuals to Make Environmentally Sustainable and Healthy Transportation Choices in Mega-Cities through a Smartphone App College/Hunter College
- On-Road Energy Harvesting for Traffic Monitoring
- The Effects of Public-Private Partnerships on Traffic Safety: Evidence From Mexico
- Street Standards as Parking Policy: Identifying Residents' Willingness to Pay
- Real-time Dynamic Pricing for Bicycle Sharing Programs
- National Aviation Security to Cyber-terrorism: An Integrated Framework to Quantify the Economic Impacts of Cyber-terrorist Behavior
- Subsurface Imaging of Corrosion in Painted Steel Bridges
- Effectiveness Based Pavement Preservation Selection Based on Statistical Analysis of Long-Term Payment Performance Data
- Robotic Inspection of Bridges

Completed Projects during this period include:

- Offshore Wind Development (OSW) Research
- Freight-Tricycle Operations in New York City
- Leveraging Brightness from Transportation Lighting Systems through Light Source Color: Implications for Energy Use and Safety for Traffic and Pedestrians – RPI?
- Data collection and econometric analysis of the demand for non-motorized transportation
- Speed and Design Consistency of Combined Horizontal and Vertical Alignments in Two-Lane Rural Roads (final report under review)
- Energy Savings from Transit Passes: An Evaluation of the University at Buffalo NFTA Transit Pass Program for Students, Faculty, and Staff -
- Analysis of Environmental, Economic, and Infrastructure Impacts of Transportation Activities Associated with High Volume Horizontal Fracturing Operations in the Marcellus Shale Formation Using the Geospatial Intermodal Freight Transport (GIFT) Model – RIT (final report under review)
- Use of Web-Based Rider Input for Transit Management in the New York City Region
- 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
- Automating the Reporting and Progress Monitoring Process using Mobile Computers for Highway Construction Projects –UPR (final report under review)
- RWIS
- Improving Transportation Engineering Education
- Optimum Fund Allocation-Transportation Infrastructure
- Planning level assessment of greenhouse gas emissions for alternative transportation construction projects
- Promoting Transportation Flexibility in Extreme Events through Multi-Modal Connectivity (final report to be reviewed)
- Social Network Based Dynamic Transit Service through the OMITTS System
- Sidewall collapse of underground structures due to loss of lateral support under internal blast loading
- Developing self-cleaning and air purifying transportation infrastructure components to minimize environmental impact of transportation
- Energy Efficient and Environmental Friendly Cement Free Concrete (CFC) for Pavement and Bridge Deck Application
- Financing high speed rail in the U.S. and France: the evolution of public-private partnerships

Quarterly Reporting

As part of its partnership with regional agencies, UTRC continued its quarterly meeting process with NJDOT and NYSDOT. Quarterly meetings were held in NJDOT (January 10, 2014, April 25, 2014, and July 11, 2014), and NYSDOT (April 29, 2014) offices. 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, 2014 and June 30, 2014)

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

The Integrated Incident Management System (IIMS) Staten Island Web and Smartphone Development, Deployment and Evaluation

The demo was carried out to check process and response of inputting an incident into the system and adding photos and text-voice in real-time. The evaluation team discussed user interface issues with the development team and concluded satisfactorily the real opportunity to see performance. The team witnessed positive and acceptable outcomes.

Characterizing Highway Corridor Length to Evaluate Travel Time Reliability Using Probe Vehicle Data

The anonymous probe vehicle data for all of New Jersey's Traffic Message Channel interstate and arterial roadways has been obtained from 2010 to current. Specifically the data for I-80 and I-295 are being examined.

Evaluation of Public-Private Partnership Contract Types for Roadway Construction, Maintenance, Rehabilitation, and Preservation

The research team has been reviewing the literature with respect to Public-Private Partnership (PPP) contracting (e.g., performance-based contracting, cost-plus-time contracting, incentives/disincentives, design-build and its derivatives, warranties, and lane rentals), and has been examining the PPP state-of-practice.

Characterizing And Quantifying The Shrinkage Resistance of Alkali Activated (*Cement Free*) Concrete and Evaluating Potential Methods for Reducing Early Age Cracking in Pavements

The research progress so far consists of evaluation of the chemical shrinkage or alkali activated slag and class C fly ash binders in comparison with OPC system (Task 1(a). We have evaluated the effect of curing temperature (ambient (25°C) Vs. elevated(50°C)), sodium oxide content (2.5% and 5%) in the activating solution, silica modulus ($M_s = \text{SiO}_2/\text{Na}_2\text{O} = 1.5, 2.5$) of the activating solution, the effect of solution to binder ratio (s/b) and have results of this comparison.

Modeling Emissions and Environmental Impacts of Transportation Activities Associated with High Volume Horizontal Hydraulic Fracturing Operations in the Marcellus Shale Formation

The research team has created six baseline Aermid analyses from the 2011 database focused on areas identified in our previous grant as having the highest truck counts and emissions. These are primarily in the area of Williamsport, PA. The generated emission dispersion images have been overlaid on US census blocks and we have begun to look at correlations between populated areas and predicted high emission areas. These case studies served as the basis of a talk that Dr. Korfmacher presented at the ESRI Users Conference on July 17. The templates for a number of Aermid simulations have been generated. These results will lead to the ESRI UC presentation in the next quarter.

Omitted variable bias in crash data analysis

The main activity to date has been the development of a database. The researchers have obtained crash data for New Jersey from 2008-2012. We have been determining the extent of data available for road links in New Jersey based data.

Truck Driver Fatigue Assessment using a Virtual Reality System

This project will develop a method for evaluating fatigue, continue working on a simulation, finalize purchasing and IRB approval. To date, it has coded a continuous road for simulation (May 2014) and determined a few pieces of hardware to be purchased.

Recreational Transit

During the current quarter, additional literature was searched and reviewed and secondary data was analyzed on NJ Turnpike Authority, Garden State Parkway, and City of Newark traffic volumes. In addition, the R/ECONTM model for different population groups for all three markets: The NJCL service area in the Jersey shore, the Prudential Center, and the Cape May/Wildwood bus service area, was run.

Suburban Poverty, Public Transit, Economic Opportunities and Social Mobility

Relevant databases and sources of data were identified and the design and construction of the databases planned to be used for the project were started. In addition, relevant references have been identified and a summary for a literature review was begun.

Effect of plug in hybrid electric vehicle adoption on gas tax revenue, local pollution, and greenhouse gas emissions

Preliminary work on the literature review has begun. Several sources of data on electric generation, commuting distances, and vehicle emissions have been identified. Various journal articles have been reviewed.

Other Agency Meetings

Research Assessment – Discussions have continued regarding the issuing of an RFP for a NYSDOT Research Assessment Study.

Coordinated Intelligent Transportation Systems Deployment in New York City (CIDNY)- UTRC issued a press release in June 2014 regarding the receipt of \$500,000 in FHWA and NYC/NYS funds to undertake projects on behalf of these agencies for the FY 15 CIDNY program. Selection of awardees was made by a committee of representatives from the agencies in a meeting on March 20, 2014. A follow-up meeting was held in May 2014 and awardees were notified by email on May 22, 2014. NYCDOT and NYSDOT are in the process of holding meetings with the selected PIs to finalize the scopes of work. UTRC and NYCDOT will execute a contract shortly, enabling these projects to proceed. Four of the projects will be led by PIs from NYU/Polytechnic Institute and one will be led by CCNY.

VREF- Several UTRC PIs convened in Paris, France in April 2014 as part of the international TRA Research Conference. A tour of freight logistics centers in Paris was provided and a meeting was held to discuss the ongoing and future research of the METROFREIGHT members.

b. Education and workforce development - During this period, UTRC accomplished the following:

- NYMTC/UTRC September 11th Memorial Program Academic Initiative –work continued by the two interns funded under Year 8. The Year 9 application process was administered by UTRC. Six students applied for the program and a selection

committee of NYMTC staff and members selected two on July 16, 2014. One student is from NYU and the other is from CCNY. They will begin their internships in the Fall of 2014.

- AITE- The AITE scholarship has been awarded to five students this year. Students are currently enrolled in master's programs in the following universities: SUNY Buffalo, SUNY Albany and NYU.

The following education and workforce development initiatives are ongoing:

- The Outdoor Lighting Institute - RPI
- Preparing Emerging Leaders in Transportation Innovation – NYU
- Discussions with the New York State Association of MPOs have been initiated to implement a professional development program for statewide MPO staff and members. The initial courses will utilize the professional services of the CUNY School for Professional Services.

c. Technology Transfer

The following events were held during this reporting period:

- Future Rail Investments Planned for the Northeast Corridor, Rebecca Reyes-Alicea, FRA

Newsletter Publications were released during the reporting period in the spring of 2014.

C. 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. We also fund the AITE program to offer undergraduate and graduate scholarships to talented students to pursue either a traditional civil engineering degree leading to a graduate transportation program or an undergraduate program in a related field (e.g., planning, public administration) tailored to transportation. The graduate scholarships attract both bright students finishing up bachelor degrees and working transportation professionals who want to expand their transportation expertise.

D. Dissemination of results:

Summer 2014 Newsletter

Several Final Reports (see completed projects), project summary videos and research briefs.

RPI's Lighting Institute contributed an article to the UTC *Spotlight* July issue.

E. Plans for next reporting period: We will continue with all of our programs and research. We will also hold the 3rd Annual Connected and Autonomous Vehicle Symposium on November 4 and 5, 2014 in Albany NY in partnership with NYSDOT and a GPS Symposium on November 19, 2014 on *Big Data and Innovative Solutions for Safe, Efficient and Sustainable Mobility*.

In May we responded to a NYSERDA PON with proposals for several research projects and technology transfer events. We will be hearing from NYSERDA during the next reporting period.

2. Products

Products this period have included newsletters, press releases announcing final reports that were submitted, several papers in professional journals based on UTRC –funded research, short interviews of PIs regarding completed projects.

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			
RPI	NYSDOT			research	NYSDOT 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			

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	Throggs 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

Partner addresses

<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 Partner

Partner

Projects

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
Support for
NYMTC for
CMAQ

Street Standards as
Parking Policy:
Identifying
Residents'
Willingness to Pay
Adaptive Traffic
Signal Control
System (ACS-

CCNY

		Application and Documentation	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	Requirements, Model and Prototype for a Multi-Utility Locational and Security Information Hub

		Infrastructure Systems				
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				
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	Omitted variable bias in crash data analysis	Modeling Disaster Operations	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:						

Buffalo

Freight Demand Forecasting in the Context of the Built Environment: An Integrated Land Use

IIMS Staten Island Web and Smartphone Development, Deployment and Evaluation

Real-time Dynamic Pricing for Bicycle Sharing Programs

Evaluation of Public-Private Partnership Contract Types for Roadway Construction, Maintenance, Rehabilitation, and Preservation

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

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-

Stevens Institute of Technology	Destination Patterns and Delays Using Low-Cost Ubiquitous Advanced Technologies Port Resilience: Overcoming Threats to Maritime Infrastructure and Operations from Climate	The Economy of Preventive Maintenance of Concrete Bridges
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,	ACS-Lite for Wolf Road

	Deployment and Evaluation		
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.

Impacts are expected from our new research projects as work continues.

5. Changes/problems

Nothing to report

6. Special reporting requirements

Nothing to report