REGION II
UNIVERSITY TRANSPOR
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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

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Submission Date: January 31, 2017

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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: July 1, 2016
Reporting Period End Date: December 30, 2016
Report Term or Frequency: six months

Signature Penny Eickemeyer

Penny Eickemeyer, Associate Director for Research, UTRC

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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 include:

- Impacts of Freight Parking Policies in Urban Areas: the Case of New York City - report is being prepared
- Shared Multi-Modal Urban Infrastructure: Part I - International Synthesis of Practice –Kamga/Conway –report is being prepared
- Real-time Estimation of Transit Origin-Destination Patterns and Delays Using Low-Cost Ubiquitous Advanced Technologies-NYU
- Street Standards under the Category of Emerging Investigators Program-NYU
- Integrating Real-time GIS and Social Media for Qualitative Transportation Data Collection- Hunter

Completed Projects during this period include:

- Laser Scanning Aggregates for Real Time Property Identification –Rowan
- Truck Driver Fatigue Assessment using a Virtual Reality System-Rowan
- Integration of Bus Stop Count Data with Census data for Improving Bus Service – Albany

Project Progress this Period:
All of the "ongoing projects" listed above are in the process of being completed. During this reporting period, progress was made on completing the draft, final reports as required for project close-out. UTRC will try to expedite the delivery of these reports.

Progress expected Next Period:
The DTRT12-G-UTC02 will be officially closed by January 31, 2017.
However, this report includes technology transfer projects that are scheduled during the next reporting period, but may be funded by subsequent grants.

b) Education and workforce development

2016-17 NYMTC/UTRC September 11th Memorial Program

Together with NYMTC, UTRC provides funding to the September 11th Memorial Program and administers a selection process to select exceptionally qualified students to serve in internship positions offered by regional and local transportation agencies.

- Two students were selected for the 2017-17 internships, Bahman Moghimi, a Ph.D. student in Transportation Engineering at the City College of New York (CCNY) and Patricio Vicuna, a Ph.d. student also enrolled in the transportation program at CCNY. In his internship at the New York Metropolitan Transportation Council (NYMTC), Bahman is focusing on the impact of Transit Signal Priority (TSP) on travel speeds, travel time, congestion, delay, and air quality.
  Patricio's internship at the New York City Department of Transportation is focused on Automatic Vehicle Location Data Mining, Visualization, and Dashboard Functionality.

ITS-NY Best Paper Award

UTRC sponsored the 2016 ITS-NY Best Student Paper Essay award and offered the 2016 award at the ITS-NY 23rd Annual Meeting and Technology Exhibition June 9-10-2016. Zhenhua Zhang, a Ph.D. candidate at the University at Buffalo, SUNY, was the recipient for his winning essay entitled, "On-site Traffic Accident Detection with Both Social Media and Traffic Data."

AITE scholarship awards

During this period, eleven AITE scholarship awards were given, representing seven consortium institutions as follows:

- NYU Tandon School of Engineering -2
- NYU Center for Urban Science and Progress (CUSP) – 1
- NYU Wagner – 1
- New York Institute of Technology- 1
- Rowan University- 1

- Hunter College-2
- SUNY Albany -3

Professional development with New York State Association of MPOs

Work continued during this reporting period with with the offering of the first class, Effective Engagement Practices in November 2016. The course was comprised of four topics that were delivered as 90-minute, interactive webinars, supplemented with job aids and other resources available after the session. Topic titles, are as follows. A total of 28 individuals registered for one or more topic sessions.

- Building a Culture of Engagement Nov. 14, 2016
- Staff Development: A Toolkit for Success December 1, 2016
- Effective Communication: Using Social Styles December 5, 2016
- Facilitation for Consensus: An Introduction December 12, 2016

c) Technology Transfer

Newsletter publications released

Fall 2016 Newsletter was released during this reporting period.

Annual report

An annual report was developed during this period and released online and as hard copy in January 2017.

Events

- **Co-hosted the Cybersecurity and Privacy for Transportation Workshop in conjunction with NYIT's Seventh Annual Cybersecurity Conference on September 22, 2016.**
- **TransportationCamp NYC 2016**
  This event was held on September 24, 2016 to foster open conversation and collaboration between all parties interested in mobility and the radical changes the near-future promises in transportation. Planners, software developers, engineers, students, and professionals were involved. The workshop provided each attendee with an opportunity to lead and shape the event.
- **2016 Technology Transportation Summit – Nov. 15, 2016**
  Leading experts, academics, practitioners, industry stakeholders and advocates met to discuss the rapidly changing and expanding world of transportation technology innovative solutions. The presenters explored the cutting-edge intelligent transportation systems, big data aggregation, and innovative transportation technology solutions to

promote efficiency, safety, security and sustainability goals, as well as the impact on broader inter-modal and multi-modal transportation considerations.

- **The MetroFreight Center of Excellence (CoE) team visit to Seoul-July 6-7, 2016.** UTRC participated in a multi-faceted event hosted by The Korea Transport Institute (KOTI). The activities for the MetroFreight partners included: 1) a MetroFreight Business Meeting; 2) an International Seminar on City Logistics, and 3) site tours. The event began on July 6 with a MetroFreight business meeting at the Hong Moon Guan in Hongik University School. Partners from Los Angeles, New York, Paris and Seoul exchanged urban freight research updates and discussed future strategies for continuing the mutually beneficial collaboration with the Volvo Research and Educational Foundations (VREF).

  In the afternoon, the *International Seminar on City Logistics: Challenges and Strategies for Sustainable Urban Freight* took place. Presentation topics included *Logistics hotels in Paris, e-Logis town in Korea, A case study on improving delivery services for franchise stores using urban cross-dock centers considering traffic conditions,* and *World's first last mile logistics portal, MeshKorea*. Nine discussants then participated in a discussion session that included MetroFreight Partners Camille Kamga, Penny Eickemeyer, and Alison Conway representing the University Transportation Research Center.

- **The 5th Automated & Connected Vehicles (ACV) Symposium**
  This two-day symposium focused on social, economic, environmental and safety benefits of connected and autonomous vehicles. New York City's current efforts to demonstrate vehicle to vehicle and other communication technology as part of USDOT's Connected Vehicle Pilot Deployment Program was one of the highlights of this event. Presentations on efforts at the other two USDOT deployment locations in southern Wyoming and Tampa, Florida were also included. In addition, the symposium featured panels on Autonomous Vehicles for Smart Cities; Connected Vehicles for Transit, Safety and Long-Term Impacts of CV/AV; and CV/AV for Freight.

  This two-day symposium focused on social, economic, environmental and safety benefits of connected and autonomous vehicles. New York City's current efforts to demonstrate vehicle-to-vehicle and other communication technology as part of USDOT's Connected Vehicle Pilot Deployment Program was one of the highlights of this event. Presentations on efforts at the other two USDOT deployment locations in southern Wyoming and Tampa, Florida were also included. In addition, the symposium featured panels on Autonomous Vehicles for Smart Cities; Connected Vehicles for Transit; Safety and Long-Term Impacts of CV/AV; and CV/AV for Freight.

  The event was hosted by UTRC in partnership with NYU Tandon School of Engineering; NYU Center for Urban Science and Progress; Princeton University; SUNY Polytechnic Institute; and Transportation Informatics (TRANSINFO) at the University at Buffalo, and VREF Center for Excellence for Sustainable Urban Freight Systems (CoE-SUFS).

- **Meeting with UPS team at the UPS 43rd Street Distribution Facility, New York, September 20, 2016.**
  As part of UTRC's involvement in MetroFreight, particularly regarding new research on impacts of residential consumption, Drs. Camille Kamga, Alison Conway, Jean-Paul Rodrigue, and Lisa Douglass and Penny Eickemeyer visited the UPS 43rd Street Distribution Facility on September 20. This visit included a meeting with UPS representatives who provided an overview of the facility and key UPS strategies concerning urban freight distribution. The UTRC group presented some key objectives of the MetroFreight project. Then, a visit of the facility took place, including of loading and unloading docks, vehicle and sorting equipment, and the main operational methods used by the facility. The team discussed the possibility of working with UPS in the future on city logistics research endeavors.
- **CCNY Professor Received Best Paper Award**
  UTRC's Associate Director for Education, Dr. Alison Conway, an Assistant Professor at CCNY and co-authors received the best paper award for the Freight Transport and Logistics track at the 14th World Conference in Shanghai from July 10-14. The co-authors of the paper titled; Cargo cycles for local delivery in New York City: Performance and impacts include Jialei Cheng, Camille Kamga, and Dan Wan. Dr. Conway presented the paper on July 14, 2016 during the Electric Vehicles, Alternative Fuels and Cargo Bikes Session. The paper describes a research effort to estimate and compare the traffic performance and externalities generated from human-powered cargo cycles and motorized vehicles conducting last mile deliveries in NYC. Professor Conway's paper was selected from 113 papers presented in the freight track. The WCTR is an international association of transport researchers.

d. Opportunities for Training and Development

Seminars and workshops

These are designed to educate the transportation community on current issues in policy and best practices as well as foster meaningful discussion on these topics.

C. Dissemination of results:

Compendium of TRB presentations

A Compendium was produced to highlight all TRB presentations made by UTRC faculty at TRB's 96th Annual meeting, January 8, 2017 – January 13, 2017.

Final Reports

UTRC produced, posted, and circulated final reports for the projects completed during this reporting period.

D. Plans for next reporting period:

Plans are underway for a joint conference with the Brooklyn Waterfront Research Center at City Tech, CUNY.

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).

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	

Partner addresses Partner	Street	City, State, Zip
Clarkson	8 Clarkson Avenue	Potsdam, NY 13699
Columbia	116th 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

Partner(s)	Project(s)		
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	Omitted variable bias in crash data analysis Non-destructive Evaluation of Pavement Structural Condition for Rehabilitation Design	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	Freight Demand Forecasting in the Context of the Built Environment: An Integrated Land Use IIMS Staten Island Web & 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	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 Piezoeletric 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

Final Reports Never Received

- Metrics, Models and Data for Assessment of Resilience of Urban Infrastructure Systems - NJIT
- Major Workforce Challenges Confronting New York City's Transit Industry - CUNY Graduate Center
- Freight Demand Forecasting in the Context of the Built Environment: An Integrated Land Use-UB

*UTRC has tried to contact the PIs and/or their associates many times since the scheduled end-dates of these projects. Though project work is believed to have been undertaken, and in some cases almost completed, the PIs have been unresponsive regarding the submission of their final reports.

6. SPECIAL REPORTING REQUIREMENTS

Nothing to report