



 **BUREAU OF RESEARCH**



NEW JERSEY DEPARTMENT OF TRANSPORTATION

19TH ANNUAL NJDOT

RESEARCH SHOWCASE

OCTOBER 25, 2017

Conference Center at Mercer
1200 Old Trenton Road
West Windsor, NJ 08550

19TH ANNUAL NJDOT RESEARCH SHOWCASE

AGENDA

The **Annual NJDOT Research Showcase** is an opportunity for New Jersey Department of Transportation customers to experience the broad scope of ongoing research initiatives, technology transfer activities, and academic research being conducted by our university partners and their associates, as well as other organizations, and to showcase the benefits of transportation research. As part of the event, the annual implementation award and recognition of outstanding university students studying in a transportation-related field will be presented.

This program is organized by the New Jersey Local Technical Assistance Program (NJ LTAP) at Rutgers Center for Advanced Infrastructure and Transportation (CAIT) and meets requirements for up to 3 PDHs for continuing professional competency for licensed professional engineers. *

8:30 a.m. Sign in and Exhibit Set Up

Atrium

9:10 a.m. Opening Remarks

Auditorium

Roger Lall, Acting Assistant Division Administrator, Federal Highway Administration–NJ Division

Mike Russo, Assistant Commissioner, Capital Investment, Planning and Grant Administration, New Jersey Department of Transportation

Bernardo B. Kleiner, Transportation Safety Specialist and Senior Program Officer, Transportation Research Board

9:25 a.m. Keynote Presentation

The Exploratory Search for Innovation and Mobility

Jim Shurbutt, *Exploratory Advanced Research Program Coordinator*, FHWA Turner-Fairbank Highway Research Center

10:10 a.m. Research Poster Exhibits and Break

10:40 a.m. NJDOT Innovation Program

Amanda Gendek, *Manager*, Bureau of Research, New Jersey Department of Transportation

David Aimen, *Assistant Director for Planning and Technical Assistance*, Alan M. Voorhees Transportation Center, Rutgers University

11:00 a.m. NJDOT UAS Peer Exchange and UAS Research Program

Glenn Stott, UAS Coordinator, New Jersey Department of Transportation

11:50 a.m. Presentation of 2017 Awards (winners selected by NJDOT)

2017 Outstanding University Student in Transportation Research Award

2017 NJDOT Research Implementation Award

2017 Best Poster Award

2017 NJDOT Innovator Award

12:00 p.m. Buffet Lunch and Research Poster Exhibits

* To confirm the acceptance of these PDHs for continuing professional competency for licensed professional engineers, please consult the licensure board of that state.



CONCURRENT BREAKOUT SESSIONS Presenters selected from abstract solicitation by NJDOT

1:00–1:30 p.m. **ENVIRONMENT**

Room 216

Presenter: Hao Wang, Rutgers University
Life-Cycle Analysis of Asphalt Pavement Recycling for Environmental Benefits

INFRASTRUCTURE

Auditorium

Presenter: Frank Jalinoos, Federal Highway Administration
Reuse of Foundations on Existing Bridges

MULTIMODAL/ITS

Room 213

Presenter: David Hale, Leidos Inc.
Freeway Bottlenecks: Innovative Mitigation Strategies and Improved Modeling Approaches

SAFETY

Room 125/126

Presenters: Xiang Liu and John Bullough, Rutgers University
Evaluation of Raised Pavement Markers

1:45–2:15 p.m. **ENVIRONMENT**

Room 216

Presenter: Rouzbeh Nazari, Rowan University
Resiliency and Vulnerability Planning Through Multiscale Hydrodynamic Modeling

INFRASTRUCTURE

Auditorium

Presenter: John Schuring, New Jersey Institute of Technology
Applying the Scour Evaluation Model (SEM) to New Jersey Bridges

MULTIMODAL/ITS

Room 213

Presenter: Mohiuddin Khan, Temple University
Introducing Innovations for Resurgence of Freight and Passenger Train Industry

SAFETY

Room 125/126

Presenters: Allen Katz and Joseph Jesson, The College of New Jersey
Worker Safety Issues of Wireless Devices

2:30–3:00 p.m. **ENVIRONMENT**

Room 216

Presenter: Yusuf Mehta, Rowan University
Environmental Impacts of Using Reclaimed Asphalt Pavement as a Fill Material in Quarry

INFRASTRUCTURE

Auditorium

Presenter: Cheng Zhu, Rowan University
Characterizing Cracking Process in Clayey Soil Using Electrical Resistivity Method

MULTIMODAL/ITS

Room 213

Presenter: David Hale, Leidos Inc.
The Case for Software-Assisted Calibration

SAFETY

Room 125/126

Presenter: Anil Agrawal, City College of New York
A Performance-Based Approach for Loading Definition of Heavy Impact Events

3:00 p.m.

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About Our Presenters

David Aimen, A.I.C.P./P.P., *Assistant Director for Planning and Technical Assistance*, Alan M. Voorhees Transportation Center at Rutgers University

David Aimen has 30 years of experience managing and researching studies on planning and economics related topics, primarily as a private sector consultant. In recent years, David has provided technical advisory services to transportation agencies often focusing on organizational policies, procedures, and practices related to Title VI, environmental justice, diversity and inclusion, and the socioeconomic impacts of transportation.

He is currently working with the New Jersey Department of Transportation's Bureau of Research in support of its Technology Transfer (T2) Program. NJDOT's T2 program seeks to increase the level of awareness of transportation-related issues within New Jersey, promote ongoing exchange of ideas, solicit research needs, translate the latest state-of-the-art trends and technology practices, showcase innovation, and disseminate research results in a form that can be readily applied to current transportation problems. The T2 program seeks to bridge the gap between the information needs of practicing transportation professionals and transportation agencies, while engaging Metropolitan Planning Organizations, county and local transportation agencies, community groups, consultants, students, and lay people.

Amanda Gendek, Manager, Division of Statewide Planning, Bureau of Research, New Jersey Department of Transportation

Amanda Gendek earned a Bachelor's degree in Environmental Science from Stockton University. She then began her professional career in the private sector where she conducted environmental site evaluations and remedial investigations for residential and industrial sites.

She kicked off her NJDOT career as an environmental specialist trainee in the Division of Environmental Resources where she gained over 14 years of experience acquiring environmental clearances for various transportation projects. During this time she also earned a Master's Degree in Environmental Policy from the New Jersey Institute of Technology.

Amanda was recently appointed to the position of Manager in the Bureau of Research, where she has been working for the last two years. She has worked extensively with both internal and external partners and stakeholders at the federal, state, university, and local levels to develop and conduct research to improve safety, operations, and mobility for all road users. She acts as the Transportation Research Board (TRB) state representative for New Jersey as well as a member of the AASHTO Research Advisory Committee (RAC). The Bureau of Research is home to the New Jersey State Transportation Innovation Council (STIC), which is led by Assistant Commissioner Michael Russo.

Bernardo B. Kleiner, M.P.H., *Associate Division Director and Transportation Safety Specialist*, Transportation Research Board

Bernardo Kleiner is the Associate Division Director and Transportation Safety Specialist for the Technical Activities Division of the Transportation Research Board (TRB) in Washington, DC. Bernardo joined TRB in 2012 and manages a portfolio of standing committees focused on a range of safety and human factors related topics. These committees bring together interested stakeholders from varying disciplines, and are responsible for examining the current state of practice, reviewing and cultivating research, and disseminating results pertaining to topics of critical importance to transportation.

Prior to joining TRB, Bernardo served for more than 13 years as a consultant, managing and working internationally and in the United States at the federal, state, and local levels on government projects that focused on transportation safety and public health. Bernardo earned a Bachelor of Arts Degree in Mathematics from Emory University and Master's Degree in Public Health from George Washington University.

Roger S. Lall, P.E., *Acting Assistant Division Administrator,* Federal Highway Administration–New Jersey Division

Roger Lall is currently the Acting Assistant Division Administrator for the Federal Highway Administration–New Jersey Division, where he has served since 2005 in progressing leadership roles. Roger has 25 years of diversified experience in the field of transportation including design, construction, NBIS programs, quality control/assurance, contract administration, and project management.

Prior to joining FHWA, Roger worked for 13 years in the private sector. He joined FHWA as an Area Engineer in 2005 where he provided project stewardship and oversight to the NJDOT including serving as the ROW Officer and Major Projects Engineer.

In 2008, Roger became the Engineering Team leader where he provided guidance and direction to multi-disciplinary teams implementing the Federal-aid Highway Program statewide through all phases of project activities including the successful delivery of the American Recovery and Reinvestment Act. In 2010 he became the Director of Engineering where he leads the development of office policy to implement new laws, regulations, and emphasis areas and is the Lead Supervising Engineer over the Project and Program Delivery and the Technical Services Programs for the New Jersey Division.

As the Director, Roger is responsible for the supervision of all engineering staff in the New Jersey Division and successfully oversees the implementation of project, technical and policy guidance statewide. He is a licensed Professional Engineer in the Commonwealth of Pennsylvania.

Michael Russo, *Assistant Commissioner, Capital Investment, Planning and Grant Administration*, New Jersey Department of Transportation

Mike Russo has over 34 years of experience with the New Jersey Department of Transportation and was recently appointed to the position of Assistant Commissioner, Capital Investment, Planning and Grant Administration.

Previously Mike was Director of Local Aid and Economic Development and was responsible for the Department's \$500 million Local Aid grant program and the five Local Aid Offices located throughout the State. Prior to that, Mike held management positions in the Department's Division of Project Planning and Development and the Division of Design Services. The balance of his career at NJDOT was spent in project management and roadway design.

Jim Shurbutt, Ph.D., *Exploratory Advanced Research Program Coordinator*, Turner-Fairbank Highway Research Center

Dr. Jim Shurbutt has been at the USDOT Federal Highway Administration's Turner-Fairbank Highway Research Center for over six years. He has served in the Office of Safety R&D as a Behavioral Research Psychologist on the Human Factors Team. Currently he is the Lead Program Analyst with the Exploratory Advanced Research Program.

He has worked extensively with both internal and external partners and stakeholders at the federal, state, university, and local levels to develop and conduct research to improve safety, operations, and mobility for all road users.

Jim previously served as the Technical Manager of the Traffic Control Devices Pooled Fund Consortium. In this role, he was responsible for managing recruitment, solicitation, contribution,

financial, and research processes required for the systematic evaluation of TCDs of importance. He also served four years as the FHWA Technical Lead for an Exploratory Advanced Research project with the goal of providing guidance and assistance to the visually, physically, and/or psychologically-impaired pedestrian, to navigate large unstructured environments indoors and outdoors, including areas of GPS degradation.

Jim received his B.S. and M.S. degrees in Applied Psychology from Jacksonville State University (AL) and his Ph.D. in Applied Behavior Analysis from Western Michigan University.

Glenn Stott, *UAS Coordinator*, New Jersey Department of Transportation

Glenn Stott is the Unmanned Aircraft Systems (ARS) Coordinator for the New Jersey Department of Transportation. He is a retired Canadian Air Force jet instructor, Test Pilot, and Flight Commander whose UAS background started over 20 years ago with remote control helicopters.

A veteran of multiple United Nations Search and Rescue and disaster relief operations in Africa and the Middle East, he later flew corporate jets and is a certified jet instructor in 160 different countries. Glenn is a designated pilot examiner and is currently authorized to grant the highest level of pilot license for the FAA, Brazil, China, Russia, Canada, Mexico, Saudi Arabia, Australia, and New Zealand.

Glenn was an Adjunct Technology Professor at both Kean and Seton Hall universities, serves on the National Association of State Aviation Officials UAS Committee, and frequently speaks about UAS technology in the transportation industry.



19TH ANNUAL NJDOT RESEARCH SHOWCASE **PARTNERS**

Cambridge Systematics, Inc.
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Lehigh University
Monmouth University
New Jersey Institute of Technology
Princeton University
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Rowan University
Rutgers, The State University of New Jersey *
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Stevens Institute of Technology
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* Official USDOT University Transportation Centers

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The 19th Annual NJDOT Research Showcase is hosted by the New Jersey Local Technical Assistance Program (NJ LTAP) at Rutgers Center for Advanced Infrastructure and Transportation (CAIT) on behalf of the event sponsors, NJDOT Bureau of Research and the Federal Highway Administration.



NEW JERSEY LOCAL TECHNICAL ASSISTANCE PROGRAM (NJ LTAP)

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