

University Transportation Center (UTC) Conference for the Southeastern Region

*Georgia Tech Global Learning Center
Atlanta, GA*

March 24 and 25, 2014

CONFERENCE PROGRAM

Sponsored by:

Accelerated Bridge Construction University Transportation Center
Accessibility and Safety for an Aging Population (ASAP)
Electric Vehicle Transportation Center
National Center for Intermodal Transportation for Economic Competitiveness
National Center for Transit Research
National Center for Transportation Systems Productivity and Management
Office of the Assistant Secretary for Research and Technology
Region 4 - University of Florida, Southeastern Transportation, Research
Innovation, Development and Education Center (STRIDE), 2012
Region 4 - University of Tennessee, Southeastern Transportation Center, 2013



University Transportation Center (UTC) Conference for the Southeastern Region

Georgia Tech is pleased to host the **2nd annual Southeast UTC conference**. This event brings together a variety of transportation professionals – faculty, students, practitioners, and public officials – to disseminate information about ongoing activities at partner universities and to further enhance collaboration among the academic community and the private and public sector agencies.

This conference showcases research from **8 southeastern UTCs participating in the University Transportation Center (UTC) program**, sponsored by the USDOT's Office of the Assistant Secretary for Research and Technology (OST-R). These UTCs represent more than 20 universities across the United States. For more information on the UTC program, please see <http://www.rita.dot.gov/utc/centers>.

In attendance are university **faculty, staff and graduate students, as well as federal and state agency representatives, MPOs, transit managers, and consultants** in the region and around the country.

SPONSORS



STRIDE

Southeastern Transportation Research,
Innovation, Development and Education Center



Participating UTCs include:

Accelerated Bridge Construction University Transportation Center (ABC-UTC)

- Florida International University (lead university)
- Iowa State University
- University of Nevada, Reno

Accessibility and Safety for an Aging Population (ASAP)

- Florida State University (lead university)
- Florida A&M University
- University of North Florida

Electric Vehicle Transportation Center (EVTC)

- University of Central Florida (lead university)
- Tuskegee University (Alabama)
- University of Hawaii, Honolulu

National Center for Intermodal Transportation for Economic Competitiveness (NCITEC)

- Mississippi State University (lead university)
- University of Denver
- University of Mississippi
- Hampton University
- Louisiana State University

National Center for Transit Research (NCTR)

- University of South Florida (lead university)
- Florida International University
- North Dakota State University
- Texas A&M University
- University of Illinois, Chicago

National Center for Transportation Systems Productivity and Management (NCTSPM)

- Georgia Institute of Technology (lead university)
- University of Alabama at Birmingham
- Florida International University
- University of Central Florida

Region 4 - University of Florida, Southeastern Transportation, Research Innovation, Development and Education Center (STRIDE), 2012

- University of Tennessee (lead university)
- Clemson University (South Carolina)
- North Carolina A&T State University
- University of Alabama, Birmingham
- University of Alabama, Tuscaloosa
- University of Central Florida
- University of Kentucky
- University of North Carolina
- University of South Florida

Region 4 - University of Tennessee, Southeastern Transportation Center, 2013

- University of Florida (lead university)
- Auburn University
- Florida International University
- Georgia Institute of Technology
- Mississippi State University
- North Carolina State University
- University of Alabama at Birmingham
- University of North Carolina at Chapel Hill (UNC)



UTC Conference for the Southeastern Region

Program

Monday, March 24th, 2014

7:30 am to 8:30 am

Breakfast (2nd Floor Food Break Area)
Registration (2nd Floor Registration Desk)

8:30 am to 9:30 am

Welcome and Opening Remarks (Room 236)

Michael P. Hunter, Director, National Center for Transportation Systems Productivity and Management (NCTSPM)

Keith Golden, P.E., Commissioner of Georgia Department of Transportation

Introduction of UTC Directors

Albert Gan, Florida International University (FIU)

David Block, University of Central Florida (UCF)

Burak Eksioglu, Mississippi State University (MSU)

Lily Elefteriadou, University of Florida (UF)

Stephen H. Richards, University of Tennessee, Knoxville (UTK)

Michael P. Hunter, Georgia Institute of Technology (GT)

John Sobanjo, Florida State University (FSU)

Joel M. Volinski, University of South Florida (USF)

9:30 am to 10:30 am

Podium presentations (Including Q&A, each presentation is 20 minutes)

Topic: Operations and Management (Room 236)

Moderator: Albert Gan, Florida International University

A Comprehensive Framework for Traffic Incident Management Program Planning and Assessment

Md Sakoat Hossan, Xia Jin

Presenter: Md Sakoat Hossan (FIU)

Commute Warrior - Travel Activity Tracking Android Application

Vetri Venthan Elango, Alper Akanser,

Yanzhi "Ann" Xu, Randall Guensler

Presenter: Vetri Venthan Elango (GT)

Queue Length Estimation Based on Point Traffic Detector Data and Automatic Vehicle Identification Data

Somaye Fakharian Qom, Yan Xiao, Mohammed Hadi

Presenter: Somaye Fakharian Qom (FIU)



Topic: Bike/Ped (Room 222)

Moderator: Kari Edison Watkins, Georgia Institute of Technology
Teaching Schoolchildren Pedestrian Safety: A Pragmatic Trial Using Virtual Reality

David C. Schwebel, Daniel Rodriguez, Virginia Sisiopiku,
Joan Severson, Tabitha Combs

Presenter: David C. Schwebel (UAB)

Pedestrian Safety at Signalized Intersections in Florida

Alluri, P., Haleem, K., Gan, A., Lavasani, M., and Saha, D.

Presenter: Priyanka Alluri (FIU)

Comparing Bicycle LOS with Cyclists' Perceived Level of Safety

Jeffrey LaMondia, Nathan Moore, Batoul Damghani

Presenter: Jeffrey LaMondia (AU)

10:30 am to 10:45 am

Morning Break (2nd Floor Food Break Area)

10:45 am to 11:45 am

Podium presentations (Including Q&A, each presentation is 20 minutes)

Topic: Operations and Management (Room 236)

Moderator: Albert Gan, Florida International University

Electric Vehicles Capture Curtailed Wind and Solar Energy on a High Penetration Grid

Richard Rocheleau, Katherine McKenzie

Presenter: Katherine McKenzie (UH Mānoa)

Traffic Management Centers: Challenges, Best Practices, and Future Plans

Xia Jin, Zhaohan Zhang, Albert Gan

Presenter: Xia Jin (FIU)

Analysis of Heavy Vehicle Effects on Florida Freeways and Multilane Highways using Advanced Vehicle Performance Modeling

Seckin Ozkul, Scott S. Washburn

Presenter: Seckin Ozkul (UF)

Topic: Bike/Ped (Room 222)

Moderator: Kari Edison Watkins, Georgia Institute of Technology
Educational Development in Pedestrian Infrastructure Research

Alice Grossman and Yanzhi “Ann” Xu
Presenter: Alice Grossman (GT)

A Technology Overview of the Sidewalk Sentry Application, Evangelos Palinginis

Felipe Castrillon, Alper Akanser, Alice Grossman, Vetri Elango, Randall Guensler
Presenter: Evangelos Palinginis (GT)

Daily Variations in Non-Mandatory Activity Participation: Do Shoulder Days Differ from Mid-week Days

Hamidreza Asgari, Xia Jin
Presenter: Hamidreza Asgari (FIU)

12:00 pm to 1:30 pm

Buffet Lunch (Atrium)

1:30 pm to 3:30 pm

Podium presentations (Including Q&A, each presentation is 20 minutes)

Topic: Transit (Room 236)

Moderator: Kari Edison Watkins, Georgia Institute of Technology

Crashworthiness Evaluation of Paratransit Buses,

Gepner, B., Siervogel, J., Wekezer, J.,
Presenter: Bronislaw Gepner (FSU)

Providing Real-time Information for Transit Riders: In Search of an Equitable Technology

Aditi Misra, Sarah Windmiller, Kari Edison Watkins, Patricia L. Mokhtarian
Presenter: Aditi Misra (GT)

Improving the Cost Effectiveness of Financial Incentives in Managing Transportation Demand Management (TDM)

Chanyoung Lee, Phil Winters
Presenter: Chanyoung Lee (USF)

Quantifying the Impact of Real-Time Vehicle Location Information on Transit Ridership

Candace Brakewood, Kari Edison Watkins
Presenter: Candace Brakewood (GT)

Maintaining Transit Effectiveness Under Major Financial Constraints

Joel Volinski
Presenter: Joel Volinski (USF)

Developing a New Course for Public Transportation Education: Matching Academic Content to Workforce Needs

Jeffrey LaMondia, Kari Watkins, Candace Brakewood, Scott Seidband. Presenter: Jeffrey LaMondia (AU)

Topic: Economics and Freight (Room 222)

Moderator: Burak Eksioglu, Mississippi State University

Impact and feasibility study of solution of doubling heavy vehicles

Nasim Uddin, Adel Elfayoumy

Presenter: Adel Elfayoumy (UAB)

Estimation of Congestion Reduction Benefits on Heavily Trafficked Truck Freight Corridors

Frank Southworth, Denise A. Smith

Presenter: Frank Southworth (GT)

GIS-based Routing of Hazardous Material Cargoes Considering Incident Costs after Accidental Release of Chemicals

Bahareh Inanloo, Berrin Tansel, Xia Jin,

Anna Bernardo Bricker

Presenter: Bahareh Inanloo (FIU)

Economic Development and Workforce Impacts of State DOT Highway Expenditures

Thomas "Danny" Boston

Presenter: Thomas "Danny" Boston (GT)

Key Ideas from the 2013 Megaregions and Freight Movement Peer Exchange

Catherine L. Ross, Sarah Smith

Presenter: Sarah Smith (GT)

GPS based truck modeling for Regional Travel Demand Forecasting

Catherine Ross, David Jung-Hwi Lee

Presenter: David Jung-Hwi Lee (GT)

3:30 pm to 4:00 pm

Afternoon break (2nd Floor Food Break Area)

4:00 pm to 5:00 pm

ITE/WTS Student Chapters Meeting (Room 222)

State DOT panel: How can universities better assist State Highways Agencies (SHA) with deployment of research results? A discussion between university and SHA representatives. (Room 236)

Panelists:

William (Bill) Barstis, P.E., Pavement Research Engineer
Mississippi Department of Transportation

Jeffrey W. Brown, Bureau Chief, Research and Development
Alabama Department of Transportation

J. Darryll Dockstader, Manager, Research Center
Florida Department of Transportation

Georgene M. Geary, P.E., State Research Engineer
Georgia Department of Transportation

5:00 pm to 7:00 pm

Reception and Poster Session (2nd Floor Atrium)

See **page 9** for a full listing of posters

Tuesday, March 25th, 2014

8:00 am to 9:00 am

Breakfast (2nd Floor Food Break Area)

9:00 am to 11:15 am

Podium presentations (Each presentation including Q&A is 20 min)

Topic: Safety (Room 236)

Moderator: Stephen H. Richards, University of Tennessee, Knoxville
Traffic Safety Impacts of Digital Roadside Advertising in Alabama and Florida

V.P. Sisiopiku, K. Haleem, M. Islam, A. Gan, P. Alluri, A. Sullivan, D. Stavrinou

Presenter: Virginia P. Sisiopiku (UAB)

Investigation of the effect of drivers' body motion on traffic safety

Alexandra Kondyli, Angelos Barmoutis, Virginia Sisiopiku

Presenter: Alexandra Kondyli (UF)

Factors Influencing Visual Search in Complex Driving Environments

Michael Hunter, Gregory Corso, Michael Rodgers, Yanzhi "Ann" Xu, Aaron Greenwood, James Bae

Presenter: Aaron Greenwood (GT)

How are Driver Characteristics Related to Safety at Railroad-Crossings? The Case of Passive Railroad Grade Crossings

Jun Liu, Bryan Bartnik, Stephen H. Richards, Asad J. Khattak

Presenter: Asad J. Khattak (UT)

Evaluating Safety Performance of Bridges on Major Highways in Alabama

Jing Li, Gaurav Mehta, Steven Jones

Presenter: Jing Li (UA)

Evaluation and Calibration of SPFs for Two Way Two Lane Rural roads

Steven Jones, Gaurav Mehta

Presenter: Steven Jones Jr (UA)

Topic: Infrastructure (Room 222)

Moderator: Fouad H. Fouad, University of Alabama-Birmingham
Simulation of Bridge Responses to Heavy Vehicles

Rahul Kalyankar, Nasim Uddin

Presenter: Rahul Kalyankar (UAB)

Prototype Evidence-Based Database for Transportation Asset Management

M. Akofio-Sowah, J. Smith-Colin, J. M. Fischer, A. Amekudzi Kennedy

Presenter: Adjo Amekudzi Kennedy (GT)

A Next-Generation Wireless Sensing System for Civil Structures

Xinjun Dong, Dapeng Zhu, Shuo Chen, Yang Wang

Presenter: Yang Wang (GT)

Innovative Modular High Performance Lightweight Decks for Accelerated Bridge Construction)

Sahar Ghasemi, Pedram Zohrevand, Amir Mirmiran, Kevin Mackie, Fouad H. Fouad

Presenter: Sahar Ghasemi (FIU)

Utilizing Acoustic Emission for Monitoring Safety of Highway Bridges

Vitali Khaikine, Vadivel Jagasivamani, Eric Sheppard

Presenter: Vitali Khaikine (Hampton U)

Mitigating Fatigue of Cantilevered Overhead Sign Structures Due to Natural and Truck-Induced Wind Gusts

Mohamed S. Gallow, Fouad H. Fouad, Ian E.

Hosch. Presenter: Mohamed Salah Gallow (UAB)

11:15 am to 11:30 am

Morning Break (2nd Floor Food Break Area)

11:30 am to 12:00 pm

Lunch (Georgia Tech Hotel Ballroom)

12:00 pm to 1:00 pm

Panel Discussion

“Sector intersections: State agencies and the private sector discuss transportation challenges” – Panelists from industry and government will engage in a dialogue on challenges they face and how university research can address these challenges

Moderator: Catherine L. Ross, Georgia Institute of Technology

Panelists:

Toby Carr, Director of Planning, Georgia Department of Transportation

Todd Long, P.E., Deputy Commissioner, Georgia Department of Transportation

Randy Stashick, Global Vice President of Engineering, UPS

Poster Session Participants

Adaptive Variable Speed Limit Strategy to Reduce Shockwave Upstream of Bottlenecks. Ali Darroudi, Mohammed Hadi, Yan Xiao, Clark Letter, Alexandra Kondyli, Lily Elefteriadou

Needs Assessment for Multi-Modal Emergency Transportation Operations with a Focus on an Aging Population. Eren Erman Ozguven, Mark Horner, Yassir Abdelrazig, Thobias Sando, Ren Moses. Presenter: Eren Erman Ozguven (FSU)

Pedestrian Travel Time Estimation at Urban Street Facilities. Yinan Zheng, Lily Elefteriadou. Presenter: Yinan Zheng (UF)

STRIDE K-12 Transportation Workforce Development - A Collaborative Effort. Virginia P. Sisiopiku, Leslie D. Washburn, James B. Martin, Berrin Tansel, N. Eric Heiselt. Presenter: Virginia P. Sisiopiku (UAB)

TMC readiness for third-party data, probe-based traffic monitoring. James Wong, Bingling Zhang, Kari Edison Watkins, Hans Klein. Presenter: Bingling Zhang (GT)

A Data Driven Approach to State Transportation Investment Decisions: a Transportation Project Investment and Evaluation Resource (T-PIER). Tim Welch, Catherine Ross, Fangru Wang. Presenter: Timothy F. Welch (GT)

Evaluation of Anchor Bolt Clearance Discrepancies. Ian E. Hosch; Ahmed Mohamed Abdelkhalek Mohamed Ahmed. Presenter: Ian Hosch (UAB)

Empirical study of long-range connections in a road network offers new ingredient for navigation optimization models. Pu Wang, Like Liu, Xiamiao Li, Guanliang Li, Marta C. González. Presenter: Like Liu (UF)

Assessment of High Early Strength Limestone Blended Cement for Next Generation Transportation Structures. Ahmad Shalan, Elizabeth Nadelman, Behnaz Zaribaf, Lawrence F. Kahn, Kimberly E. Kurtis. Presenter: Ahmad Shalan (GT)

Estimation of Congestion Reduction Benefits on Heavily Trafficked Truck Freight Corridors. Frank Southworth, Denise A. Smith. Presenter: Frank Southworth (GT)

Integrated analysis of transportation network with pipeline system vulnerabilities. Berrin Tansel, Xia Jin, Kolloi Shams, Bahareh Inanloo, Albert Gan. Presenter: Berrin Tansel (FIU)

A Survey of Transit Agencies about Web-based Feedback to Improve Service. Ryan Sager and Kari Edison Watkins. Presenter: Ryan Sager (GT)

A Resiliency Framework for Planning in State Transportation Agencies. Stephanie Amoaning-Yankson, Adjo Amekudzi Kennedy, Kari Edison Watkins. Presenter: Stephanie Amoaning-Yankson (GT)

Bicycle and Pedestrian Safety in the Highway Safety Manual. Kari Edison Watkins. Presenter: Jonathan DiGioia

Real-Time Tracking and Choice Data Collection through Commute Warrior. Yanzhi "Ann" Xu, Vetri Elango, Randall Guensler. Presenter: Yanzhi "Ann" Xu (GT)

Innovative Modular High Performance Lightweight Decks for Accelerated Bridge Construction. Sahar Ghasemi, Pedram Zohrevand, Amir Mirmiran, Kevin Mackie, Fouad H. Fouad. Presenter: Sahar Ghasemi (FIU)

Cooperative Vehicle-Highway Automation (CVHA) Technology: Simulation of Benefits and Operational Issues. Angshuman Guin, Michael Rodgers, Mohammed Hadi. Presenter: Angshuman Guin (GT)

Evaluation of the Cost Effectiveness of Illumination as a Safety Treatment at Rural Intersections. Franklin Gbologah, Angshuman Guin, Michael Rodgers, Roger Purcell. Presenter: Franklin Gbologah (GT)

Transportation System Health: Definitions, Frameworks and Metrics. A. Amekudzi Kennedy, R. Boadi, S. Amoaning-Yankson, J. M. Fischer. Presenter: Adjo Amekudzi Kennedy (GT)

Role of Transportation Management Associations in Traffic Operations. Angshuman Guin, Michael Hunter, Darren S. Harris. Presenter: Angshuman Guin (GT)

Efficient Control of Autonomous Vehicles at Freeway Merge Segments. Clark Letter. Presenter: Clark Letter (UF)

Dynamic Traffic Control Interventions for Enhanced Mobility. Nagui M. Roupail, Behzad Aghdashi, Mohammed Hadi, Yan Xiao, Samaneh Khazraeian. Presenter: Nagui M. Roupail (NCSU)

Signal Timing Optimization with Consideration of Environmental and Safety Impacts. Mohammed Hadi, Yan Xiao, Xuanwu Chen, Lily Elefteriadou, David Hale. Presenter: Xuanwu Chen (FIU)

Modeling ATM strategies in a macroscopic traffic environment. Mohammed Hadi, Nagui M. Roupail, Samaneh Khazraeian, Yan Xiao, Behzad Aghdashi. Presenter: Mohammed Hadi (FIU)

HOT Lane Decision Making: Operational and Demographic Factors. Adnan Sheikh, Randall Guensler. Presenter: Adnan Sheikh (GT)

Reducing the Magnitude of Negative Left-Turn Lane Offset Reduces Risky Turning Behavior of Younger, Middle-Aged, and Older Drivers: A Driving Simulator Study. Ainsley Mitchum, Walter Boot, Neil Charness, Cary Stothart, Mark Fox, Heather Lupton. Presenter: Ainsley Mitchum (FSU)

Developing a New Course for Public Transportation Education: Matching Academic Content to Workforce Needs. Jeffrey LaMondia, Kari Edison Watkins, Candace Brakewood, Scott Seidband. Presenter: Jeffrey LaMondia, Kari Edison Watkins, Candace Brakewood, Scott Seidband

Estimating Road User Costs for Use in Accelerated Bridge Decision Making Processes. Mohammed Hadi, Albert Gan, Yan Xiao, Atorod Azizinamini. Presenter: Mohammed Hadi (FIU)

The Effects of Billboard Content on the Distractibility of Drivers Across the Lifespan. Shannon Wittig, Haley Johnson, Erick Caamano, Virginia Sisiopiku, Despina Stavrinou. Presenter: Shannon Wittig (UAB)

Cycle Atlanta: Understanding Cyclists and Cycling in Atlanta. Aditi Misra, Kari E. Watkins, Chris LeDantec. Presenter: Aditi Misra (GT)

An optimal holding policy to minimize bus headway variance. Simon Berrebi, Kari Edison Watkins, Jorge Laval. Presenter: Simon Berrebi (GT)

Modeling Pedestrian Gap Acceptance Behavior at Mid-Block Locations. Shrikanth Mamidipalli, Virginia Sisiopiku. Presenter: Shrikanth Mamidipalli (UAB)

Determining Value of Transportation Research. Mohsen Shahandashti, Baabak Ashuri, Mehdi Tavakolan. Presenter: Mohsen Shahandashti (GT)

MAP -21. Catherine Ross, Michael Hunter, Timothy Welch. Presenter: Catherine L. Ross (GT)

Canal expansion, Port activities, and Regional economy. David Jung-Hwi Lee. Presenter: David Jung-Hwi Lee (GT)

Alternative Electric Vehicles. Sessa S. Srinivasan, David L. Block, Prakash C. Sharma. Presenter: Leah Sanks (Tuskegee)

Reducing the Occurrence of Pedestrian Fatalities in the Transit Industry Through Community and Employee Safety Awareness Interventions. Keaton Zucker, Patrick Sherry. Presenter: Keaton Zucker (DU)

Bi-Objective Inventory Replenishment Models for Perishable Products with Fixed Shelf Life. Sandra D. Eksioglu, Zahra Azadi. Presenter: Zahra Azadi (MSU)

A Model for Biomass Supply Chain Design in Support of Alternative Co-firing Strategies. Sandra Eksioglu, Hadi Karimi. Presenter: Hadi Karimi (MSU)

Designing a Reliable and Dynamic Intermodal Hub and Spoke Supply Chain for Biomass. Mohammad Marufuzzaman, Sandra Duni Eksioglu. Presenter: Mohammad Marufuzzaman (MSU)

Predicting High School Students' Transportation Career Intentions: A Social Cognitive Analysis. Patton O. Garriott, Stephanie Norris, Keaton Zucker. Presenter: Patton O. Garriott (DU)

Dynamic Behavior of VMS Bridge Support Structure to Natural Wind and Truck-induced Wind Gusts. Ian E. Hosch, Fouad H. Fouad. Presenter: Ian E. Hosch (UAB)

Development of New VMS Drag Coefficients. Joseph Phillips, Fouad H. Fouad, Ian Hosch, Arindam Gan Chowdhury, Amir Mirmiran. Presenter: Joseph Phillips (UAB)

A Multivariate Conway-Maxwell Poisson Distribution for Fitting Over and Under-Dispersed Crash Data: Bayesian Perspective. Gaurav Mehta, Jing Li, Steven Jones. Presenter: Gaurav Mehta (UA)

Do we need more data to get better short-term traffic prediction accuracy?. Jianjiang Yang, Lee D. Han, Phillip B. Freeze. Presenter: Jianjiang Yang (UT)

Driver Yielding Models for Midblock Pedestrian Crossings. Elizabeth Hunter, Bastian Schroeder, Katy Salamati, Nagui Roupail. Presenter: Elizabeth Hunter (NCSU)

Uber and its Extensions to Changing Urban Transportation. Steve Dickerson. Presenter: Steve Dickerson (GT)

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