



MAUTC, a five-university consortium led by The Pennsylvania State University, seeks to attract talented researchers and students to the study of transportation, and to engage them in new approaches to the transportation issues of today and tomorrow. MAUTC's theme is Technology for Integrated Transportation Systems Operation and Performance.

## Goodall is MAUTC Student of the Year

University of Virginia Ph.D. student **Noah Goodall** was recognized as this year's MAUTC Student of the Year at the January 9 Council of University Transportation Centers (CUTC) annual banquet. As a research assistant with the Center for Transportation Studies, Noah has conducted research into IntelliDrive-assisted ramp metering and potential IntelliDrive applications for Virginia. Additionally, he is the lead author of a paper in review at the Transportation Research Board on driver behavior at dynamically tolled high occupancy toll (HOT) lanes. Noah is vice president of the University of Virginia chapter of the Virginia Student Transportation Association.



His advisor, Dr. Brian Smith, Associate Professor in Civil Engineering, University of Virginia, states: "Noah's research in the area of IntelliDrive and HOT-related driver behavior modeling is ground-breaking, and offers the potential to significantly improve surface transportation. His creativity,

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## Larson Institute Announces Director

**Dr. Martin Pietrucha**, executive director of MAUTC, was named director of Penn State's Thomas D. Larson Transportation Institute. He had previously served as interim director of the Institute. Pietrucha is a full professor in the Department of Civil and Environmental Engineering. He previously served as director of the Science, Technology and Society program in the College of Engineering. He is a member of the American Society of Civil Engineers, the Institute of Transportation Engineers, the National Research Council, Transportation Research Board and the Intelligent Transportation Society of America.



## Driver Safety Highlighted at 15th TESC

The 15<sup>th</sup> annual Transportation Engineering and Safety Conference was held at Penn State, December 9-11, 2009.

**Mr. Anthony Dougherty**, principal, Traffic Planning and Design, served as program chair. Four pre-conference workshops were held: Traffic Adaptive Signal Systems, SimCap Calibration, Technically Linking Land Use and Transportation, and Alternative Intersection and Interchanges. The

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conference is organized around four tracks: planning, design, operations, and safety. Session topics ranged from highway safety to pedestrian planning, design, and the Americans with Disability Act to motorcycle safety to new and updated publications.

**Mr. Peter J. Kissinger**, president and CEO of AAA Foundation for Safety, was the keynote speaker at Wednesday's lunch. There are more than 37,000 traffic deaths annually and nearly 1 in 4 Americans have been involved in a serious crash. More than one third of the U.S. population has had a friend or relative who was seriously injured or killed in an auto accident. The socio-economic cost of traffic-related accidents is more than \$300 billion.

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**TESC** (from page 1)

To try to address this public health crisis, the AAA Foundation for Safety has initiated a pilot program to test the technical and political feasibility of instituting a U.S. Road Assessment Program (usRAP) in cooperation with federal, state, and local highway agencies and other stakeholders.

**Vision Zero and the Need to Change the Traffic Safety Culture**

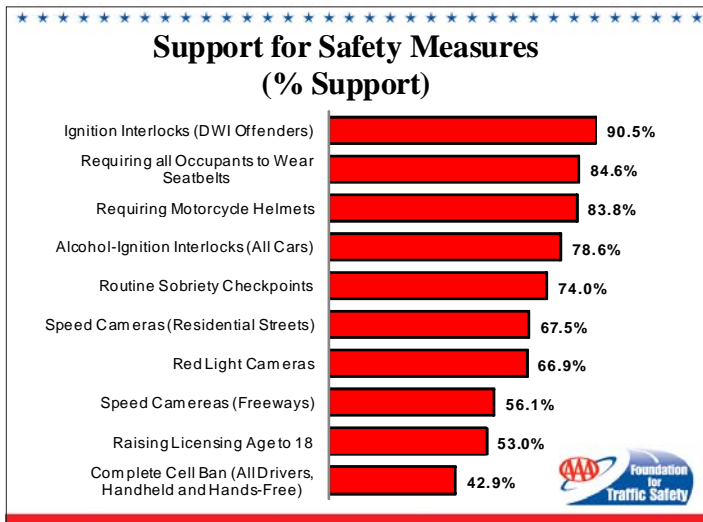
Transportation Engineering & Safety Conference  
December 9, 2009

Saving lives through research and education

AAA Foundation for Traffic Safety

The objectives of the program are to benchmark the safety of road segments, allocate resources based on risks, and inform and provide guidance to motorists. Phase I (Iowa and Michigan) and Phase II (Florida and New Jersey) have been completed.

Research thus far has demonstrated strong recognition among drivers regarding the most dangerous driving practices, yet significant complacency in their personal driving behaviors.



In Phase III the program was extended to New Mexico, Utah, Kentucky and Illinois and continues in the states in phases I and II. ~

**Research**

A number of new research projects were initiated and final reports completed during the period from July 2009 through January 2010.

**New Research Projects**

Access Management Performance Measures, Phase 2, Lester Hoel, University of Virginia

Calibrating Traffic Simulation Software Car-Following Models, Hesham Rakha, Virginia Tech

Driver Route Selection and Response to Traveler Information, Hesham Rakha, Virginia Tech

Evaluation of Lane-by-Lane Gap-out Feature for Actuated Traffic Signal Controller, Byungkyu (Brian) Park, University of Virginia

Evaluation of Remote Sensing Aerial Systems in Existing Transportation Practices, Yu Gu, West Virginia University

Evaluate Alternative Lane Management Strategies along I-81, Hesham Rakha, Virginia Tech

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**Sussman Gives Larson Lecture**

**Dr. Joseph M. Sussman** delivered the annual Thomas D. Larson Transportation Lecture to an enthusiastic audience at Penn State on December 8. An acknowledged visionary in the realms of education, research and national leadership, Sussman is the JR East Professor of Civil and Environmental Engineering and Engineering Systems at the Massachusetts Institute of Technology. His lecture, titled “Transportation in Contemporary Society: A Complex Systems Approach,” recognized the urgency of bold, informed direction to address the nation’s essential transportation needs.



Larson was a Penn State student, professor, and co-founder and director of the Larson Institute at Penn State before rising to statewide and national prominence and helping to shape the direction and management of the nation’s transportation system and policy in the Interstate era. The Larson Lecture recognizes his singular contributions to the field of transportation. ~

## ***TRB Student Showcase and Reception***

Penn State's Larson Institute hosted a student poster showcase and reception at TRB's annual meeting. Students from Penn State, Virginia Tech and the University of Virginia displayed posters illustrating their research funded by MAUTC as well as their respective state DOT agencies and other sponsors. This annual event is well attended and provides students the opportunity to talk about their research with other students, professors, and federal and state DOT representatives.

### **Virginia Tech**

Ahmed Amer, Ph.D. student: "A Behavioral Modeling Framework of Driver Behavior at the Onset of Yellow at Signalized Intersections"

Maha El-Metwally, MSCE student: "Capacity Drop at the Onset of Congestion and Start Loss"

Raj Kishore Kamalanathsharma, MSCE student: "Adaptive Preemption for Congested Corridors"

Weihao Yin, Ph.D. student: "Link States Relationship under Incident Conditions Using Dynamic Traffic Assignment"

Ismail Zohdy, MSCE student: "Empirical Analysis of Wait Time and Rain Intensity Effects on Driver Left-Turn Gap Acceptance Behavior"

### **University of Virginia**

Noah Goodall: "What Drives Single Occupant Traveler Decisions in HOT Lanes? An Investigation Using Archived Traffic and Tolling Data from the MNpass Express Lanes"

Joyoung Lee: "Autonomous Vehicles Based Intersection Control Under IntelliDrive"

Jeremy Schroeder: "Evaluation of Driver Reactions for Effective Use of Dynamic Message Signs"

### **Penn State**

Xiaochao Tang: "Geogrid Zone of Influence in Pavement Reinforcement"

Scott Himes: "Some New Insights on Design Consistency Evaluations of Two-Lane Highways"

Wen Hu: "Median Barrier Crash Severity: Some New Insights"

Kung-Feng Wu: "Naturalistic Driving Data Analysis - SHRP 2 S-01b"

Chen Chen: "Effect of Multiple Stops on Motor Carrier Hazard Rate"

Chao Xiao: "Evaluation of Technologies for Air Void Characterization in Concrete"

Zi Sang: "Determining More Effective Approaches for Grouting Shear Keys of Adjacent Box Beams"

Mohammad Sharafbayani: "Prediction of Movement and Stresses in Curved and Skewed Bridges: Development of Representative Bridges"

Abner Chen: "Prediction of Movement and Stresses in Curved and Skewed Bridges: Parametric Studies"

Nima Kargah-Ostadi: "Network-Level Pavement Roughness Model for Rehabilitation Recommendations"

Vishal Singh: "Area of Strain Gauge Response for Unbonded Concrete Overlays"

John Petro, Jr.: "Nondestructive Evaluation of Concrete using Hilbert-Huang Transformation"

Yaru Liu: "Facility Infrastructure Roadmap for Pennsylvania Department of Transportation Driver Licensing Centers"



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### ***New Research Projects (from page 2)***

Existing Right-Of-Way Plats Database Application (Phase I), Ali Hagani, University of Maryland

Geocomposite Interlayer Testing, Ghassan Chehab, Penn State

Improvement of Supervisory Control Intelligent Adaptive Module (SCIAM) for Intersection Safety and Efficiency, Montasir Abbas, Virginia Tech

Integration of Off-Ramp and Arterial Signal Controls to Minimize Recurrent Congestion on the Capital Beltway, G. L. Chang, University of Maryland

Internal vs. External On-premise Sign Lighting: Visibility and Safety in the Real World, Philip Garvey, Penn State

Investigating and Developing Alternative Transportation Safety Modeling Techniques, Hesham Rakha, Virginia Tech

Investigation of Connectivity between Major Freight Handling Facilities, Michael Demetsky, University of Virginia

Optimizing Vehicle Sharing Programs, Elise Miller-Hooks, University of Maryland

Supply Chain Management in Disaster Response, Ali Hagani, University of Maryland

Technology Evaluation on Characterization of the Air Void System in Concrete, Maria Lopez de Murphy, Penn State

## ***Contacts:***

### **Penn State**

**Dr. Martin T. Pietrucha, Executive Director**  
814-863-3954 / [mpietrucha@enr.psu.edu](mailto:mpietrucha@enr.psu.edu)

### **University of Maryland**

**Dr. Elise Miller-Hooks, Director**  
301-405-2046 / [elisemh@umd.edu](mailto:elisemh@umd.edu)

### **University of Virginia**

**Dr. Nicholas Garber, Director**  
434-924-6366  
[njg@virginia.edu](mailto:njg@virginia.edu)

### **Virginia Polytechnic Institute and State University**

**Dr. Hesham Rakha, Director**  
540-231-1505  
[rakha@vtti.vt.edu](mailto:rakha@vtti.vt.edu)

### **West Virginia University**

**Dr. David Martinelli, Director**  
304-293-3031, ext. 2676  
[David.Martinelli@mail.wvu.edu](mailto:David.Martinelli@mail.wvu.edu)

### **MAUTC Contact Information:**

**Janice Dauber, MAUTC Coordinator**  
814-863-5621  
[jdauber@enr.psu.edu](mailto:jdauber@enr.psu.edu)

## ***The MAUTC Partners:***

Penn State (lead)



University of Maryland



University of Virginia



Virginia Polytechnic Institute  
and State University



West Virginia University

## ***Strategic Alliances:***

University of Delaware



Morgan State University



University of Pennsylvania



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## ***Research (from page 3)***

### **Recent Final Reports**

*Development of Archiving and Data Fusion Strategies for Travel Time Data*, James Richardson and Brian L. Smith, University of Virginia. Co-sponsor: VDOT

*Field-Focused Superpave Validation*, Mansour Solaimanian and Scott M. Milander, Penn State. Co-sponsor: PennDOT

*Investigation of Speed Estimates Using Single Loop Detectors*, Jianhua Gao, Jingxin Xiz and Brian Smith, University of Virginia. Co-sponsor: VDOT

*Performance Evaluation of Dynamic Gap-Out Feature Using Stochastic Optimization Method and Software in the Loop Simulation*, Seli James Agbolosu-Amison and Byungkyu “Brian” Park, University of Virginia. Co-sponsor: VDOT

*Statewide Crash Analysis and Forecasting*, Paul Jovanis and Jonathan Aguero, Penn State. Co-sponsor: PennDOT

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*The Effects of Internally Illuminated On-premise Sign Brightness on Nighttime Sign Visibility and Traffic Safety*, Philip M. Garvey, Martin T. Pietrucha and Ivette Cruzado, Penn State. Co-sponsor: United States Sign Council



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## ***Student of the Year (from page 1)***

experience, and ability to master and extend advanced analytical techniques make him an extremely capable researcher. To put it simply, he is among the very best graduate students I have worked with in my decade at the university.”

Noah graduated from the University of Virginia in 2004 with a B.S. in Civil Engineering. As an undergraduate, he worked in the Smart Travel Laboratory as an undergraduate research assistant studying the effects of precipitation on highway speeds. From 2004 to 2008 Noah worked as an engineer with Parsons Brinckerhoff and Telvent Farradyne in the Washington, D.C. region on a variety of intelligent transportation systems consulting projects. 