

FHWA R&T Now

A news update of research, technology, and development from the U.S. Department of Transportation (USDOT), Federal Highway Administration (FHWA)

September/October 2016

POLICY & PARTNERSHIPS

FHWA Discusses Study on Future Interstate Highway System

On September 6, 2016, FHWA Administrator Greg Nadeau and Michael Trentacoste, FHWA's Associate Administrator for Research, Development, and Technology and the Director of the Turner-Fairbank Highway Research Center (TFHRC), participated in the inaugural meeting of the Transportation Research Board's (TRB) Committee for a Study of the Future Interstate Highway System. During the meeting, Nadeau and Trentacoste addressed the expectations of the study, especially in the context of U.S. Transportation Secretary Anthony Foxx's report, "Beyond Traffic: Trends and Choices," a 30-year outlook on the future of the Nation's infrastructure.

Topics of discussions included making places better and connecting communities; population growth, particularly in megaregions; alternative revenue sources; freight and future challenges of rural to megaregions transport; climate change and resiliency; and such evolving technologies as automated and connected vehicles.

As part of the Fixing America's Surface Transportation (FAST) Act (which authorizes 5 years of critically needed funding and key programs to improve the Nation's freight transportation system and U.S. economic competitiveness) and facilitated through a \$5 million cooperative agreement with FHWA, TRB is to conduct "... a study on the actions needed to upgrade and restore the [Interstate System] to its role as a premier system that meets the growing and shifting demands of the 21st century." The 14-member committee, chaired by Norman Augustine, former chairman and chief executive officer of Lockheed Martin Corporation, will develop its report over the course of the 30-month project and will meet regularly to hear from key stakeholder groups. Bud Wright of the American Association of State Highway and Transportation Officials (AASHTO) also addressed the panel. The FAST Act specifies that the study should consider the work done by States as part of the National Cooperative Highway Research Program project on the topic.

For more information, contact Hiwot Abdi, 202-493-3999, hiwot.abdi@dot.gov.

Stecker Recognized with Planning Discipline Lifetime Achievement Award

Sidney Stecker, who serves in FHWA's Office of Corporate Research, Technology, and Innovation Management at TFHRC, recently was awarded the Planning Discipline Lifetime Achievement Award for 2016. The Planning Leadership Council recognized Stecker because of his dedication to transportation planning and demonstrated leadership within the planning discipline throughout his



career with FHWA. A recognized leader in the planning discipline within Washington State, Stecker's institutional knowledge has been vital to successfully implementing planning improvements and enhancements.



Michael Trentacoste congratulates Sidney Stecker, who received the Planning Discipline Lifetime Achievement Award.

His planning career began in north central Washington over 30 years ago with a regional transportation planning organization, and over the last 17 years he has served as the Statewide Planner and Planning Program Manager in the Washington Division. Looking ahead, Stecker will provide leadership and support for FHWA's Federal-Aid State Planning and Research Program, Subpart B and national coordination for FHWA's Research and Technology program with FHWA Division Offices. He will also support FHWA's international research and technology partnership activities.

For more information, contact Jack Jernigan, 202-493-3363, jack.jernigan@dot.gov.

FHWA Attends RAC Meeting and TRB Committee Meetings

FHWA headquarters staff and staff from TFHRC attended the annual AASHTO Research Advisory Committee (RAC) meeting and related TRB committee meetings in Providence, RI. The RAC to the AASHTO Standing Committee on Research (SCOR) supports the activities of SCOR and is committed to being a proactive committee that promotes quality and excellence in research and in the application of research findings to improve State transportation

systems. Each AASHTO member department is represented on RAC and member departments receive State Planning and Research funds to conduct research to meet individual State needs. RAC is a critical partner in carrying out FHWA's research, technology, and education programs.

For more information, contact Jack Jernigan, 202-493-3363, jack.jernigan@dot.gov.

INFRASTRUCTURE

FHWA Hosts Biannual Workshop on AAR and ACMs

FHWA recently hosted its third biannual workshop on emerging developments related to alkali-aggregate-reaction (AAR) and alternative cementitious materials (ACMs) at TFHRC. The workshop offered a forum for practitioners and researchers to discuss and exchange information on mechanism, testing, and mitigation of AAR and emerging developments related to the use and proper proportioning of ACMs into concrete mixtures. Attendees and presenters included representatives from academia, industry, and several governmental agencies, including the Nuclear Regulatory Commission, the National Institute of Standards and Technology, the Bureau of Reclamation, the Department of Energy, the Volpe National Transportation System Center, and the Federal Highway Administration. This year's event drew the highest number of attendees to date. Proceedings from the workshop are being prepared by Volpe and will be available shortly for national distribution.

For more information, contact Ahmad Ardani, 202-493-3422, ahmad.ardani@dot.gov.

Lopez Wins 2016 Pavement and Materials Discipline Recognition Award

Aramis Lopez, a team leader in FHWA's Long-Term Pavement Performance (LTPP) Program, has won the 2016 Pavement and Materials Discipline Recognition Award. Lopez has had a distinguished 37-year career with FHWA, one



that has focused on pavement performance research for over 25 years. In 1991, Aramis helped transition management of the LTPP program from the National Academy of Sciences to FHWA and has continued to serve as a visionary leader, a highly effective manager, and a respected technical expert.



Aramis Lopez won the 2016 Pavement and Materials Discipline Recognition Award.

From 1992-2000, he served as the program manager for the field operation activities of the LTPP program and successfully coordinated and managed pavement distress data collection, the material testing program, and the design and implementation of the seasonal monitoring program for all LTPP study sites located throughout the United States and Canada. Since 2000 he has served as the LTPP Team Leader, providing exceptional leadership to press forward with pavement performance data collection activities, pavement data analysis, pavement product development activities, and the budget administration of the LTPP program.

For more information, contact Cara Fitzgerald, 202-493-3376, cara.fitzgerald@dot.gov.

FHWA Participates in SeeBridge Meeting

FHWA recently participated in the Semantic Enrichment Engine for Bridges (SeeBridge) meeting in Atlanta, GA. SeeBridge is an international consortium co-funded by FHWA via the Infravation research program. The project is expected to advance technology and methods in inspecting and modeling existing

bridges. Participants focused on updates concerning the use of point cloud data from photogrammetry, point cloud data from laser scans, technology demonstration, modeling, and identification of defects and damage to the bridge. Research partners and meeting participants include Technion-Israel Institute of Technology, Kedmor, Georgia Tech, Cambridge, the Technical University of Munich, Trimble, POINTIVO, the Georgia Department of Transportation, and FHWA.

For more information, contact Katherine Petros, 202-493-3154, katherine.petros@dot.gov.

OPERATIONS

Tech4Aging Task Force to Advance Technology for Aging Americans

FHWA's Mohammed Yousuf recently represented the U.S. Department of Transportation on the Task Force on Research and Development for Technology to Support Aging Adults (Tech4Aging). Established by the National Science and Technology Council (NSTC) Committee on Technology, the task force is expected to advance technology that enhances the ability of aging Americans to be independent and engage with society. It will advise and assist the Assistant to the President for Science and Technology and the Committee on Technology on science and technology policy, procedures, and plans related to research and development that will lead to technology development.

Tech4Aging aims to prepare a Federal Government research strategy that identifies key research and development priorities for technologies that support aging adults and their care providers in ensuring aging adults' healthy independence and social connections. The task force will identify gaps and opportunities in research and development that exist between and among Federal agencies and enhance collaboration between and among funding programs. It will report to the Committee on Technology and to the Assistant to the President for Science and Technology in accordance with



prescribed NSTC processes to summarize the activities of the task force and set forth recommendations regarding the establishment of Federal research and development priorities and specific agency activities.

For more information, contact Mohammed Yousuf, 202-493-3199, mohammed.yousuf@dot.gov.

Interchange Paper Emphasizing Land Savings Recognized by ITE

In August, staff from FHWA's Office of Operations Research and Development—Joe Bared, Cory Krause, and Christopher Melson—received the Traffic Engineering Council Best Paper Award at the Institute of Transportation Engineers (ITE) 2016 Annual Meeting and Exhibit in Anaheim, CA.



Staff from FHWA's Office of Operations Research and Development received the Traffic Engineering Council Best Paper Award.

Their winning paper, "Operational and Safety Characteristics of an Alternative Design, Space-Efficient One-Side Interchange," presents a unique, all-directional system interchange that emphasizes land savings. Operational and surrogate safety characteristics of the interchange were analyzed and compared to an equivalent cloverleaf interchange.

For more information, contact Christopher Melson, 202-493-327, christopher.melson@dot.gov.

FHWA Releases Final Draft of DSRC RSU Specification Version 4.1

On September 1, 2016, FHWA's Office of Operations Research and Development released the final draft of the Dedicated Short Range Communications (DSRC) Roadside Unit (RSU) Specification Version 4.1. This update to the specification was done to address the evolution of standards, new functionality needs based on deployment experience, and the latest generation of the Security Credential Management System requirements.

Stakeholder outreach was gathered from connected vehicle (CV) pilot sites in New York, Florida, and Wyoming, as well as from vendors of the DSRC RSU units themselves in July and August. These comments were incorporated into the final version of the 4.1 specification. This updated specification will be used by the CV pilots and the Smart City deployment to procure RSUs for deployment in 2017. A 6-week comment period began on September 1, 2016 to allow for corrections and clarifications. The final version of the DSRC RSU 4.1 Specification will be published in mid-October.

For more information, contact Deborah Curtis, 202-493-3267, deborah.curtis@dot.gov.

FHWA Presents at Innovations in Transportation Conference

FHWA's Taylor Lochrane recently discussed transportation mobility and connected automation at the Innovations in Transportation Conference in Ames, IA. His presentation highlighted research at TFHRC and provided an update on connected vehicle pilot deployment and the Smart City Challenge. The conference brings together transportation experts to identify and prepare for challenges such as autonomous and connected vehicles, three dimensional printing, robotics and artificial intelligence, societal changes, and challenges facing transportation agencies. Conference attendees included local county officials and representatives from the Iowa Department of Transportation, Iowa State University, the



Institute for Transportation, and FHWA's Iowa Division.

For more information, contact Taylor Lochrane, 202-493-3293, taylor.lochrane@dot.gov.

SAFETY

FHWA to Assist NTSB with Bus Crash Investigation

On May 14, 2016, nine people died and 45 were injured when a bus rolled over on U.S. Highway 83, near Laredo, Texas. FHWA's Office of Infrastructure Research and Development is helping the National Transportation Safety Board (NTSB) with its investigation of this tragedy. NTSB investigators have requested that FHWA provide technical assistance with evaluating the surface and material properties of the asphalt pavement the bus was traveling on. FHWA is currently waiting for authorization from NTSB to perform destructive testing of the pavement samples.

For more information, contact Mark Swanlund, 202-493-3070, mark.swanlund@dot.gov.

Value of HSIS Data Underscored in Contest

Mahdi Pour-Rouholamin, who recently earned his Ph.D. from the Department of Civil Engineering at Auburn University, won the inaugural Highway Safety Information System (HSIS) Research Paper Competition for "Analyzing the Severity of Motorcycle Crashes in North Carolina using HSIS Data." The paper focuses on analyzing HSIS motorcycle crash data from 2009 to 2013 to identify opportunities to help reduce the severity of injuries associated with single-vehicle, single-rider motorcycle crashes in North Carolina. These opportunities included safety awareness campaigns, educational efforts, and efforts by law enforcement. Pour-Rouholamin coauthored the paper with Mohammad Jalayer, another Ph.D. student in the Department of Civil Engineering at Auburn University.

Ali Ghasemzadeh, a Ph.D. student in civil engineering at the University of Wyoming, was awarded second place for "Work Zone Weather-Related Crash Characteristics and Injury Severity in North Carolina Using HSIS Dataset." M. Majbah Uddin, a graduate student in the Department of Civil and Environmental Engineering, University of South Carolina, achieved third place for "Factors Influencing Injury Severity of Crashes Involving Hazardous Materials."

HSIS is a safety database that contains crash, roadway inventory, and traffic volume data for a select group of agencies. It is used by FHWA staff, contractors, university researchers, and others to study current highway safety issues, direct research efforts, and evaluate the effectiveness of crash countermeasures.

"This is the first year of the HSIS Research Paper Competition," said FHWA Administrator Greg Nadeau, "and we were excited about the quality of all the student submissions we received. We look forward to continuing the competition and seeing this data utilized robustly for valuable research."

"This competition is an invaluable opportunity for both the individual student and the future of the profession, as HSIS is a powerful, free resource that can be utilized by anyone working to improve highway safety across the U.S.," said Michael Trentacoste, FHWA's Associate Administrator for Research, Development, and Technology and TFHRC's Director. "It inspires students to apply the academic study of highway safety data to real-world safety concerns, leading to solutions that will help save lives."

For more information, contact Carol Tan, 202-493-3315, carol.tan@dot.gov.



FHWA Releases 2016 Version of IHSDM

FHWA recently released version 12.0.0 of the Interactive Highway Safety Design Model (IHSDM), a suite of software analysis tools for evaluating safety and operational effects of project-level geometric design decisions on highways. The new version expands the IHSDM Crash Prediction Module by implementing draft Highway Safety Manual crash predictive methods for six or more lanes and one-way urban and suburban arterials developed under National Cooperative Highway Research Program Project 17-58. The software is available to download for free on the IHSDM Web site, www.ihsdm.org, which includes information related to case studies, past webinar materials, and frequently asked questions.

IHSDM, which supports the Data-Driven Safety Analysis initiative that is part of FHWA's Every Day Counts 3 efforts, includes six evaluation modules applicable to rural two-lane highways: crash prediction, design consistency, intersection review, policy review, traffic analysis, and driver/vehicle. The crash prediction module serves as a faithful implementation of the American Association of State Highway and Transportation Officials' Highway Safety Manual, Part C: Predictive Methods. The module deals with two-lane rural highways, multilane rural highways, urban and suburban arterials, freeways and ramps/interchanges.

On October 20, 2016, a webinar will be held from 1 to 2:30 p.m. (eastern daylight time) to introduce the new IHSDM Release. For further details, visit www.ihsdm.org. IHSDM training courses are available through the National Highway Institute. For a 2-day, onsite training course, visit http://www.nhi.fhwa.dot.gov/training/course_search.aspx?tab=0&key=IHSDM&sf=0&course_no=380071. For a Web-based, instructor-led course, visit http://www.nhi.fhwa.dot.gov/training/course_search.aspx?tab=0&key=IHSDM&sf=0&course_no=380100. IHSDM technical support is

available at IHSDM.Support@dot.gov and 202-493-3407.

For more information, contact Abdul Zineddin, 202-493-3288, abdul.zineddin@dot.gov.

Mercedes-Benz Demonstrates E Class Safety Technology

On September 13, 2016, Mercedes-Benz Research & Development North America, Inc. provided a 1-day ride and drive event to demonstrate its new E Class Safety Technology, which includes a number of driver assistance systems. The Driver Assistance Package includes capabilities such as Drive Pilot, which allows a vehicle to maintain appropriate speeds, following distances from other vehicles, and lane position. Also included are Active Braking Assist, Active Blind Spot Assist, and Autonomous Lane Change. Together these capabilities provide automated functions to assist with safe driving. The demonstration was held at the Federal Law Enforcement Training Center in Cheltenham, MD under a Memorandum of Agreement (MOA) between FHWA and the Department of Homeland Security. On October 1, 2014, TFHRC established the MOA for testing and evaluating connected automation applications.

For more information, contact Carl Andersen, 202-493-3045, carl.andersen@dot.gov.

ASA Posts FHWA Publications on its Website

The American Statistical Association (ASA) recently posted two FHWA publications—"Safety Evaluation of Continuous Green T Intersections" and "White Paper: Enhancing Statistical Methodologies for Highway Safety Research—Impetus from FHWA"—on its website. The postings mark the beginning of an effort to market highway safety to statistical communities for the future development of highway-specific methodology developments based on crash data. FHWA has been working with ASA to advance statistical rigor in safety-focused research and also draw the attention of statisticians to the transportation safety



domain. This recognition from ASA affirms the importance of FHWA's work and helps connect the safety and statistical communities.

The publications are available at www.amstat.org/misc/1-Continous-Green-T-Intersections.pdf and www.amstat.org/misc/2012-statistical-methodologies.pdf.

For more information, contact Roya Amjadi, 202-493-3383, roya.amjadi@dot.gov.

RECENT PERIODICALS

Public Roads—September/October 2016

This issue includes: Building a Culture of Innovation; The Power of Inclusion; Harnessing Technology to Ease the Way; A Great Day in America: USDOT's 50th Anniversary; How to Make Better Decisions on Addressing Pavement Needs; Big Data; and Where Were You Looking?

It is available online via www.fhwa.dot.gov/publications/publicroads/16sepoct/index.cfm.

For more information, contact Lisa Shuler, lisa.a.shuler@dot.gov.

Innovator: Accelerating Innovation for the American Driving Experience—September/October 2016

This issue includes: Fall Summits Introduce Every Day Counts Round Four; Agencies Use Data to Target Safety Investments; National Network Key to Transportation Innovation Culture; Ultra-High Performance Concrete Gains Strength in States; Ready to Innovate?; States Innovate!; and Events.

The issue is available online via <http://www.fhwa.dot.gov/innovation/innovator/issue56/3dissue/>.

For more information, contact Julie Zirlin, at Julie.Zirlin@dot.gov.

LINKS

Turner-Fairbank Highway Research Center:
www.fhwa.dot.gov/research/

Resource Center:
www.fhwa.dot.gov/resourcecenter/

National Highway Institute:
www.nhi.fhwa.dot.gov/home.aspx

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