

# FHWA R&T Now

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

**July 2014**

## GENERAL/ADMINISTRATIVE

### **President Barack Obama and Secretary of Transportation Anthony Foxx Visit Turner-Fairbank Highway Research Center**

On July 15, 2014, U.S. President Barack H. Obama and Secretary of Transportation Anthony J. Foxx visited the Federal Highway Administration's Turner-Fairbank Highway Research Center (TFHRC) to speak about the importance of transportation, new technology, and infrastructure. While at the facility, the President visited the Human Factors Laboratory and Saxton Transportation Operations Laboratory and spoke to employees and the Nation.



Michael Trentacoste, director of Turner-Fairbank Highway Research Center and Associate Administrator of Research, Development, and Technology, shakes President Obama's hand.

Photos of the event are available at

[http://www.fhwa.dot.gov/research/resources/obama\\_visits\\_tfrc.cfm](http://www.fhwa.dot.gov/research/resources/obama_visits_tfrc.cfm). To read President Obama's remarks, visit <http://www.whitehouse.gov/the-press-office/2014/07/15/remarks-president-economy-mclean-va>.

### **USDOT Awards \$10.32 Million in UTC Grants**

The U.S. Department of Transportation (USDOT) Office of the Assistant Secretary for Research and Technology announced a total of \$10.32 million in grants to two University Transportation Centers (UTCs) to advance research and education programs that address critical transportation challenges facing our nation. The University of Virginia and the University of Washington will each receive \$5.16 million for fiscal years 2013 and 2014 as part of the UTC program authorized by Congress under the Moving Ahead for Progress in the 21st Century Act. UTCs conduct research that directly support the priorities of the USDOT to promote the safe, efficient, and environmentally sound movement of goods and people. To see the complete list of UTC recipients, visit [www.rita.dot.gov/utc/about/grant\\_recipients/html/2013\\_grant\\_recipients.html](http://www.rita.dot.gov/utc/about/grant_recipients/html/2013_grant_recipients.html). For more information, contact Nancy Wilochka, 202-366-5128, [nancy.wilochka@dot.gov](mailto:nancy.wilochka@dot.gov).



## **TFHRC Ramps Up Learning Center Opportunities**

On June 26, 2014, TFHRC hosted nearly 100 Virginia Department of Transportation (VDOT) associates, interns, and scholars. VDOT has three learning programs: the Internship Program, the Scholarship Program, and the Core Development Program.

The Internship Program introduces students to the importance of public service and transportation. The Scholarship Program provides civil engineering students with an opportunity to gain valuable work experience. The Core Development Program cultivates technical, leadership, and core competencies for long-term success and exposes associates to the diverse types of work the agency performs.

Program participants toured TFHRC's laboratories and had the opportunity to learn from FHWA engineers and scientists. The tour was intended to expand their knowledge, help them better understand their duties at VDOT, and broaden their focus on transportation challenges nationwide.

For more information, contact TaMara McCrae, 202-493-3382, [tamara.mccrae@dot.gov](mailto:tamara.mccrae@dot.gov).

## **ADVANCED RESEARCH**

### **EAR Program Funds Research on Cooperative Highway and Vehicle Systems**

The Exploratory Advanced Research (EAR) Program has funded six new research projects as part of a federal research and development investment in cooperative highway and vehicle systems. The research

is supported or conducted by FHWA's Office of Operations Research and Development (R&D), Office of Safety R&D, Office of Operations, Office of Safety, and the Intelligent Transportation System (ITS) Joint Program Office.

Over the next 5 to 10 years, the EAR Program anticipates a successful demonstration and adoption of current technology systems into highway transportation. These projects focus on the development of new technologies and approaches that would supplement currently projected systems.

The scope of these projects includes the development of operational scenarios based on Cooperative Adaptive Cruise Control (CACC) and real-time traffic management concepts; development of a generalizable tool to facilitate hardware-in-the-loop simulation of connected vehicle technologies; development of new methods for obtaining real-time data to support automated systems; and new operating concepts for truck platooning through CACC that can provide value within the context of specific roadway types or operating conditions.

Investigators are from the University of California, Berkeley; the University of Minnesota; Texas A&M University; Honeywell ACS; the California Department of Transportation; and Auburn University.

For more information regarding these projects, contact Robert Ferlis, 202-493-3268, [robert.ferlis@dot.gov](mailto:robert.ferlis@dot.gov). For more information about the EAR Program, contact David Kuehn, 202-493-3414, [david.kuehn@dot.gov](mailto:david.kuehn@dot.gov).

## **Fact Sheet: Understanding Material Durability—Workshop Examines Aging of Composite Materials**

Corrosion decay is an expensive and ongoing challenge throughout the U.S. highway network. To mitigate this problem, advanced composite materials are used in a wide range of infrastructure applications. These materials are lightweight, high-strength and offer high-fatigue and corrosion resistant properties. Accurately understanding how these materials degrade and age over time is critical for safe and economical implementation. This fact sheet discusses a 2-day workshop on the aging of composite materials, held September 25 and 26, 2013 at the National Transportation Safety Board Training Center in Ashburn, VA.

The document is available at [www.fhwa.dot.gov/advancedresearch/pubs/14068/index.cfm](http://www.fhwa.dot.gov/advancedresearch/pubs/14068/index.cfm). For more information, contact David Kuehn, 202-493-3414, [david.kuehn@dot.gov](mailto:david.kuehn@dot.gov).

## **INFRASTRUCTURE**

### **FHWA Demos RABIT™ Bridge Deck Assessment Tool for PennDOT**

On June 12, 2014, FHWA demonstrated the capabilities of the Long-Term Bridge Performance (LTBP) Program's RABIT™ bridge deck assessment tool to officials and engineers from the Pennsylvania Department of Transportation (PennDOT).

In partnership with staff from Rutgers University and Penonni Associates, staff from TFHRC demonstrated RABIT™ on PennDOT's Ewing Mill Road/Hassam Road Bridge near Pittsburgh, PA. The RABIT™ assessment tool traversed the structure twice, collecting data on one full lane of the

two-lane concrete bridge deck in about 45 minutes. Using conventional methods, the assessment would have taken eight times longer, according to PennDOT District 11 Bridge Engineer Lou Ruzzi. TFHRC staff briefed PennDOT staff on the LTBP Program and demonstrated how the tool would be used in the LTBP study to collect data on concrete bridge decks.

The RABIT™ tool can collect a wide range of data simultaneously—high-resolution photographic, electromagnetic, seismic, and electrical—on external and internal bridge deck conditions. The data collected is transmitted wirelessly to computers in a nearby control center for processing, analysis, and display in near real-time.

For more information about the RABIT™ bridge deck assessment tool, visit [www.fhwa.dot.gov/research/tfhrc/programs/infrastructure/structures/ltpb/ltpbpresearc/h/rabit/index.cfm](http://www.fhwa.dot.gov/research/tfhrc/programs/infrastructure/structures/ltpb/ltpbpresearc/h/rabit/index.cfm). For information on the LTBP Program, contact Hamid Ghasemi, 202-493-3024, [hamid.ghasemi@dot.gov](mailto:hamid.ghasemi@dot.gov).

### **Report: An FHWA Special Study: Post-Tensioning Tendon Grout Chloride Thresholds**

Elevated levels of chloride were found in a commercially pre-bagged grout powder made for grouting tendons in post-tensioned (PT) bridges. These chloride values exceed the current limits set by all of the domestic and international regulatory committees. A chloride threshold is defined as a minimum chloride concentration needed to induce corrosion. In literature, there is limited information pertaining to the actual chloride threshold of seven-wire PT strands. FHWA sponsored a 6-month accelerated corrosion testing program to



determine chloride thresholds of PT strands exposed to varying quantities of chloride-contaminated grout in ducts to simulate field conditions. This report discusses the testing program and presents two chloride threshold values determined for PT strands that are fully encased in this grout.

This document is available at [www.fhwa.dot.gov/publications/research/infrastructure/structures/bridge/14039/index.cfm](http://www.fhwa.dot.gov/publications/research/infrastructure/structures/bridge/14039/index.cfm). For more information, contact Paul Virmani, 202-493-3052, [paul.virmani@dot.gov](mailto:paul.virmani@dot.gov).

#### **Report: Corrosion Monitoring Research for City of New York Bridges**

Cable suspension bridges are essential components in the transportation networks of large metropolitan areas, such as the City of New York, and their serviceability is extremely important for economic and societal growth. The safety of such structures is closely linked to the safety performance of the cable supported system and, in particular, of their main cables.

Currently all State and local agencies base their maintenance plan mainly on previous experience and on limited visual inspection of the exterior and sometimes the interior of the cable. This report presents the results of a study aimed at developing a corrosion monitoring system for main cables of suspension bridges. The document will be of interest to highway managers; engineers involved in design, construction, and operations; and researchers.

It is available at [www.fhwa.dot.gov/publications/research/infrastructure/structures/bridge/14023/index.cfm](http://www.fhwa.dot.gov/publications/research/infrastructure/structures/bridge/14023/index.cfm). For more information, contact

Paul Virmani, 202-493-3052, [paul.virmani@dot.gov](mailto:paul.virmani@dot.gov).

#### **SAFETY**

#### **Report: Guidelines for the Implementation of Reduced Lighting on Roadways**

The guidelines presented in this report address the need to maintain the safety effects of roadway lighting while alleviating the budgetary strains associated with the maintenance of the lighting infrastructure. The report establishes a new set of criteria for practitioners to apply to their roadway environment that will identify appropriate lighting levels for given roadway characteristics and usage. Specifically, these guidelines identify the appropriate applications of adaptive lighting on roadways while maintaining an optimal level of safety.

This document is available at [www.fhwa.dot.gov/publications/research/safety/14050/index.cfm](http://www.fhwa.dot.gov/publications/research/safety/14050/index.cfm). For more information, contact Craig Thor, 202-493-3338, [craig.thor@dot.gov](mailto:craig.thor@dot.gov).

#### **OPERATIONS**

#### **FHWA and AASHTO Discuss National Connected Vehicle Field Infrastructure Footprint Analysis**

On June 24, 2014, FHWA and the American Association of State Highway and Transportation Officials (AASHTO) discussed the National Connected Vehicle Field Infrastructure Footprint Analysis at the Integrated Corridor Transportation Management System Workshop and Joint Midyear Meeting of Transportation Research Board Committees.

A joint effort between FHWA and AASHTO, the analysis is focused on the development of a deployment footprint and plan that will describe the need for connected vehicle infrastructure; the form that the infrastructure should take; where and when the infrastructure should be deployed; and the cost, organizational, and institutional implications of deploying the infrastructure. The analysis is expected to result in a policy foundation for a connected vehicle environment.

More information about the event is available at <http://www.cvent.com/events/integrated-corridor-transportation-management-workshop-and-joint-midyear-meetings-of-sponsoring-trb-/event-summary-f99c82596e6d4d7f8b5b9591d574f57c.aspx> and by contacting Jon Obenberger, 202-493-3265, [jon.obenberger@dot.gov](mailto:jon.obenberger@dot.gov). For more information about the Footprint Analysis, contact Ben McKeever, 202-493-3270, [ben.mckeever@dot.gov](mailto:ben.mckeever@dot.gov).

## RECENT PERIODICALS

### *Public Roads—May/June 2014*

This issue includes: Neighbors Helping Neighbors; Predicting Your Pavement's Future; Engineering Scenic Highways; Why Did the Pedestrian Cross the Road?; and Transportation Gets Social.

It is available online via [www.fhwa.dot.gov/publications/publicroads/14mayjun/index.cfm](http://www.fhwa.dot.gov/publications/publicroads/14mayjun/index.cfm). For more information, contact TaMara McCrae, [tamara.mccrae@dot.gov](mailto:tamara.mccrae@dot.gov).

### *Innovator: Accelerating Innovation for the American Driving Experience—May/June 2014*

This issue includes: Ready to Innovate?; Join the Innovation Movement; States Innovate!; Alternative Technical Concepts; Delivery Method Slices a Year from Schedule; STIC Incentives Help States Fund Innovation Deployment; Innovation Hat Trick; Ohio Tries Time-Saving Thermal Integrity Profiling; and Calendar.

The issue is available online via [http://www.fhwa.dot.gov/hfl/innovator/e-version/issue\\_42/](http://www.fhwa.dot.gov/hfl/innovator/e-version/issue_42/). For more information, contact Kathleen Bergeron, [kathleen.bergeron@dot.gov](mailto:kathleen.bergeron@dot.gov).

## Links:

Turner-Fairbank Highway Research Center: <http://www.fhwa.dot.gov/research/>  
Resource Center: <http://www.fhwa.dot.gov/resourcecenter/>  
National Highway Institute: <http://www.nhi.fhwa.dot.gov/home.aspx>

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