

Turner-Fairbank Highway Research Center

Lyle Saxton Receives Lifetime Achievement Award

On September 7, 2014, Lyle Saxton—the namesake for FHWA's Saxton Transportation Operations Laboratory—received a Lifetime Achievement Award at the 2014 ITS World Congress in Detroit, MI. Saxton worked for FHWA for 27 years and ended his career as Director of the Office of Safety and Traffic Operations R&D at TFHRC. He was an industry leader in some of the earliest ITS, including today's global positioning system navigation and information systems.

He also led research activities at the onset of the national Intelligent Vehicle Highway Society of America, which set the direction for current national programs. "He has truly helped pave the way for a generation of transportation innovators who will continue to make life better for future generations," said ITS America President and CEO Scott Belcher.



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U.S. Secretary of Transportation Anthony Foxx greets President Obama outside of the Saxton Laboratory Test Vehicle Garage at TFHRC. The President gave a speech on the importance of investing in transportation infrastructure and technologies.

National Leadership Visits the Saxton Laboratory

It was a busy summer at the Federal Highway Administration's (FHWA) Turner-Fairbank Highway Research Center (TFHRC). A debate in Congress to address the Highway Trust Fund shortfall sparked national interest in the importance of transportation infrastructure and research and brought government officials at the highest levels to TFHRC.

On July 15, 2014, U.S. President Barack Obama and Secretary of Transportation Anthony Foxx visited FHWA's Office of Operations Research and Development (R&D) Saxton Transportation Operations Laboratory (Saxton Laboratory) and its Test Vehicle Garage at TFHRC. During their tour of the Saxton Laboratory, the President and Secretary learned about past and ongoing FHWA research on vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) communications. Specific topics included truck platooning, eco-approach and departure at signalized intersections, and speed harmonization.

FHWA Office of Operations R&D Director Joe Peters explained how these technologies could provide significant mobility, safety, and environmental benefits that could transform the way transportation performs in the future. Making these applications available in the marketplace starts with conducting R&D to fully explore the challenges and opportunities associated with the technologies.

President Obama and Secretary Foxx also visited the laboratory's Test Vehicle Garage, where they were able to see the technologies that enable V2V and V2I communications. FHWA's Taylor Lochrane described the capabilities of TFHRC's research vehicle fleet, which include the latest in-vehicle safety technologies and enabling technologies for connected automation research. *(continued on next page)*



President Obama poses in the Saxton Laboratory with members of the Operations R&D Team.

“I just got a tour of a lab where automakers and government researchers team up to create new technologies that help cars communicate with the world around them and with each other.”

President Obama, in his speech at TFHRC

Who Has Visited the Saxton Laboratory?

The Saxton Laboratory hosted over 140 visitors this summer, including dignitaries such as:

- President Barack Obama.
- USDOT Secretary Anthony Foxx.
- Assistant Secretary Greg Winfree, USDOT Office of Research and Technology.
- Thomas Power, Deputy Chief Technology Officer, Telecommunications, White House Office of Science and Technology Policy.

In addition, visitors included Congressional staff from the House Science and Technology and House Transportation and Infrastructure Committees and delegates from a number of USDOT partner and stakeholder organizations, including the Federal Communications Commission, AASHTO, ITE, ITS America, and the Office of the Inspector General.

The visitors were briefed on the various research activities currently underway at the Saxton Laboratory and were offered live demonstrations of state-of-the-art V2V and V2I technologies.



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National Leadership Visits the Saxton Lab (cont'd)



Joe Peters, FHWA Office of Operations R&D Director, explains to the President how ongoing FHWA connected automation research strives to combat the Nation's growing congestion problem.

Telecommunications for the White House Office of Science and Technology Policy, and U.S. Department of Transportation (USDOT) Assistant Secretary Greg Winfree, accompanied by Jim Arnold, USDOT's expert on Dedicated Short Range Communications (DSRC) and an alumnus of TFHRC, visited to discuss with FHWA and the National Highway Traffic Safety Administration plans for testing the potential interference of unlicensed Wireless Fidelity (Wi-Fi) devices operating in and near the 5.9 gigahertz DSRC band.

The group toured the Saxton Laboratory, where they discussed ongoing research, including the use of both in-vehicle and roadside DSRC radios for applications such as Curve Speed Warning, Truck Platooning, and Eco-Approach and Departure at a Signalized Intersection. As part of the tour, they rode in a test vehicle that demonstrated curve speed warning and the power of DSRC as a critical enabler of V2V safety applications. With a combined understanding and hands-on experience of the active and planned uses of the DSRC band, policymakers are better equipped to develop appropriate guidance and legislation surrounding the spectrum.

Finally, on August 13 and 14, 2014, respectively, staff from the House Committee on Science, Space, and Technology, Subcommittee on Research and Technology, and the House Committee on Transportation and Infrastructure, Subcommittee on Highways and Transit toured TFHRC and the Saxton Laboratory. The visitors were interested in learning about the ongoing FHWA operations research that the President discussed during his visit and how research lays the groundwork for nationwide deployment of innovative technologies.

For more information on these visits, contact Joe Peters at joe.peters@dot.gov.

National Operations Center of Excellence Visits TFHRC

On August 27, 2014, FHWA's Office of Operations R&D hosted a meeting at TFHRC with representatives from the American Association of State Highway and Transportation Officials (AASHTO), the Institute of Transportation Engineers (ITE), and the Intelligent Transportation Society (ITS) of America to discuss the future National Operations Center of Excellence (NOCoE). A joint venture of AASHTO, ITE and ITS America, NOCoE receives funding from FHWA and provides technical support to States through a Web site, Webinars, workshops, and summit. *(continued on next page)*

After his tour of TFHRC, which included a visit to the Office of Safety R&D's Human Factors Laboratory and a drive in the Highway Driving Simulator vehicle, the President spoke to FHWA employees and contractors about the importance of investing in transportation infrastructure and technologies. "I just got a tour of a lab where automakers and government researchers team up to create new technologies that help cars communicate with the world around them and with each other. They can tell you if an oncoming vehicle is about to run a red light, or if a car's coming around a blind corner, or if a detour will help you save some time and gas," he said.

Following the President and Secretary's visit, additional Federal and Congressional agencies arranged tours of TFHRC and the Saxton Laboratory. On August 6, 2014, Tom Power, the Deputy Chief Technology Officer of



FHWA's Taylor Lochrane shows the President the connected automation technologies built into FHWA's research vehicle fleet.

The purpose of the meeting was to discuss opportunities to incorporate FHWA operations research into NOCoE activities and resources. The goal of NOCoE is to both promote and improve best practices for systems operations and management for practitioners, policymakers, and researchers. NOCoE will also eventually establish programs and support activities in the areas of transportation systems management and operations, freight operations, and security and emergency management (see <http://www.aashtojournal.org/Pages/060614CenterOfOperations.aspx>).

The visitors from NOCoE toured the Saxton Laboratory, where Joe Bared, Team Leader of FHWA's Office of Operations R&D Transportation Operations Concepts and Analysis Team, gave a presentation on FHWA research projects to assess the impacts of innovative roadway designs and traffic management concepts via modeling and simulation.

The visit established a relationship of ongoing coordination between FHWA's Office of Operations R&D and NOCoE. The future NOCoE Executive Director (once selected) will return to TFHRC to continue discussions on opportunities for collaboration.

For more information, contact Ben McKeever at ben.mckeever@dot.gov.

FHWA Operations R&D Participates in Automated Vehicles Symposium

From July 14 to July 17, 2014, FHWA's Office of Operations R&D staff participated in the Automated Vehicles Symposium in San Francisco, CA. The event, which was sponsored by the Transportation

Research Board and the Association for Unmanned Vehicle Systems International, included 10 breakout sessions. FHWA's Bob Ferlis co-moderated the session, "Near-Term Connected/Automated Technology Deployment Opportunities." The breakout session was organized into three sequential panel discussions: Technology, Innovators, and Early Deployment. The breakout session concluded with a large group discussion to summarize findings and key takeaways.

FHWA's Osman Altan participated in the separate breakout session, "Truck Automation Opportunities," where he presented on FHWA's ongoing truck platooning research. FHWA is currently funding two Exploratory Advanced Research Program projects on truck platooning to develop and test an experimental truck platooning system and gather feedback from the trucking industry on key issues associated with the concept.

In addition, FHWA's Office of Operations R&D staff presented a poster on connected automation research, which included an overview of Saxton Laboratory facilities and research projects on eco-approach and departure at signalized intersections, developing a platform technology for connected automation research, and cooperative adaptive cruise control (CACC) and truck platooning. Altan also presented a poster on FHWA's Partial Automation for Truck Platooning project, which he coauthored with California Partners for Advanced Transportation Technology and the California Department of Transportation.

To view the full proceedings from both breakout sessions and the posters, visit the symposium's Web site at <http://www.auvsi.org/avs2014/home/>. For more information, contact Bob Ferlis at robert.ferlis@dot.gov.

FHWA Partners with the Federal Law Enforcement Training Center

FHWA signed a memorandum of agreement with the U.S. Department of Homeland Security, Federal Law Enforcement Training Centers (FLETC), Office of Cheltenham Operations, allowing FHWA to use and occupy land owned by the FLETC facility in Cheltenham, Maryland. The 372-acre facility, located 15 miles from downtown Washington, DC, offers law enforcement officers from over 76 agencies in the metropolitan area a place to maintain their firearm and vehicle operations skills, as well as broaden and formalize their knowledge and skills associated with contemporary law enforcement responsibilities. The FLETC facility includes a 2.2-mile driver range for testing skid control, non-emergency vehicle operations, highway response, and urban grid. FHWA plans to use this range, which offers a secure and closed environment, to conduct vehicle testing for an upcoming study on CACC.

For more information, contact Taylor Lochrane at taylor.lochrane@dot.gov.



TFHRC's Bob Ferlis and Osman Altan present a poster on FHWA's Connected Automation Research at the Automated Vehicles Symposium.

Recent Presentations

Accessible Transportation Research

On August 26, 2014, FHWA's Mohammed Yousuf presented at the ITS Heartland Conference in Branson, MO. During the session, "Transit's Role in Advancing Mobility for All," Yousuf discussed the Accessible Transportation Technologies Research Initiative, which will focus on improving the mobility of travelers with disabilities using ITS and technology.

For more information, contact Mohammed Yousuf at mohammed.yousuf@dot.gov.

Public Meeting on V2I Deployment Guidance

On September 12, 2014, FHWA and ITS JPO conducted a meeting to seek stakeholder input on draft FHWA guidance on V2I deployment and on forming a coalition to support implementation. The meeting was aimed at State and local departments of transportation, transit and other operating agencies, and infrastructure owners who are starting to plan for the deployment and use of connected vehicle technologies in their area. It was also open to other stakeholders in the connected vehicle community, including national associations and the general public. Inputs gathered during the meeting will be used to inform FHWA guidance on V2I deployment, which is due out in late 2015.

For more information, contact Ben McKeever at ben.mckeever@dot.gov.



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Staff Updates



Dr. Govind Vadakpat joined the Transportation Operations Applications Team as a Research Transportation Specialist. He has a Ph.D. in Civil Engineering from Pennsylvania State University and over 15 years of practical experience as an ITS and traffic engineer.



Dr. Jia Hu is joining the Office of Operations R&D as a research associate through the National Research Council. His initial research at FHWA will be on minimizing fuel consumption and improving mobility of adaptive cruise control-equipped vehicles in platoons.



Michael Maness, a Ph.D. candidate at the University of Maryland, completed his 1-year assignment as a Graduate Research Fellow with FHWA in August. He performed research on Active Transportation and Demand Management methodology and dynamic junction control.



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Research Data Exchange Release 2.0 Goes Live: Try it Out!

On July 1, 2014, USDOT launched Release 2.0 of the Research Data Exchange, a Web-based data resource provided by the USDOT's Real-Time Data Capture and Management Program. Jointly developed and managed by FHWA and ITS JPO, the Research Data Exchange collects, manages, and provides archived and real-time multisource and multimodal data to support the developing and testing of ITS applications. The two new data environments in Release 2.0 include real-time connected vehicle weather and engine status data from the Minnesota Department of Transportation's maintenance vehicles, available with a real-time user interface, and multimodal connected vehicle data from the Safety Pilot Model Deployment in Ann Arbor, MI.

In addition, the Research Data Exchange features a new user interface and downloading capabilities. To explore the data and resources that are available and learn more about the features included in Release 2.0, visit <http://www.its-rde.net>. For more information, contact Gene McHale at gene.mchale@dot.gov.



The Research Data Exchange collects real-time multimodal data from numerous sources across the country.

Connected Vehicle Field Infrastructure Footprint Analysis Now Available

In partnership with Transport Canada and AASHTO, and in cooperation with other nationwide stakeholders, USDOT conducted analyses leading to a preliminary general concept of a National Connected Vehicle Field Infrastructure Footprint. The purpose of the Footprint Analysis is to provide a vision for a fully deployed infrastructure footprint, to identify the activities and project timelines needed to achieve that footprint, and to estimate costs associated with deployment. The Footprint Analysis final report is a useful resource to help those considering V2I deployment and to leverage developments in V2V communications.

The final report is available at http://ntl.bts.gov/lib/52000/52600/52602/FHWA-JPO-14-125_v2.pdf. For more information, contact Ben McKeever at ben.mckeever@dot.gov.

FHWA Cofosts Webinar on Connected Vehicles Pilot Deployments

On September 19, 2014, FHWA's Ben McKeever and ITS JPO's Walt Fehr cofosted a Webinar for USDOT's Connected Vehicles Pilot Deployment Program, "Communications and the Role of DSRC." The Program seeks to combine connected vehicle and mobile device technologies in innovative and cost-effective ways. Ultimately, this program will improve traveler mobility and system productivity while reducing environmental impacts and enhancing safety. USDOT anticipates a procurement action for multiple pilot deployment concepts in 2015.

The second in a series, the Webinar included an overview of the Connected Vehicle Pilot Deployment Program, connected vehicle communication technologies, and the role of DSRC in connected vehicle pilots. It also included a stakeholder question and answer session.

For more information about the Webinar, contact Ben McKeever at ben.mckeever@dot.gov. To learn more about the Connected Vehicle Pilots Deployment Program, visit <http://www.its.dot.gov/pilots/index.htm>.

Research Vehicle Fleet Upgraded

FHWA's Office of Operations R&D recently outfitted its research vehicle fleet, which includes five Cadillac SRX Crossover vehicles equipped with the latest in-vehicle safety technologies, with automated longitudinal and speed control for further testing of connected automation applications. Once the upgraded vehicle platform is finalized, FHWA will begin implementing and testing CACC for the five-vehicle fleet. The speed controller available on the platform allows researchers to develop applications where the brake and throttle control is automated. In addition, the vehicles will use DSRC and cellular communications to share speed, heading, location, and gap information between vehicles to achieve smooth operation of a CACC platoon. For more information, contact Taylor Lochrane at taylor.lochrane@dot.gov.

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