

FHWA R&T NOW

A newsletter about research, development, and technology (RD&T) at the U.S. Department of Transportation's (USDOT) Federal Highway Administration (FHWA).

Research

New Artificial Intelligence (AI) and Machine Learning (ML) Laboratory Will Drive Innovation

By Craig Thor, Chief Scientist, Office of RD&T

As transportation data abounds, the FHWA is learning to harness these vast amounts of data through new analytical methods to solve transportation problems. FHWA is building a new laboratory called the Path to Advancing Novel Data Analytics (PANDA) Laboratory to use AI and ML to look at transportation challenges in new ways.

What engineers consider transportation data has grown beyond crash reports and roadway geometries. Today, transportation data also includes nontraditional data, such as infrastructure sensor, weather, social media, and cooperative driving sensor data. Furthermore, research and development projects funded through the Turner-Fairbank Highway Research Center (TFHRC) are increasingly employing advanced analytical techniques to address transportation related questions—even when these techniques were not specifically requested. This trend has encouraged FHWA to build up its in house capabilities related to data science and analytics.

Located at TFHRC, the PANDA Laboratory will be a flexible platform for conducting advanced analytics with established AI and ML tools. AI is an incredibly potent emerging technology, offering significant opportunities as well as challenges. With the PANDA Laboratory, FHWA seeks to explore the use and advancement of AI while considering how to responsibly engage with it. The long-term goal is to make the PANDA Laboratory's advanced analytic tools available for everyone at FHWA to use in support of all the program areas. FHWA envisions a future PANDA Laboratory as a space where transportation professionals can use a state-of-the-art suite of analytical tools. For the first time, researchers will have easy access to these tools to analyze large and combined datasets using AI, ML, and computer vision algorithms in new ways.

As part of building experience and data science skillsets, TFHRC researchers are working to understand tools and platforms. Future research projects are on the horizon to look at new and different data in new and different ways. AI algorithms can try to find relationships among these data—and perhaps, in the future, offer additional perspectives for research projects.

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Source: FHWA.

Excavating a bench at the top of the west cut at the Pretty Rocks Landslide.

Federal Lands Highway (FLH) Launches New Innovation and Research (I&R) Program

By Karyn Vandervoort, National Program Manager, I&R Program, Office of FLH

Road construction and maintenance on Federal lands provide unique challenges in rugged terrains, such as working around mudslides and rockslides or keeping vehicles on a park road with sheer drop-offs while preserving a scenic view.

Wild areas may require incorporating the safety of wildlife into road design, inspecting a bridge on the precipice of a canyon, or monitoring the conditions of thousands of miles of rural, low-volume Federal roads.

Chartered in 2021, the FHWA Office of FLH I&R Program's mission is to work with Federal land management agencies (FLMAs) to find solutions to design challenges in natural spaces by collaborating across agencies, leveraging resources, and transferring technologies. This research program is a natural expansion and outflow of FLH's 40-year relationship with FLMAs. The partnership provides a platform for cross-agency investment and technology transfer to the broader FHWA RD&T Program.

A gleaming example of this type of industrious research in practice is the [Polychrome Area Improvements Project](#) in Alaska's Denali National Park and Preserve, where an approximately 470-foot-long bridge will be needed to span the active Pretty Rocks Landslide, which has dropped more than 30 feet in elevation (Larsen and Stokes 2022). Earthwork, horizontal drains, and a possible retaining wall will likely be needed for the

Perlite Landslide on the east side of the Pretty Rocks Landslide (FHWA n.d.).

The project has been inaccessible to the public due to an ongoing landslide movement that closed a section of the 92.5-mile Denali Park Road to traffic.

The project uses alternative contracting methods (construction manager/general contractor) and is incorporating unique project elements, including the following:

- Design detailing to fully integrate the use of a three-dimensional (3D) model. Even the tools used to install the bolts were modeled in 3D to ensure they would fit into tight areas.
- Thermosyphons to stabilize the foundation, keeping the ground frozen at depth.
- Utilization of a design to incorporate a prefabricated steel plate sandwich deck, a first for an FLH project.
- A new high-strength bolt to be incorporated into a new specification released this fall.¹ The bolt allows for more accurate tensioning, the use of fewer bolts, and quicker installation.

This work and other research projects help FHWA and FLMAs share research findings and proven technologies to improve the transportation networks on public lands. The I&R Program focuses on deploying and using I&R to increase resiliency and safety in the infrastructure of public lands. See the [I&R Program website](#) for more details (FHWA 2023).

¹ASTM International. *ASTM F3148 Bolts*. To be released this fall.

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Operations

Workshop Preps Workforce for Automated Vehicle Future

By Deborah M. Curtis, FHWA Highway Research Engineer, Office of Safety and Operations Research and Development (R&D)

As connected and automated vehicle (CAV) technologies and devices continue to advance, many transportation professionals may still not be familiar with how to operate them.

This knowledge gap in the American workforce may potentially hinder the implementation of these technologies. As a result, the USDOT Intelligent Transportation Systems Joint Program Office, in collaboration with FHWA's Office of Safety and Operations R&D, has developed the [CAV education-\(CAVe-\) in-a-box training workshop](#). The CAVe-in-a-box training workshop targets future technicians, equipment vendors, and bench testers at community colleges, trade schools, universities, State and local departments of transportation, and other academic institutions (USDOT n.d.).

This workshop introduces the technical aspects of CAV infrastructure and vehicle components using a hands-on approach. Each box contains two kits: an infrastructure kit and a mobile kit. An infrastructure kit includes a roadside unit, traffic signal controller, personal computer, wired network switch, and power supply.



Source: USDOT.
Example of a CAVe-in-a-box (USDOT 2023).

A mobile kit includes an onboard unit, car power supply, controller area network connector, wireless router with cellular service, and tablet. The 4-hour workshop consists of three modules: introduction to the CAVe-in-a-box, CAVe-in-a-box use cases and applications, and CAVe-in-a-box configuration training. Scenarios for using the equipment, such as pedestrian safety, red light violation warning, and emergency vehicle preemption, are reviewed. The boxes can then be loaned out for a month to attendees to take back to their respective offices and share the knowledge.

After three years finalizing the training kits, the first training workshop for CAVe-in-a-box was given in April 2023 in Texas. This workshop kicked off the education initiative plan to provide about 10 trainings per year. Initial response to the training has been very positive. The team has had maximum capacity at the initial in-person trainings, and demand to borrow a CAVe-in-a-box has been strong. Interested individuals can also create their own CAVe-in-a-box for a total cost of about \$15,000. More information can be found on the [CAVe web page](#) (USDOT n.d.).

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Safety

Highway Safety Information System (HSIS) Updates

By Carol Tan, Safety Data Analysis Team Lead,
Office of Safety and Operations R&D

HSIS Gets New Web Address

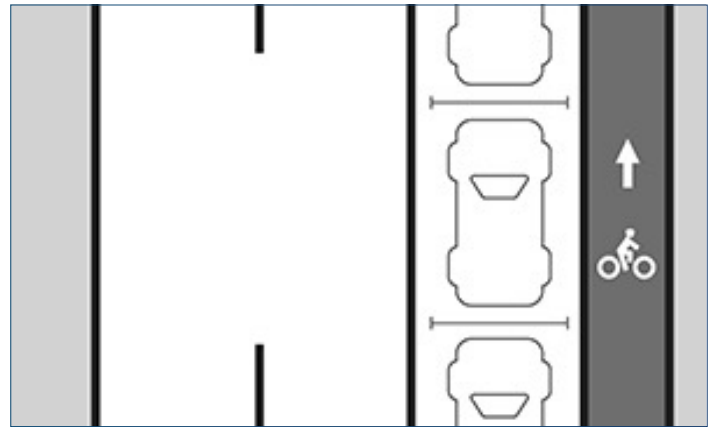
The HSIS website has a new address: <https://highways.dot.gov/research/safety/hsis>. The website features a new look and platform and contains the same, but updated, content.

Student Data Award Submissions Surpass Prepandemic Levels

Recruiting the next generation of data science professionals can be a challenge for transportation agencies, with so many fields competing for these skills. However, the future is looking bright. In 2023, the HSIS Excellence in Highway Safety Data Award tallied the most student entries since its inception in 2017 after a drop in participation during the COVID-19 pandemic. The award encourages undergraduate and graduate college students to use the HSIS roadway, traffic, and crash data to research a safety topic and prepare for a career in highway safety; more details are available on the [award website](#) (FHWA 2023). Thus far, all the submissions have exclusively used HSIS data, but students are encouraged to use HSIS data along with other datasets. Hence, judges look forward to seeing other datasets added to the mix in future entries. FHWA is partnering with the Institute of Transportation Engineers to administer the contest.

Pedestrian and Bicycle Crash Assistance Tool (PBCAT) Version 3 Offers New Features

The [PBCAT, version 3](#) is an online, browser-based tool available to anyone analyzing pedestrian- or bicycle-related crash reports or specific variables related to a pedestrian or bicycle crash. PBCAT, version 3 complements States' crash data systems, and variable outputs can be linked with other data sets using unique jurisdictional crash identifiers. Crash typing in PBCAT allows users to categorize crashes and is valuable to transportation professionals because it helps identify problems and develop countermeasures. PBCAT, version 3 offers expanded micromobility coverage; this type of information can be difficult to get from police reports, which are mostly focused on motor vehicle crashes. Additionally, PBCAT, version 3 features downloadable graphics, found on the "[Support Images](#)" section of the website. Users can now utilize crash diagrams in reports to



Source: FHWA.

Example PBCAT, version 3 support image diagrams a one-way roadway with a separated bicycle lane.

support understanding types of crashes. Other updates in PBCAT, version 3 include simplified crash types, streamlined logic, and user-friendly data output. The "[Features](#)" section of the website offers more details about the latest version's exciting enhancements (FHWA n.d.).

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Safety

Highway Driving Simulator— Visual System Upgrades

By Michelle Arnold, Research Psychologist, and
Brian H. Philips, Human Factors Team Leader,
Office of Safety and Operations R&D

[The Turner-Fairbank Highway Research Center highway driving simulator \(HDS\) is located in the Human Factors Laboratory \(FHWA 2022\).](#)

The HDS boasts globally unique innovations in the upgraded system: seven high-end, 4K projectors; portrait mode; computerized controls; and unprecedentedly realistic visual effects. The HDS also features motion-based systems, a full cab for the driver, and a 220-degree field of view.



Source: FHWA.
The TFHRC highway driving simulator's new visual system features a 220-degree field of view.

The high-fidelity simulator and the world-class realism it creates help the FHWA to conduct better research—more safely. Researchers can then generalize results from this research to the real world.

The updated system's software will help to develop roadway scenarios faster. Researchers can evaluate various type of intersections, generate fictitious intersections, and test different design alternatives. Researchers also can use the HDS system to work with State departments of transportation (DOTs) on new or unique roadway designs that may work better than current solutions and build aerial views and visualizations. Additionally, research can be conducted by collecting data from study participants. Researchers collect responses from participants via questionnaires and also observe specific behavioral responses to events.

In 2004, FHWA researchers successfully used the HDS to test diverging diamond interchanges (DDIs) before any DDIs were physically built in the United States. As of 2018, State DOTs had built and were successfully operating more than 75 DDIs across the Nation—a testament to the application of the HDS system. (Wallick, Williams, and Arnold 2018).

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Corporate Transportation Pooled Fund (TPF) Excellence Awards Promoting Research and Innovation Through Collaboration

By Tricia Sergeson, TPF Program Manager, Office of Corporate Research, Technology, and Innovation Management

FHWA, in partnership with the American Association of State Highway and Transportation Officials Research Advisory Committee (AASHTO RAC) are excited to announce the launch of the brand new TPF Excellence Awards. The new biennial program provides an opportunity to showcase the outstanding research and innovation efforts achieved in the areas of safety, economic strength, equity, climate and sustainability, transformation and organizational excellence.

For more than 45 years, FHWA's TPF Program has enabled public and private entities to collaboratively conduct cutting-edge transportation research. Through the TPF Program, participants are able to partner to address common goals (from safety to concrete applications) by leveraging resources, funding, and expertise to further extend the reach and impact of their research.

The TPF Excellence Awards, announced on August 8, will highlight and further promote the great work and research achieved by partners. Nominating a project can demonstrate how partnerships through the TPF program have helped leverage limited funds and further nationwide advances.

Nominations for the first awards were due by September 26, 2023.



Source: FHWA.

A panel of diverse judges will review the applications in winter 2024, and an award ceremony will be held in summer 2024. The awards recognize outstanding TPF studies that demonstrate meaningful collaboration and partnership to advance national transportation research priorities in areas including safety, economic strength, equity, climate and sustainability, transformation, and organizational excellence.

The TPF Excellence Awards provide an important new opportunity. Any TPF Program participant can nominate an eligible TPF study and spread the word about the great work researchers are doing. Nominations will be reviewed based on how well each TPF study demonstrates strong collaboration and partnership, adds value to the transportation industry, supports U.S. Department of Transportation strategic goals, and advances research and innovation. For more information, please go to the [TPF Excellence Awards web page](#) (FHWA 2023).

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Infrastructure New 21-Day Chemistry Test Is Game Changer in Predicting Alkali-Silica Reaction (ASR) Gel Formation in Aggregates

By Terence S. Arnold, Senior Research Chemist, Infrastructure Materials Team, Office of Infrastructure R&D

Without testing, ASR gels can form from the reaction of alkalis in cement with certain aggregates; the gels can absorb water and cause concrete cracking.

Periodic testing of aggregates for ASR susceptibility is a key strategy in fighting ASR development in transportation infrastructure.² In 1940, the first research paper on concrete cracking was published (Carlson 1940). Aggregate testing for this issue began in 1947 (Mielenz, Greene, and Benton 1947). In the years that followed, researchers developed many different tests. Almost all the tests relied on measuring physical expansion. The tests were not consistently accurate and tended to overestimate or underestimate ASR reactivity in aggregates. The recent FHWA discovery of the Turner-Fairbank Aggregate Susceptibility Test (TFAST) has forever changed aggregate testing.

About 12 years ago, the [Chemistry Laboratory](#) at FHWA's Turner-Fairbank Highway Research Center began working on a research project titled [Determining an Aggregate's Potential for Forming Alkali-Silica Reactivity \(ASR\) Gels in Concrete](#) (FHWA n.d.a, b). Researchers sought to produce a method that was not based on fabricating concrete or mortar samples but simply measured the chemistry. This research looked at the problem of concrete cracking in a new way, attempting to understand what ASR gel was and why it kept expanding. (The expansion tests used at that time showed whether the sample had gotten larger but did not test for ASR gels.)

Then the researchers discovered the TFAST—a new test that had 100-percent agreement with existing data on some blocks and could test for whether reactive sites were present and accurately predict the formation of ASR gels. The TFAST has since been approved by the American Association of State Highway and Transportation Officials (AASHTO) as a provisional test method: AASHTO TP 144-21—*Determining the Potential Alkali-Silica Reactivity of Coarse Aggregates (TFHRC-TFAST)* (Arnold 2023).

The TFAST is generating tremendous interest. The test takes only 21 days. In comparison, the ASTM 1293 takes a year (ASTM International 2020). Only 5 grams of aggregate are needed for a TFAST test. Over the past 3 years, FHWA has been helping State agencies learn how to do the test. 18 months ago, 45 State departments of transportation attended a virtual meeting on the topic. FHWA is dedicated to providing hands on assistance to State agencies to get the TFAST widely implemented. Once adopted by agencies, the TFAST is a game changer; for the first time, agencies can accurately test for ASR gels.

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Infrastructure

New FHWA Test Facility Explores Pavement Durability and Resiliency

By Michael Adams, Senior Research Civil Engineer, and Jennifer Nicks, Senior Research Geotechnical Engineer, Office of Infrastructure R&D

Resilience and sustainability have become major buzzwords for the future of the pavements that make up our Nation's roadways.

How can we extend the life of pavement on our aging roadways while preserving our natural resources and help them withstand the impact of extreme weather events and vehicle loads? FHWA has sought to address this issue through its [Sustainable Pavements Program](#) (FHWA 2023). Additionally, FHWA is currently upgrading its [Pavement Testing Facility \(PTF\)](#) at the Turner-Fairbank Highway Research Center (FHWA 2021).

The third-generation version of this facility takes a more holistic approach to testing pavements. It evaluates state-of-the-art asphalt mix designs, examines pavement response and performance, compares different structures and design methodologies, assesses resiliency, and tests geotechnical aspects.³ This upgrade continues the evolution of FHWA's PTF, which was first built in 1986. At that time, the first-generation PTF had only a two-lane pavement field for testing. In 1993, the second-generation PTF was expanded to a 12-lane configuration. The third-generation PTF now has an 11-lane pavement field, with 4 pavement pits, 5 barrier walls, and nearly 300 sensors for monitoring structural performance and health.³



Source: FHWA.

Photograph of third-generation PTF under construction.

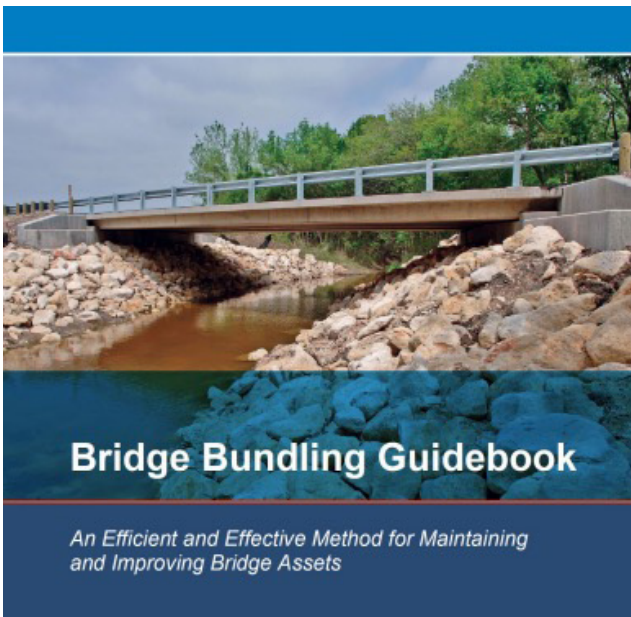
The third-generation PTF will be the site of major research projects evaluating a hidden asset—the granular base beneath our highways—perhaps the most valuable asset in our highway transportation system. Beneath the pavement surface, the aggregate base layer often serves as the stiff foundation to support the dynamic loads of vehicles; however, that pumping action over time can cause base contamination, leading to reduced drainability. The geotechnical research team will investigate optimizing the strength and stiffness of base materials with their permeability for improved structural performance over time through in-service evaluations and laboratory testing to better define serviceability criteria for road bases. In addition, inverted pavement systems will be studied, with the potential for improved sustainability. The team plans to develop new design and construction practices that will preserve the integrity and value of this significant asset. Additionally, the research will provide insights on how to properly reuse a granular base when it has been contaminated and how to work with existing road bases.

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Source: FHWA (D'Angelo et al. 2019).
Cover page of guidebook for bridge bundling published by FHWA.

Center for Accelerating Innovation (Technology Transfer) Project Bundling Advantageous for State and Local Agencies

By Matthew Corrigan, Research Civil Engineer,
Office of Infrastructure R&D

In the past few decades, State and local transportation agencies have faced increasing infrastructure maintenance and construction needs.

At the same time, the Bipartisan Infrastructure Law (BIL), signed in 2021, provides \$550 billion in funding to invest in the Nation's infrastructure (FHWA 2023a). The preservation needs coupled with the recent influx of Federal money requires an efficient approach to leverage maximum benefits. BIL grants for funding have also encouraged project bundling (California Local Technical Assistance Program 2023). As a result, FHWA is promoting the use of project bundling.

Project bundling is a procurement process where multiple projects for rehabilitating or replacing infrastructure are brought together under one contract. Through this process, project sponsors can address many projects with similar needs using standard and cost-effective rehabilitation and replacement strategies—increasing efficiency and saving time and money. The resulting economies of scale can also attract innovative designs and collaborative contractor teams that can expedite construction, improve quality, and reduce costs for public agencies.

In June 2023, FHWA held a series of events to educate State and local agencies about project bundling as part of its Every Day Counts initiative, which organizes technology transfer activities for public agencies to promote proven-yet-underutilized innovations. The first two events were peer panel discussions about bundling from the perspective of planning, design, delivery methods, and construction. The third and fourth events demonstrated tools and other resources to help advance bundling efforts. The webinar on June 14 presented attendees with an agency self-assessment tool, a multi-agency bundling process flow chart, a 10-step implementation plan template, and a guidance document titled *Advanced Project Bundling: A Reference for Getting Started* (D'Angelo et al. 2021).

State and local agencies throughout the Nation have taken advantage of project bundling for all kinds of infrastructure, including bridges, roads, freeway lighting, travel plazas, and electric vehicle charging stations. See the FHWA web pages "[Project Bundling Resources](#)" and "[Bundled Facilities Overview](#)" for more information (FHWA n.d.a, b).

To see recordings of these project bundling events, click [here](#) (FHWA 2023b).

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Source: FHWA.
Screenshot of the FHWA R&T Portfolio playlist.

Highlights from the FHWA Research and Technology (R&T) Portfolio

FHWA R&T program identifies and addresses issues of national significance that are not or cannot be addressed by other research sponsors. This video series highlights selected FHWA R&T activities, initiatives, and projects that promote greater national economic growth, prosperity, and safety. See video highlights from the [FHWA R&T Portfolio](#) for more information.

Turner-Fairbank Highway Research Center Trivia

Why is there a cemetery on the TFHRC grounds?

The Reid Family Cemetery was originally part of the Reid family farm, which dates back to the mid-1800s. The U.S. Government acquired the farm from a Reid descendant in 1940 for \$24,954.83. Part of the agreement with the Reid family was that the Government would maintain the private cemetery and that family descendants would have the option to be buried there if they wished.

Sources

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Recent Publications

[Physically Informed Data-Driven Methods for Greatly Enhancing the Use of Heterogeneous Supplementary Cementitious Materials in Transportation Infrastructure](#)

Date posted: September 5, 2023
Publication no.: FHWA-HRT-23-040

[Developing Crash Modification Factors for Mini Roundabouts](#)

Date posted: September 1, 2023
Publication no.: FHWA-HRT-23-019

[Developing Crash Modification Factors for Separated Bicycle Lanes](#)

Date posted: August 31 2023
Publication no.: FHWA-HRT-23-078

[FHWA Federal-Aid Division State Planning and Research Subpart B \(SPR-B\) Program](#)

Date posted: August 17, 2023
Publication no.: FHWA-HRT-23-050

[Safety Evaluations of Innovative Intersection Designs for Pedestrians and Bicyclists](#)

Date posted: August 16, 2023
Publication no.: FHWA-HRT-23-052

[Federal Highway Administration \(FHWA\) Research and Technology Updates Newsletter, May 2023: Spring Issue](#)

Date posted: August 16, 2023
Publication no.: FHWA-HRT-23-095

[In-Situ Scour Testing Device \(ISTD\), State Demonstrations of Field Soil Tests, Boston, KY](#)

Date posted: August 16, 2023
Publication no.: FHWA-HRT-23-089

[Learn More About FHWA's Office of Infrastructure Research and Development](#)

Date posted: August 4, 2023
Publication no.: FHWA-HRT-23-099

[EAR Multidisciplinary Initiative to Create and Integrate Realistic Artificial Datasets](#)

Date posted: July 31, 2023
Publication no.: FHWA-HRT-23-058

[Evaluation of Lane Reduction and Late Merge Signing](#)

Date posted: July 31, 2023
Publication no.: FHWA-HRT-23-070

[Variability in the Engineering Properties of Open-Graded Aggregate Backfills](#)

Date posted: July 26, 2023
Publication no.: FHWA-HRT-23-046

[Complete Streets Construction Cost Case Study: 300 West Street Reconstruction Project, Salt Lake City, UT](#)

Date posted: July 7, 2023
Publication no.: FHWA-HRT-23-060

[Analysis of Material Source Mergers and Acquisitions on Project Delivery Quality and Costs](#)

Date posted: July 5, 2023
Publication no.: FHWA-HRT-22-082

[In-Situ Scour Testing Device \(ISTD\), State Demonstrations of Field Soil Tests, Lovelock, NV](#)

Date posted: July 5, 2023
Publication no.: FHWA-HRT-23-088

[Long-Term Bridge Performance \(LTBP\) Newsletter](#)

Date posted: June 28, 2023
Publication no.: FHWA-HRT-23-082

[Complete Streets Construction Cost Case Study: Resurfacing of South Lawrence Boulevard \(State Road 21\), Keystone Heights, FL](#)

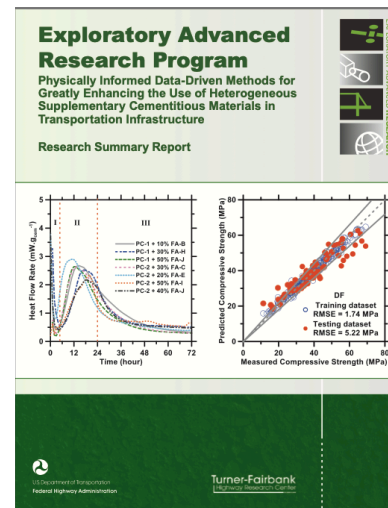
Date posted: June 21, 2023
Publication no.: FHWA-HRT-23-057

[Complete Streets Construction Cost Case Study: Village Center in the City of La Quinta, CA](#)

Date posted: June 21, 2023
Publication no.: FHWA-HRT-23-059

[Complete Streets Construction Cost Case Study: Resurfacing and Reconstruction of MN 28, MN 29, and MN 104 in Glenwood, MN](#)

Date posted: June 20, 2023
Publication no.: FHWA-HRT-23-056



Source: FHWA.

[Documenting Effective e-Ticketing Implementation](#)

Date posted: June 15, 2023
Publication no.: FHWA-HRT-23-047

[Leveraging Big Data for Enhanced Pavement Management](#)

Date posted: June 12, 2023
Publication no.: FHWA-HRT-23-032

[Magnetic Flux-Based Nondestructive Evaluation Technologies for Assessing Corrosion Damage in External and Internal Post-Tensioned Tendons: Development Efforts and Evaluation Results](#)

Date posted: June 7, 2023
Publication no.: FHWA-HRT-23-005

[Ruggedness and Interlaboratory Studies for Asphalt Mixture Performance Tester \(AMPT\) Cyclic Fatigue Test: Phase II Report](#)

Date posted: June 6, 2023
Publication no.: FHWA-HRT-22-113

[Driver Yielding with LED-Embedded Pedestrian and School-Crossing Signs](#)

Date posted: June 2, 2023
Publication no.: FHWA-HRT-23-038

[Transportation Pooled Fund \(TPF\) Excellence Awards - FAQs](#)

Date posted: June 1, 2023
Publication no.: FHWA-HRT-23-073

Events

October 15–18 Phoenix, AZ

Presentation: “Calibrating a Car-Following Model To Capture Impacts of Connected and Automated Vehicles on Human-Driven Vehicles”

This presentation will be given at the INFORMS [Institute for Operations Research and the Management Sciences] Annual Meeting.

John Hourdos; john.hourdos@dot.gov

October 17–19 Seven Springs, PA

Presentation on Cooperative Driving Automation Research Program

This presentation will be given at the Roadway Management Conference.

Pavle Bujanovic; pavle.bujanovic@dot.gov

October 18–20 Arlington, VA

Panel Discussion on Artificial Intelligence in Transportation

The panel discussion will be held at the Virginia Governor’s Transportation Conference.

Craig Thor; craig.thor@dot.gov

October 23 Shippensburg, PA

Presentation on Using Tests to Predict Long-Term Alkali-Silica Reaction (ASR) and Optimize Concrete Mix Design for Preventing ASR

This presentation will be given to the Pennsylvania Aggregates and Concrete Association and National Stone, Sand, & Gravel Association.

Jose Munoz; jose.munoz.ctr@dot.gov

October 24

Presentation: “Overview of FHWA Safety and Operations Research.”

This presentation will be given at the Traffic Injury Research Foundation DWI [driving while intoxicated] Working Group.

James Pol; james.pol@dot.gov

October 23–27 Washington, DC

Panel Discussion: “Driving Automation and Vulnerable Road Users: Peanut Butter and Jelly or Oil and Water?”

This panel discussion will be held at the Human Factors and Ergonomic Society 67th International Annual Meeting.

Jesse Eisert; jesse.eisert@dot.gov



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Fourth Monday of each month Online at 1 p.m. ET

Monthly Nondestructive Evaluation Webinar

Hoda Azari; hoda.azari@dot.gov

November 6–10 Brisbane, Australia

Deborah Walker is the Key Note Speaker at the 9th International Conference on Weigh-in-Motion.

Deborah Walker; deborah.walker@dot.gov

November 13–15 Washington, DC

Transportation Research Board Transportation Resilience 2023 International Conference on Extreme Weather and Climate Change Challenges.

National Academy of Sciences Building

An FHWA expert, Amir Gopalipour, will be giving several presentations at this conference.

Amir Gopalipour; amir.gopalipour@dot.gov

Staff from FHWA’s J. Sterling Jones Hydraulics Research Laboratory will demonstrate scour and hydraulic engineering behaviors through the use of a portable physical model.

James Pagenkopf; james.pagenkopf@dot.gov

December 7 Minneapolis, MN

Presentation: “Ultra-High Performance Concrete: A New Solution for Infrastructure Design, Construction, and Repair.”

Brooklyn Center

This presentation will be given at the Minnesota Annual Concrete Conference.

Rafic Helou; rafic.elhelou.ctr@dot.gov

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ABOUT *FHWA R&T NOW*

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