

Centered on Service

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Centered on Service is dedicated to sharing success stories, information, and updates on FHWA Resource Center projects, as well as ongoing news about services provided by the Resource Center teams to the FHWA Division Offices, Headquarters Offices, and State partners.

FHWA is lead agency at the 2008 International Bridge Conference

The largest bridge conference in the world – the International Bridge Conference (IBC) – gathered its largest audience ever in this, its 25th anniversary year, and the Federal Highway Administration (FHWA) was in the spotlight. Last year, the IBC attracted 1,050 attendees. This year, a record-breaking 1,600 bridge owners and engineers, senior policy makers, government officials, bridge designers, construction executives, and suppliers from all across the world turned out for the event held at the David L. Lawrence Convention Center in Pittsburgh, PA.



What is the IBC? It is an assembly of the world's best in the bridge field, who come together to learn, share knowledge, and make connections that will advance the state-of-the-practice in bridge (geotechnical, hydraulic, and structural) engineering worldwide.



FHWA Resource Center display at the IBC showcased EPS Geofoam among other technologies.

The event is hosted by the Engineers' Society of Western Pennsylvania, and it provides all attendees the opportunity for a growing educational and networking experience. The IBC is known as "the hot spot" for the bridge industries of North America, Europe, and Asia, drawing 170 exhibitors in 2008, a large increase over the 125 exhibitors last year. The considerable number of exhibitors representing government, manufacturers, consulting firms, software developers, and the design and construction industry put their organizations and wares on display

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Headquarters Bridge staff (Jorge Pagan and Gary Moss seated) displays "Innovative Bridge Technologies for Better Bridges."

over the course of three days – June 2-4 – featuring interactive, heavy equipment exhibits, and demonstrations that drew impressive feedback.

As reported in *Centered on Service* (July 2008), the FHWA was the "Featured Agency" this year. As such, on Monday, June 2, attendees from around the world focused their attention on the agency, when eight key presentations -- provided by the FHWA's top management -- highlighted all aspects of the Nation's bridge program. Myint Lwin, Director of the Office of Bridge Technology, kicked off the FHWA session with a brief overview and saluted the agency's bridge engineers. He then introduced King Gee, Associate Administrator for Infrastructure, who gave a presentation about the "History of America's Highways & Bridges." Ian Friedland, Technical Director of Research and Development followed up with a presentation on "Research and Development of Bridge Technologies". Tom Everett, Team Leader of the HQ Bridge Programs Team, highlighted the "Highway Bridge Program"; then Jorge Pagan, Team Leader of the HQ Hydraulics and Geotechnical Team, discussed the "Major Aspects of Geotechnical and Hydraulic Programs." A "Major Bridges and Tunnels" presentation was subsequently delivered by Vasant Mistry, Senior Bridge Engineer.

The program of FHWA speakers continued with Gary Jakovich, Senior Bridge Engineer, presenting the "Federal Lands Highway Bridge Program," and Shoukry Elnahal, Team Leader of the FHWA Resource Center's Structures Technical Service Team (TST) giving an overview of how the Resource Center teams assist the division offices and States with technical assistance in the "Implementation of Bridge Technologies." To wrap up this portion of the program, Tom Macioce, State Bridge Engineer from Pennsylvania's Department of Transportation (PennDOT) delivered a presentation describing, from PennDOT's perspective, the State's interaction with the FHWA Highway Bridge Program.

As the "Featured Agency" the FHWA was also very visible on the exhibit floor, and had lots of traffic visiting the display. The FHWA staff on-hand exhibited various bridge technologies, discussed broad technical and project-related issues, and distributed materials to this uniquely focused audience. The FHWA was well represented on the floor with exhibits on Narrow Gap Welding, Ultrasonic Impact Treatments, Heat Straightening, High Performance Concrete, Better Bridges, the Highways for LIFE program, the National Highway Institute, the Office of Research and Technology, and the Federal Lands Highway Program. In addition, the FHWA Resource Center's Geotechnical & Hydraulic Engineering TST showcased surface-water modeling and watershed modeling systems, as well as EPS Geofoam technology. The Structures TST distributed brochures and DVDs on various high performance materials and promoted a variety of training course offerings and technical assistance.

Outside the convention center, the agency promoted its accelerated bridge construction program's Self-Propelled Modular Transport unit that allows for fast and efficient construction of new bridges as well as a demonstration that showed steel straightening with heat. In addition, an intriguing 85-foot-long display also accompanied the FHWA to this year's IBC -- the Concrete Mobile Laboratory was on-site and equipped to demonstrate testing and acceptance of the latest concrete technology for pavements and bridges. The impressive 18-wheeler-style laboratory—powered by an electric generator—also displayed the equipment and methods used for concrete mixing.



Turner Fairbank Highway Research Center representatives (Frank Jalinoos, NDE Lab Manager; Thomas Stabile, contract staff/ESC Inc./geotechnical group; and Michael Adams, Geotechnical Lab Manager) display "Geosynthetic Reinforced Soil Integrated Bridge System" technology at the IBC.

A bridge bus tour took attendees to South Oakland, PA, where PennDOT is constructing the "Boulevard of the Allies" bridge as part of a new "gateway" to the city, and then to Harmar, where the State's Turnpike Commission is building a segmental bridge over the Allegheny River. The tour ended with a Mon Incline

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IBC from page 2

ride to the top of Mount Washington, a vantage point overlooking dozens of bridges. It was also noted that Pittsburgh, PA, is known as the "City of Bridges."



Lots of "traffic" came through the FHWA display area.

Bridges play a noticeably vital role in the Nation's (and the world's for that matter) highway and road systems. This year's IBC was successful in bringing together the world's top corporations, government officials, and the important industries that provide these crucial modes of transportation worldwide. Next year's IBC is already scheduled to take place June 14-17, 2009.



From left to right: Bill Wright (TFHRC) and Reggie Holt (FHWA Resource Center) talk about a morning presentation with Tom Everett (FHWA HQ), while Larry O'Donnell (FHWA Resource Center) discusses structural engineering issues with an IBC attendee (in the background).

TECHNICAL ASSISTANCE

2008 Concrete Bridge Conference

HPC: Safe, Affordable, and Efficient

The 2008 Concrete Bridge Conference (CBC) was held May 4-7, at the Hyatt Regency Hotel in St. Louis, MO. The conference featured an extensive technical program comprised of more than 108 presentations, as well as exciting displays in the Exhibition Hall by some 44 consultants, material and service suppliers, and associations.

Most of the presenters prepared peer-reviewed papers, which were also distributed through a Conference CD. Three members of the FHWA Resource Center's Structures Technical Service Team reviewed technical papers and moderated technical sessions. In addition, a TST member chaired the second meeting of the HPC Technical Working Group, which convened at the conclusion of the conference. This group provided oversight and guidance to the research studies in progress as part of the FHWA HPC program funded by SAFETEA-LU legislation.

The first three CBCs held in Nashville, TN (2002), Charlotte, NC (2004), and Reno, NV (2006) were each attended by more than 300 bridge professionals including officials from FHWA, DOT, and other highway agencies.

The 2008 CBC was cosponsored by the Federal Highway Administration, National Concrete Bridge Council, Missouri Department of Transportation, and the American Concrete Institute and was organized by the Portland Cement Association. The 2008 CBC was held in conjunction with the Post-Tensioning Institute's Annual Conference. The two conferences have separate technical programs but joint exhibition and social functions. More than 500 people attended the two conferences.

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RC Planning Team Puts Their Support Behind GIS-T 2008

The FHWA Resource Center's Planning Technical Service Team (TST) showed their support for the use of geospatial information systems in transportation (GIS-T) when they helped put on the American Association of State Highway and Transportation Officials' 2008 GIS-T conference in Houston, TX, on March 17-19.

Each year, the conference provides a forum for transportation professionals who are interested in learning more about the design and use of these systems. This year, 365 attendees from 34 States and six Canadian Provinces gathered to discuss the latest information and emerging issues in GIS-T.

Staff members from FHWA's Office of Interstate and Border Planning and the Planning TST comprised the planning committee for this annual event. The members of the planning committee recognize that their involvement helps them stay aware of how the technologies are being implemented, and helps focus support on areas that are national priorities.

Planning TST member Ben Williams, the Workshop Chair for the conference, co-presented a new workshop on 3D and visualization. The workshop was called *3D Geospatial for Transportation: Best Practices and Project Implementation Methods*, and was co-presented with Tim Case of Parsons Brinkerhoff. As chair, Williams also organized seven workshops for the conference.



Logo from GIS-T 2008, featuring the overall conference theme, "Small Steps . . . GIANT Leaps"

The workshops were planned with input from evaluations and comments received at past conferences. The workshops available to conference participants included:

- Bringing GPS Into Perspective – A Workshop for GIS Managers and Practitioners
- A Six Pack of Avoidable, Seemingly Difficult, Major RFP Problems and Their Simple Solutions
- 3D Geospatial for Transportation: Best Practices and Project Implementation Methods
- Multi-Level Linear Referencing for State Transportation Databases
- Requirements for a Statewide 3D, Real-time Positioning Infrastructure to Support Transportation Systems
- Enterprise Information Integration
- Microsoft Virtual Earth – In Depth
- Introduction to GIS Web Services

Williams noted that GIS has become institutionalized as a tool for data management, integration, and visualization in transportation. Environmental and planning studies, safety/crash analysis, project management and even system maintenance are now routinely using GIS.

Thirty-nine percent of State DOTs use enterprise data warehouses tied to GIS as a way to integrate their data. Many States have leveraged these enterprise databases to provide department-wide GIS analysis tools. Web-based GIS applications also continue to expand, spreading transportation information to the traveling public. A number of DOTs are now making use of consumer-based visualization systems, such as Google Earth and Microsoft Virtual Earth, to expand their information to ever-growing audiences.

For more details on the workshops given at the conference and the survey of State implementation issues, see <http://www.gis-t.org/files/nF0d0.pdf>.

Planning TST Participates in Iowa Safety Forum

Iowa held a successful multi-discipline Safety Planning Forum in Ames on March 10th and 11th. This event was initiated and organized by the Iowa Department of Transportation (IDOT). Iowa had held a similar forum in January 2003 and decided to convene this one to review progress made and focus on the steps necessary for effective and permanent incorporation of safety into the planning process. The forum included representatives from the IDOT, metropolitan planning organizations, Regional Planning Agencies, law enforcement, city and county engineers, and planners who all shared best practices and progress reports.

Jim Thorne of the Planning Technical Service Team (TST) delivered a Transportation Safety Planning session and moderated sessions on best practices. According to Thorne, Iowa has long been recognized as a leader in transportation safety. Many on the agenda were sharing the results of their individual program efforts or information on the services they offer to help address safety issues.



In his presentation, Thorne offered several key points to the group:

- use safety statistics/numbers to understand the problem;
- realize that safety can be addressed at every step in the planning process;
- understand that characteristics of integrating safety into planning include leadership, collaborative efforts, data driven approach, and comprehensive (education, engineering, enforcement, emergency services) strategies;
- use performance measures to drive the process, and
- think about evolving opportunities and challenges to address safety (growing freight issue, aging population, local land use planning).

He also provided information on several resources available for planners to use in addressing safety including the web site <http://tsp.trb.org/>, NCHRP (National Cooperative Highway Research Program) Report 546 (*Incorporating Safety into Long-Range Transportation Planning*), and the *Transportation Planners Safety Desk Reference*.

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Operations Team Offers ITS Systems Engineering Workshop in California

Sponsored by ITS America, the FHWA's Resource Center's Operations Team was recently invited to deliver its "Systems Engineering Workshop" to the Southern California Transit Consortium, located in Oakland, CA.

The intent of this workshop was to promote the principles and best practices of systems engineering. The 1½-day workshop uses the *FHWA Systems Engineering for Intelligent Transportation Systems: An Introduction for Transportation Professionals* guide as a primary reference to introduce systems engineering to management, ITS project managers, technical and project staff. Other course materials including the *Systems Engineering Guidebook for ITS* developed in California were utilized. Members of the FHWA's California Division Office and National Architecture Team also participated as co-instructors. Brief presentations from the Federal Transit Administration Region 9 Office, Metropolitan Transportation Commission and the Regional Planning Agency were also included as part of the workshop.

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TECHNOLOGY DEPLOYMENT

PDS Update: FHWA's Resource Center and AASHTO Wind Up For Great Delivery and Pitch

The FHWA Resource Center and the American Association of State Highway and Transportation Officials (AASHTO) teamed up to deliver a Maintenance Decision Support System (MDSS) Product Demonstration Showcase (PDS). The 1-day informational exchange in Omaha, NE, was hosted by the Nebraska Department of Roads (NDOR). The PDS was presented in cooperation with the Utah and Nebraska Local Technical Assistance Programs (LTAP). There were more than 100 people in attendance representing nine State DOTs and an international agency. The PDS was an initiative of two FHWA Resource Center Technical Service Teams – Operations; and Communications and Marketing.



A panel of experts in the field of Maintenance Decision Support Systems addresses attendees at the PDS in Omaha, NE. From left to right: Pat Kennedy (City of Denver), Mike Mattison (NDOR), Phillip Anderle (Colorado DOT), Dave Huft (South Dakota DOT), Curt Pape (Minnesota DOT), Ron Hall (Kansas DOT), P. Dean Kernan (Illinois DOT).

Since 1999, the Federal Highway Administration's (FHWA) Road Weather Management Program and State transportation departments have invested in the development of a maintenance decision support system. Through partnerships with national laboratories and a stakeholder community of public, private, and academic sector participants, the MDSS has evolved from concept to a functioning application. An MDSS is a computer-based, customizable tool that provides winter maintenance personnel with route-specific weather forecast information and treatment recommendations.

The PDS forum was unique because it demonstrated how public private partnerships can work together efficiently. Presentation topics at the showcase included:

- Route-specific weather and road condition forecasts
- Optimized treatment recommendations for treatment type, application rate, and timing
- More efficient use of salt and other deicing materials
- Reduced environmental impact from deicing chemicals
- Cost/Benefits of MDSS
- Improved use of manpower and equipment
- Near real-time road condition reporting
- Expectations for MDSS
- Training for new and seasoned maintenance personnel using historical playback



Attendees participate in discussions with peers at the MDSS PDS in Omaha, NE

The showcase concluded with an open panel made up of State and local representatives fielding questions from the participants.

Two additional MDSS PDS sessions are scheduled. One will be held on August 27 at the Valley Forge Convention Center in PA in conjunction with the Eastern Snow and Ice Expo, and the second is scheduled for September 17 at the Doubletree in Boise, ID.

For more information on this PDS or the two upcoming MDSS showcases please contact:

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Washington State Corridor Safety Program is Focus of Product Demonstration Showcase

The FHWA Resource Center - in partnership with the FHWA Washington Division Office, National Association of County Engineers (NACE), the National LTAP Center, Washington State DOT, City of Vancouver and Skamania County - held a 1-day Product Demonstration Showcase (PDS) on the Washington State Corridor Safety Program. This showcase ran in conjunction with the National Association of County Engineers (NACE) Conference in Portland, WA.



FHWA Division Administrator Dan Mathis delivers the opening remarks at the Vancouver, WA, PDS on the Corridor Safety Program.

A *Safety Corridor* is defined as a, “. . . stretch of roadway that has been identified as a high-collision area.” A corridor can vary in size and location. The PDS was presented in two parts highlighting both Rural Corridors and Urban Corridors. The 1-day event featured presentations from experts and Q&A with program leaders as well as local project participants from the City of Vancouver and Skamania County. Information was presented on the project from the perspective of engineering, enforcement, and public awareness/outreach and education.

Overall program history and success stories were shared. In addition, participants went on field visits to both urban and rural project locations, where they witnessed safety challenges, saw improvements that were made, and had the opportunity to talk with project participants.



Attendees are briefed on the Washington State Corridor Safety Program before heading out for site visits.



Matt Ransom, City of Vancouver, leads a discussion on project details during the site visit.

The Washington State Corridor Safety Program works to reduce collisions on roadways using low-cost, near-term solutions through partnerships with engineering, enforcement, education, and emergency services. The program is locally coordinated in each community and involves partnerships with local agency governments, interested citizens, businesses, schools, and any other groups with a vested interest in the safety of their roadways.

As a result of this particular Corridor Safety Program, the following successes have been achieved. Since the program's inception:

- Total collisions were reduced by 5 percent
- Total injuries were reduced by 11 percent
- Alcohol-related collisions were reduced by 15 percent
- Fatal and serious injury collisions were reduced by 34 percent

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Gaining Traction

High-Friction Surfacing Systems Help Transportation Agencies Get a Grip

Providing motorists with increased traction is among the many ways transportation officials are reducing the staggering number of annual vehicle crashes and fatalities. Over the past three decades, annual U.S. highway fatalities have held steady at about 40,000 people, enough to fill a typical Major League Baseball stadium. That three-decade total adds up to roughly 1.2 million fatalities, or the equivalent of the population of a mid-size U.S. city like San Diego, CA.

Traffic safety experts are working to improve understanding of friction on asphalt and concrete pavement surfaces, especially in wet weather. According to the FHWA report *Surface Finishing of Portland Cement Concrete Pavements* (FHWA-SA-96-068), surface treatments using epoxy resin and calcined bauxite can improve the friction of existing portland cement concrete surfaces on roadways with high ratios of wet-weather crashes. The FHWA's Technical Advisories T5040.36, (06/17/05), and T5040.31, (12/26/90), also provide information and guidance on high-friction surfaces.

Studies show that improving the friction of pavement surfaces reduces wet-road and total crashes. New York State, for example, implemented a program that identifies sites statewide that have low pavement friction. The State treats them with overlays and microsurfacing as part of its maintenance program. Between 1995 and 1997, the State department of transportation treated 36 sites on Long Island, resulting in a reduction of more than 800 annual wet-road crashes. These results support earlier findings in New York State that improving pavement friction at locations with high wet-weather crash rates reduces wet-road crashes by 50 percent and total crashes by 20 percent.

High-Friction Surfacing

Pavement experts typically increase pavement friction through microtexturing and macrotexturing of the pavement surface. Microtexturing refers to the initial roughness on the aggregate surface and the aggregate's resistance to wear and polishing. Macrotexturing is a technique for arranging and surfacing the aggregate. How these two properties are combined creates pavement friction or skid resistance. To create friction on concrete pavement, designers generally apply techniques such as tining, brooming, turf dragging, and

grooving. Friction for asphalt pavement, on the other hand, derives from the relative roughness of the aggregate particles and proper aggregate gradation.

How can transportation officials increase pavement friction beyond what is attainable through traditional microtexturing and macrotexturing techniques? One way is through new high-friction surfacing systems, which consist of combining resins and polymers—usually urethane, silicon, or epoxy—with a binder topped with a natural or pigmented hard aggregate.

What distinguishes these overlays from standard asphalt and concrete pavement surfaces is the microtexturing and macrotexturing. High-friction surfacing systems typically use much smaller and harder aggregates, such as calcined bauxite, granite, or hard limestone. These aggregates are generally less than 0.07 inch in diameter and have a relatively high polished stone value (PSV), which is the measure of an aggregate's resistance to polishing and wear. According to pavement industry guidelines, aggregates with PSVs exceeding 60 are regarded as having high skid resistance.

The small and hard aggregate makes the overlay much more resistant to wear and polishing. The resin or polymer binder combination locks the aggregate firmly in place, creating an extremely rough, hard, durable surface capable of withstanding everyday roadway demands such as heavy braking and snowplowing. The rougher and more abundant surface area increases the pavement's friction. Road crew workers can apply high-friction surfacing treatments on top of most road surfaces, including asphalt, concrete, steel, and wood.

The crew applies the high-friction pavement surface as a thin overlay using a multistep process. After establishing traffic control, the crew sweeps and moisture-dries the pavement surface where necessary. Next, the workers tape over any pavement markings. At the same time, a crew mixes the binder and then spreads it by machine or hand over the surface area using squeegees or a mechanical spreader.

Then, the workers spread the aggregate over the binder, sweeping away any excess using brooms or a mechanical sweeper. Most high-friction surfaces cure in 3–4 hours, as long as ambient temperatures meet manufacturers' specifications, typically 50–60 degrees Fahrenheit, making the entire process doable in half a day on a typical high-friction overlay.

See **Friction** on page 9



Road crew applies the high-friction pavement surface as a thin overlay using a multistep process.

Evolving Applications

High-friction surfacing systems developed in Europe in the early 1960s and arrived in the United States in the late 1970s. Transportation agencies initially used high-friction surfacing systems to seal and improve the safety of bridge decks and to reduce skidding and shorten stopping distances on approaches to intersections and tollbooths. Brightly colored or pigmented high-friction surfaces are common in Europe—and to a lesser extent in the United States—as traffic-calmers and delineators, especially at crosswalks and roundabouts. European transportation agencies also use these surfaces to mark bicycle and bus lanes.

In the late 1980s, U.S. researchers began to investigate the effectiveness of applying high-friction surfacing systems on horizontal curves to reduce run-off-the-road crashes. A 1989 study by the University of Michigan Transportation Research Institute for FHWA evaluated 15 troublesome freeway ramps at 11 interchanges in five States. The study found that truck crashes were all “clearly related to geometry and vehicle dynamics.” In general, tight-radius curves on ramps and short acceleration and deceleration lanes cause problems for heavy trucks, the report said.

Another of the report’s major findings was that friction levels on high-speed ramps can be dangerously low in certain conditions. Hydroplaning can occur in wet weather at sites with poor pavement texture, making trucks particularly vulnerable on tight-radius curves. According to the report, “one proven countermeasure is to resurface ramps with high-friction overlays.”

Toward that end, the FHWA’s Office of Pavement Technology and Office of Safety Design are leading an effort to demonstrate and evaluate the effectiveness

of high-friction surfacing systems at horizontal curves with high crash rates. In this project, FHWA provides technical assistance and covers the cost of the overlay, while States handle traffic control and pre- and post-project traffic studies. FHWA’s Innovative Bridge Research and Construction (IBRC) Program also sponsors some demonstration projects.

Numerous State, county, and city transportation agencies across the country are involved in demonstration projects or full implementation of high-friction surfacing systems to improve safety. Although many of these projects are too recent to obtain adequate long-term crash data to substantiate overall effectiveness, preliminary data and observations suggest this technology could indeed be an effective countermeasure for wet pavement and on dangerous curves and steep grades.

Freeway Ramp Improvements in Florida

The Florida Department of Transportation (FDOT) recently launched a demonstration project to evaluate installation of an epoxy-resin, high-friction, thin overlay treatment on a crash-prone freeway loop ramp near Fort Lauderdale. Despite an advisory speed limit of 40 kilometers (25 miles) per hour and adequate curve warning and chevron signs, the ramp from eastbound Palm Royal Boulevard to northbound I-75 in Weston recorded 12 run-off-the-road crashes in 2002–2004, with 83 percent of those crashes occurring when the road was wet.

The FDOT applied the high-friction surface over a 91.4-meter (300-foot)-long section just ahead of the area on I-75 where most of the crashes had occurred. The treatment consisted of an epoxy-resin binder topped with calcined bauxite aggregate. Workers applied the treatment on May 15, 2006, using buckets and squeegees during a night operation starting at 10 p.m. FDOT opened the ramp to traffic by 5 a.m. the next morning.

A traffic consulting firm hired by the FDOT to conduct before-and-after studies in 2007 found that only two run-off-the-road crashes occurred on the ramp within 1 year of the treatment’s application. Also, the proportion of drivers encroaching on the outer and inner shoulders decreased significantly under wet conditions after installation of the high-friction overlay. The study revealed no significant differences measured in dry conditions.

See **Friction** on page 17

“Air Quality 101” Training Goes on the Road to Minnesota

The FHWA Resource Center’s Air Quality Technical Service Team (TST) presented an “Air Quality 101” workshop to more than 70 staff members from the FHWA, the Minnesota Department of Transportation, MPOs, local governments, consultants, and the State air quality agency. The workshop was requested by the Minnesota Division Office, because of the number of new employees moving into the field at the State and local levels. Representatives from the Wisconsin FHWA Division Office and MPOs also attended. The course covered the basics of regional-scale and project-level air quality analysis, and recent developments that are changing the way air quality analysis is conducted at both levels.

Jeff Houk, Air Quality Engineer at the FHWA Resource Center stated that the course “ensures that all consultants and State reviewers are ‘on the same page’ with respect to current regulatory requirements and analysis approaches.”

For more information on this training please contact:

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Planning 101 Workshop Offered

The FHWA Resource Center’s Planning Technical Service Team (TST) recently delivered a workshop on Planning 101 at the request of the DelMar Division office. This workshop was offered in Salisbury, MD at the Metropolitan Planning Organization’s (MPO) offices. This session was customized so the contents could piggy back onto the meeting of the MPO Policy Board. The request for this workshop was the result of a large turnover in Policy Board members. The Policy Board is made up mostly of elected officials, with the mayor in attendance at the training.

Issues addressed in this workshop included:

- Metropolitan transportation planning requirements
- Long-range plan development
- Transportation Improvement Program preparation
- Public participation (methods and techniques)
- Fiscal constraint

The workshop engaged the participants and was very timely as they are in the middle of a long-range transportation plan update.

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Basics on the MUTCD Workshop: The How, When, and Why’s

The FHWA’s Resource Center’s Operations Technical Service Team (TST) delivered a workshop to the Indiana Department of Transportation at the request of the Indiana Division Office on the structure of the Manual Uniform Traffic Control Device (MUTCD).

This 1-day workshop included information on:

- Human factors and how they influence the design and placement of traffic control devices
- Low volume roads
- Signs, lines and signals and how they are applied to control traffic for an intersection

A summary and review of all 10 parts of the MUTCD were presented at this workshop, and it also examined how the MUTCD is applied as a tool to make our roads safer. This class is available to local government agencies.

For more information on this workshop, please contact:

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Northern Air Quality Summit

Slated for August 13-15

The Federal Highway Administration (FHWA) and the U.S. Environmental Protection Agency (EPA) are sponsoring a cutting-edge transportation and air quality conference this summer in Baltimore, MD. The Northern Transportation and Air Quality Summit (NTAQS) will take place August 13-15, 2008, at the Renaissance Harborplace Hotel in Baltimore. Don't miss this opportunity to interact with other transportation and air quality professionals.

The NTAQS will bring together stakeholders from the fields of transportation and air quality to discuss the current and upcoming regulatory environment, new technologies and current practices.



The conference agenda is geared toward practitioners in the northern and Mid-Atlantic States involved with public agencies at all levels. A host of speakers on the national

and regional levels will present on key topics, best practices and latest information vital to transportation, planning, and air quality professionals. Topics will include mobile source air toxics, the MOVES model, climate change, transportation conformity, interagency consultation, and more.

Those encouraged to attend include transportation and air quality staff at the Federal, State, and local government levels, including the FHWA, the EPA, Federal Transit Administration, State DOTs, State air and environmental agencies, metropolitan planning organizations, transit agencies, and city and county agencies. Consultants, academia and others involved in the transportation and air quality arenas are also urged to attend.

The Renaissance Harborplace Hotel is located in the heart of the Inner Harbor in downtown Baltimore. For more information about the conference and hotel reservations, go to the NTAQS Web site at www.marama.org/ntaqs.

Conference co-sponsors include the Mid-Atlantic Regional Air Management Association, the Mid-Atlantic Diesel Collaborative and the Baltimore Metropolitan Council.

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Summit at a glance

Topics*

Climate change, Mobile Source Air Toxics, MOVES model (workshop), Transportation Conformity, Interagency Consultation, NAAQS Revisions, Air Pollution Health Effects

Registration

Register now!

Visit www.marama.org/ntaqs

Hotel

Renaissance Harborplace Hotel, a beautiful hotel located conveniently in downtown Baltimore, will be the host site. A limited block of rooms is available for the per diem of \$155/night until July 11th. Contact the hotel at **1-800-468-3571** to reserve a room or visit them on the Web at: www.renaissanceharborplace.com. The Group code is NTANTAA.

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* *Final agenda may change*

SPECIAL FEATURE

With summer here, and vacation season starting, we thought you might find the following piece interesting. It was written by Bob Dallas, Director of the Governor's Office of Highway Safety, in Georgia, and was issued as a press release to the local media there.

LETTER TO THE EDITOR: Georgia's Top Ten Excuses for Not Buckling-Up

Dear Editor,

Let's face it. When it comes to lame excuses, cops have heard them all. Wouldn't you like to know what **NOT** to say if police catch you **NOT** wearing your seatbelt during the Memorial Day Click It Or Ticket enforcement campaign?

Here, in no particular order, are the **Top Ten Excuses** known to law enforcement officers and highway safety offices across the country for **NOT** buckling-up. Sure, we're showing you these just for fun. But below each one is the reason that excuse won't get you out of a ticket if you don't click it. And we're showing you that too, just to save your life.

EXCUSE #1: "I'm afraid of getting trapped in a crashed car."

If you're *not buckled-up* at the time of a crash, you're more likely to be killed or knocked unconscious and unable to get out of the car at all. If you *are* buckled-up, you're more likely to stay in place and remain conscious, in control of the vehicle, and able to make smart decisions that will save your life. (Please move on to the next excuse.)

EXCUSE #2: "It irritates the skin on my neck or chest."

Most newer vehicles have adjustable shoulder height positioners that allow you to adjust the shoulder belt up or down for a more comfortable fit. For older cars, some drivers wear clothes with a higher neck to provide some extra padding. But affordable after-market safety belt neck pads are also available at most stores where auto parts and accessories are sold. (This works for me.)

EXCUSE #3: "It makes me feel restrained."

Incredible! That's what it's supposed to do. In a crash, this remarkable device actually holds you in your seat so you won't be tossed around or thrown out of the vehicle where *you're four times more likely to be killed than if you remain in the car*. **FUN FACT:** Driver side seat belts are designed to allow *free movement* of the occupant until a crash occurs (or until you slam on the brakes!)

EXCUSE #4: "I'm too large to wear a seat belt. It doesn't fit."

It's back to the auto parts store for you! You can purchase a *seat belt extender* for just a few dollars, which usually resolves this issue, restores your comfort, and makes you a law-abiding driver again.

EXCUSE #5: "I can't look over my shoulder before turns."

Yes, you can! A seat belt restrains your chest, **NOT** your head. (Please try another excuse.)

EXCUSE #6: "I forgot."

Really? Most cars now come equipped with those annoying seat belt reminder systems that keep beeping when the seat belt isn't buckled. So after you forgot it, you must have ignored it.

EXCUSE #7: "Nobody tells me what to do in my car."

Well, nobody but the folks who issued your driver's license. Under the law, driving is still considered a privilege, **NOT** a right. So many states have traffic laws that mandate what motorists can and cannot do. It's illegal to drive drunk; it's illegal to speed; and yes, with few exceptions, it's illegal to drive or ride without a seat belt in Georgia.

EXCUSE #8: "I have an air bag. I don't need a seat belt."

These new car safety devices can be confusing until you understand how airbags really work. They're designed to function in conjunction *with* seat belts, **NOT** as independent restraint systems. They are **NOT** soft, cushy pillows. Air bags inflate at an amazing 250-miles-an-hour (the blink of an eye) and begin to deflate immediately after deployment. If you're not buckled-up, you'll land in the airbag. Since it starts to deflate immediately, you'll still be at risk to crash into the steering column, or through the windshield.

See **Top 10** on page 13



EXCUSE #9: “I can’t wear a seatbelt because I can’t feed my baby with it on.”

We call this Distracted Driving and it’s a killer. If you’re driving, your eyes should be on the road. If you’re trying to feed your baby who is safely secured in the backseat, you can’t possibly be focusing your attention on the road ahead and *you’re risking both of your lives!* So here are a couple safe parenting tips: If you’re a passenger and need to feed your baby a bottle, sit in the back seat with the baby. Both of you should be properly restrained. Nursing mothers should never feed a baby while the vehicle is moving. If someone crashes into your car, the laws of physics will make it impossible for you to hold onto your baby. Pull over to a safe location to nurse.

EXCUSE #10: “I have a medical condition. I can’t wear it.”

Finally, here’s a valid excuse! *But only if you can show a medical note written by your doctor.* Be sure to carry it in your purse or wallet so it remains with you if you are a passenger in someone else’s vehicle.

But remember, in our 2006 crash count, 1,308 Georgians were killed in motor vehicle crashes. About half of those fatalities died in collisions where the victims weren’t wearing safety belts and didn’t live to warn you about their mistakes. But ask any of Georgia’s 8,215 motor vehicle crash victims who were unrestrained and injured in 2006 and they’ll tell you, *NO EXCUSE* is worth the knowledge that all their pain and suffering might have been avoided in the two seconds it takes to buckle a seat belt.

Please remember to buckle-up this Memorial Day. Every seat. Every Trip. Every Time.

Bob Dallas

Bob Dallas, Director
Georgia Governor’s Office of Highway Safety



PARTNERSHIPS

Structures Team Helps NPS Value Analysis Study of Bridge Deck Overlays

Recently, the FHWA Resource Center Structures Technical Service Team provided technical assistance in a Value Analysis Study of Bridge Deck Overlays for the Southeast Region of the National Park Service (NPS). The activity was undertaken in Boone, NC, at the request of the NPS, through the FHWA Federal Lands Bridge Office.

The purpose of the study was to collaboratively create alternatives for bridge deck overlays on NPS historic parkways. The FHWA Resource Center staff participated on a team that developed objectives for rehabilitating bridge decks; summarized best-case scenarios from a ‘choosing by advantage’ study; and investigated initial and life-cycle costs for each alternative.

Along with providing input into assumptions for value analysis, project goals, a list of stakeholders/primary interests, and evaluation factors and attributes, the Structures Team member provided a national snapshot on the use of overlay materials.

A draft report of the study is currently under review by team members. A final version including appendices will follow shortly and will include a toolbox of preventive maintenance and remedial repair processes for bridge decks. The report will be a key product for the two agencies to use in systematically evaluating alternatives for bridge deck surface treatments.

Questions about the study may be directed to:

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CENTERED ON QUALITY

FHWA Resource Center Safety Design Specialist Wins Individual Safety Award

. . . and the winner is . . .

- FRED RANCK -

Recently, FHWA Resource Center (RC) Safety Design Engineer Fred Ranck was awarded the "2008 ITE" (Institute of Transportation Engineers) "Edmund R. Ricker Award" for individual outstanding contributions to the field of traffic safety. Winners are chosen by members of the Transportation Safety Council each year. The Award for Individuals is given to a person who is recognized as a leader in the field of traffic safety through his/her safety activities in professional organizations, in the community, or in the performance of traffic engineering.

Upon winning the award Fred stated, "Our profession of transportation engineering has been significantly and forever changed by the advent of the 'Science of Safety' in this past decade; it has been the most quiet of revolutions but by no means a small one. The substantive safety philosophy is now an integral part of the practice of transportation engineering. This decade, our decade, will be noted for the coming of the Highway Safety Manual and for its application persuasively to all transportation projects, both small and large."

Patrick Hasson, Team Leader for the Safety and Design Team said, "This is highly notable national recognition from one of our key safety partners. I hope everyone will join me in applauding Fred for this well deserved (and hard earned) recognition!"

Fred is the second member of the RC Safety & Highway Design Team to be honored with this award. Teammate Rudy Umbs received the honor in 2006.

Congratulations!

CENTERED ON RESULTS

FHWA Resource Center Welcomes New Team Members



CIVIL RIGHTS

Janet Hayes
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Janet Hayes recently joined the Resource Center Civil Rights Technical Service Team (TST) as an Equal Opportunity Specialist. Her appointment is a promotion from her position as a Program Assistant for the Innovative Finance Team, a position she had held since 2003.

Hayes credits her Innovative Finance Team Leader, Thay Bishop, with encouraging her to complete her education. She expects to receive a bachelor's degree in Business Management in May 2009 from the University of Phoenix's Atlanta, GA, campus. While working as a Program Assistant in the Resource Center, she had the opportunity to assist the Civil Rights Team Leader with many special projects, as well as conferences and workshops over the years.

As an Equal Opportunity Specialist, Hayes will handle special projects and national initiatives. She will work closely with team members and the Headquarters Civil Rights staff in developing and delivering technical assistance and training in monitoring State Transportation Agencies to ensure all activities of Federal-Aid recipients and contractors meet Federal Equal Opportunity requirements.

Hayes started her career as a U.S. Army Military Personnel Clerk and began her Civil Service career in 1989. She started working for the FHWA in 1999 with the Georgia Division Office and shortly thereafter joined the Resource Center in 2001 as a Program Assistant for the Administrative Team.



SAFETY & HIGHWAY DESIGN

Richard Albin

Safety Engineer

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Richard Albin joins the FHWA Resource Center's Safety & Highway Design Technical Service Team specializing in Roadside Safety and Safety Design. Previously, he served with the Washington State Department of Transportation (WSDOT), which he had joined originally as a Roadside Safety Engineer and was subsequently promoted to Assistant State Design Engineer during the course of his 15 years with the WSDOT. There he completed work in the areas of roadside safety, the development of policy and standards in the same, and he facilitated project approvals. He had begun his transportation career in 1987 with the New York State Department of Transportation as a junior engineer and was eventually named Project Scoping Supervisor for that agency during his 6 years there before moving on to the Washington State posts mentioned above. Albin is a licensed Professional Engineer in the State of Washington and received his bachelor of science degree in civil engineering from the University of Wyoming.

George Merritt

Highway Safety Engineer

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George Merritt has joined the Safety & Highway Design Technical Service Team as a Highway Safety Engineer in the Atlanta office of the FHWA's Resource Center.

Merritt began working in the transportation field in 1999, and joined FHWA in 2001. He brings expertise in the areas of Geometric Design; interchange design; context sensitive solutions; roadside design; older driver highway design; retroreflectivity/highway visibility; pavement markings/sign sheeting; human factors/behavioral aspects relating to motorists; and crash data analysis.

Merritt's accomplishments include: assisting in the implementation of C.A.R.E./Traffic crash analysis tool in Alabama and Georgia; assisting in the development and implementation of cable median barrier projects in Georgia; and assisting Georgia in the review of Interchange Modification/Justification Reports. Previously, he served for more than 5 years in the Georgia Division Office, where he had oversight responsibility for the design and construction of several complex urban interchanges, HOV system expansion projects, safety improvement, congestion relief and capacity improvement projects as

well as serving as the FHWA liaison for highway design, Context Sensitive Design/Solutions and standards development. Prior to working in Georgia, he served 4 years with the FHWA Division Office in Alabama and the Indiana DOT, primarily working in the area of Bituminous Materials and construction.

Merritt is a member of FHWA National Design Steering Committee, FHWA Retroreflectivity Team, the FHWA Pavement Marking NPRM Team, and the American Society of Civil Engineers. He earned his bachelor's of science degree in Civil Engineering from Tri-State University in Angola, Indiana.

Donald Neumann

Highway Safety Specialist

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Donald Neumann is one of the newest members of the FHWA Resource Center Safety & Highway Design Team. His specialty areas include Road Safety Audits, coalition building, Strategic Highway Safety Plans, the Highway Safety Improvement Program, safety communications and outreach, NHTSA highway safety programs, NEPA and transportation decisionmaking, Section 4(f) Protection, Historic Preservation - Section 106, and Environmental Justice. Neumann has worked for the FHWA since 1967 and has been working in his field for more than 36 years. He has worked as a Highway Engineer in five separate locations including the FHWA Office of Federal Lands for 3 years monitoring safety, cost, noise, and air quality; the FHWA Nebraska Division for 3 years as Area and Safety Engineer; the FHWA Headquarters' Office of Safety for 2-1/2 years; the FHWA Headquarters' Office of Planning for 2-1/2 years; and the FHWA Missouri Division for 23 years where he took on many roles including Programs, Planning, and Research Engineer. He most recently worked as a Safety Specialist for the FHWA Headquarters' Office of Safety for 3 years. Neumann is a member of the Missouri and the National Society of Professional Engineers, Engineers' Club of Jefferson City, and the Professional Engineers in Government and holds a license as a Registered Professional Engineer in Missouri. He studied in the UCLA Environmental Management Institute and received his bachelor of science degree in Civil Engineering at St. Louis University.

CALENDAR OF EVENTS

This *Calendar of Events* is presented to highlight upcoming conferences, workshops, and other special dates of interest to the transportation community.

Jul 6 - 10 -- 4th International Conference on Advanced Engineered Wood & Hybrid Composites -- Bar Harbor, ME -- Roberta_Laverty@umit.maine.edu

Jul 6 - 9 -- Annual Workshop on Transportation Law -- San Diego, CA -- jmcdaniel@nas.edu

Jul 7 - 12 -- 79th Annual LULAC National Convention and Expo -- Washington, DC -- www.LULAC.org/events/convention08.html

Jul 11 - 12 -- World Congress on Disabilities -- Reading, PA -- www.wcdexpo.com/2008/penn

Jul 13 - 17 -- Fourth International Conference on Bridge Maintenance Safety and Management Seoul, Korea -- ian.friedland@dot.gov

Jul 14 - 18 -- Investigating External Complaints of Discrimination -- Fort Lauderdale, FL -- Thalia.Williams@dot.gov

Jul 14 - 18 -- Federally Employed Women's Conference -- Anaheim, CA -- www.fewntp.org

Jul 15 - 16 -- ADA/Accessibility Requirements for Highway Design and Pedestrians -- West Palm Beach, FL -- dpage@ce.ufl.edu

Jul 17 - 18 -- ADA/Accessibility Requirements for Highway Design and Pedestrians -- St. Petersburg, FL -- dpage@ce.ufl.edu

Jul 20 - 26 -- ICCE-16 -- Kinming, China -- dhui@uno.edu

Jul 21 - 22 -- ADA/Accessibility Requirements for Highway Design and Pedestrians -- St. Augustine, FL -- dpage@ce.ufl.edu

Jul 22 - 25 -- FTA/FHWA Planners Seminar -- Washington, D.C. -- robin.smith@dot.gov

Jul 24 - 25 -- ADA/Accessibility Requirements for Highway Design and Pedestrians -- Milton, FL -- dpage@ce.ufl.edu

Jul 27 - 30 -- 6th National Seismic Conference on Bridges & Highways -- Charleston, SC -- www.scdot.org/events/6NSC/default.shtml

Aug 1 -- Northeast Transportation and Air Quality Summit 2008 -- Baltimore, MD -- Karen.Perritt@dot.gov

Aug 3 - 7 -- 23rd Annual Federal Dispute Resolution (FDR) Conference -- Orlando, FL -- Mail registrations to FDR Conference Registration LRP Conferences PO Box 24668, West Palm Beach, FL, or fax to 561-622-2423.

Aug 3 - 7 -- AASHTO -- Subcommittee on Construction Annual Meeting -- San Antonio, TX -- jimm@ashto.org

Aug 4 - 8 -- EEO Training for Supervisors and Managers -- Lakewood, CO -- Deborah.A.Johnson@dot.gov

Aug 11 - 16 -- 6th International Conference on Case Histories in Geotechnical Engineering -- Arlington, VA -- dce@mst.edu

Aug 13 - 14 -- New Madrid Seismic Zone Conference Rolla, MO -- dce@mst.edu

Aug 17 - 20 -- ITE 2008 Annual Meeting and Exhibit Anaheim, CA -- ite_staff@ite.org

Aug 18 - 21 -- EEOC Excel Conference -- Chicago, IL -- eeoc.traininginstitute@eeoc.gov

Sep 5 - 10 -- AASHTO National Transportation Civil Rights Conference -- Anchorage, AK -- hwhitney@ashto.org

Aug 25 - 29 -- 2008 National Hydraulic Engineering Conference -- Portland, ME -- cynthia.nurmi@dot.gov

Sep 7 - 10 -- Governors Highway Safety Association -- Scottsdale, AZ -- www.ghsa.org

Sep 8 - 11 -- SAMPE Fall Technical Conference 2008 Memphis, TN -- sampebo@sampe.org

**For event details and contact information
visit our website at:**

www.fhwa.dot.gov/resourcecenter

Skid tests conducted after the treatment showed a substantial increase in pavement friction. “I’ve been really impressed with the results,” said Gilbert Soles, a safety program manager for FDOT’s District 4 who supervised the demonstration project. “It’s made a difference. We’ve seen fewer crashes as a result of the treatment.”

The final report, *Evaluation of Innovative Safety Treatments*, concluded, “Overall, the treatment was found to be effective in increasing the friction between the roadway and vehicle tires. The treatment was also found to assist motorists in maintaining their lane position under wet pavement conditions. In addition, drivers tended to slow down when traveling over the treated section of the ramp. It appears the use of [the treatment] may be a practical countermeasure for improving safety at locations that are prone to run-off-the-road crashes, particularly sharp curves and entry/exit ramps.”

The FDOT is planning two more demonstration projects involving similar high-friction surfacing systems. One project involves a sharp curve on an interstate off-ramp with numerous guardrail hits. The other will take place at a downgrade from a local street bridge to a signalized intersection where rear-end crashes have occurred.

Improving Intersection Safety

The city of Bellevue, WA, near Seattle, applied a similar treatment on an approach to one of its more crash-prone intersections. Drivers heading east on Forest Drive just before reaching Cold Creek Parkway must simultaneously negotiate an extremely steep (14 percent) downgrade and a sharp 33.5-meter (110-foot)-radius left curve before reaching a signalized T-intersection.



From 1997 to 2002, the intersection experienced 21 crashes, some serious, including four rollovers. Nearly all the crashes were rear-enders that occurred in wet or icy conditions where excess speed was a factor. Bellevue tried several countermeasures, including installing a large flashing warning sign at the bottom of the grade, additional road markers, and raised pavement buttons.

In October 2004, the city installed a high-friction, epoxy-resin overlay similar to the one used in Florida on the steepest and curviest section of Forest Drive just before the intersection. Crews first installed the treatment on the downhill lane, then completed the uphill lane the next day. Each lane was opened to traffic within 4–6 hours.

After the installation, the city recorded significant increases in pavement friction along the treated section. Only two crashes occurred at the intersection after the treatment—one the result of brake failure, the other due to an inattentive driver. Increasing the friction helped create a surface that acts similarly to dry pavement even in wet and icy conditions. “We’ve received a lot of good comments from the public,” said Judy Johnson, the Bellevue street maintenance superintendent. “We’re not having any maintenance issues and the treatment has proven to be very durable.”

Facing a similar situation with a steep grade ending at a busy urban intersection, the city of Lincoln, NE, completed a high-friction surfacing demonstration project in October 2007. Rosa Parks Way makes a steep descent from a bridge down to a major downtown intersection at Ninth Street. The downgrade was prone to icing, with heavy trucks in particular having difficulty braking for the intersection despite variable message signs warning drivers of the steep grade. The city expects to complete its before-and-after traffic study by the end of 2008.

Applications on Two-Lane Rural Roads

The Pennsylvania Department of Transportation (PennDOT) recently embarked on a demonstration project involving a high-friction overlay system along a high-crash section of State Route 611 in Northampton County, adjacent to the Delaware Canal. This section of two-lane rural highway included a sharp horizontal curve, a narrow 2.7-meter (9-foot) lane width, and no shoulders. On one side is a steep cliff, on the other a steep dropoff to the canal below. From 1997 to 2006, this curve segment recorded 22 crashes. All occurred in the southbound lane, and all were single vehicle run-off-the-road or head-on crashes, according to PennDOT.

No crashes occurred after PennDOT applied the treatment in June 2007, according to Stephen P. Pohowsky, a PennDOT safety program specialist who supervised the project. To obtain more data, PennDOT plans to install high-friction surface treatments in its Engineering District 5 at two additional high-traffic, crash-prone sites with sharp horizontal curves.

See **Friction** on page 18

Friction from page 17

In August 2004, the Tennessee Department of Transportation (TDOT) tried the same epoxy-resin calcined aggregate overlay on a 91.4-meter (300-foot) section of a cloverleaf ramp from Conference Drive to Vietnam Veterans Boulevard near Hendersonville. The ramp's concrete pavement had become noticeably polished due to heavy traffic. The treatment significantly improved the ramp's friction, according to TDOT.

"I've been around this business for 28 years, and I can tell you that this is one of the best solutions I've seen for preventing run-off-the-road crashes," said Danny Lane, an operations specialist with TDOT's Materials and Tests Division. "The fact that you can get these friction numbers way up means you're going to have fewer skidding problems, and that's going to save lives."

For more information, please contact:

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