

# FOCUS

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2009

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## Your Online Training Connection for Concrete Pavement Construction

From the fundamentals of materials used for concrete pavements to troubleshooting techniques, an array of free online training courses on materials and construction practices for concrete pavements are available from the Transportation Curriculum Coordination Council (TCCC), in partnership with the Federal Highway Administration's (FHWA) National Highway Institute (NHI). The TCCC's members include representatives from FHWA, NHI, regional State training and certification groups, several American Association of State Highway and Transportation Officials subcommittees, and industry associations.

Developed in conjunction with the National Concrete Pavement Technology Center at Iowa State University and FHWA's Office of Pavement Technology, the training covers everything from concrete durability to cement hydration.

"The Web courses are self-paced and brief in duration, intended to provide basic principles to construction personnel within State and local transportation agencies, FHWA, and industry," says Christopher Newman of FHWA. "These courses are an ideal training tool for construction crews."

**"The Web courses are self-paced and brief in duration, intended to provide basic principles to construction personnel within State and local transportation agencies, FHWA, and industry."**

**TCCC QC/QA for Concrete Pavements**  
(Course No. FHWA-NHI-134100—1 hour)

Offering an overview of quality control/quality assurance (QC/QA) concepts and definitions, this module is part of a curriculum from the *Integrated Materials and Construction Practices for Concrete Pavement* (IMCP) manual developed by the National Concrete Pavement Technology Center.

**TCCC Hardened Concrete Properties—Durability**

(Course No. FHWA-NHI-134075—1 hour)

The module looks at durability as a property of hardened concrete and how it is essential for long-lasting pavements. The training discusses factors that contribute to durable concrete, as well as such topics as permeability, frost resistance, sulfate resistance, alkali silica attack, and abrasion resistance.

**TCCC Fundamentals of Materials Used for Concrete Pavements**

(Course No. FHWA-NHI-134084—2 hours)

Participants will learn about the materials used in portland cement concrete and how they play an invaluable role in the performance of

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[www.tfhrc.gov/focus/focus.htm](http://www.tfhrc.gov/focus/focus.htm)



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## Concrete Pavement Construction,

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The online concrete construction training courses cover everything from materials to troubleshooting techniques.

the concrete. The training covers both nonreactive and reactive materials, including aggregates, curing compound, and reinforcement.

### TCCC Incompatibility in Concrete Pavement Systems

(Course No. FHWA-NHI-134085—1 hour)

The module covers the incompatibilities of materials used in portland cement concrete. Although certain materials are acceptable on their own, when combined they are not compatible with each other. This can lead to early stiffening, retardation, cracking, and the lack of a quality air void system, all of which can affect workability, finished quality, and the long-term performance of the concrete.

### TCCC Mix Design Principles

(Course No. FHWA-NHI-134087—1 hour)

This module discusses basic principles of mix design and mix proportioning. Mix design is the process of choosing the characteristics of the concrete mixture, while mix proportioning involves taking the information provided by the mix design process and using it to determine the actu-

al proportions of ingredients in the mixture. The course discusses how designers use theoretical, laboratory, and field testing to determine the concrete mix that will achieve the best possible durability, strength, constructibility, economy, and uniformity.

### TCCC Early Age Cracking

(Course No. FHWA-NHI-134095—1 hour)

The module examines why early age cracking occurs, which is defined as those cracks that occur before the concrete is open to public traffic, and how to eliminate or control the problem during construction. One solution featured is to control cracks through jointing, enabling the concrete to crack below a saw joint to relieve the stress.

### TCCC Basics of Cement Hydration

(Course No. FHWA-NHI-134096—1 hour)

The course explains how a concrete mixture changes from a plastic state to become a solid concrete slab in a relatively short period of time. Central to this transformation is a complex process known as hydration, which is an irreversible series

of chemical reactions between water and cement. An understanding of this concept is useful to construction crews, as it relates to concrete placement and curing.

### TCCC Fresh Concrete Properties

(Course No. FHWA-NHI-134097—1 hour)

Participants will learn how to prepare fresh concrete so as to produce high-quality, long lasting pavements. The training also looks at how to monitor the concrete's properties, recognize the principles of quality construction, and identify proper material handling.

### TCCC Construction of Concrete Pavements

(Course No. FHWA-NHI-134098—1 hour)

This module covers concrete paving operations, including the placing, finishing, curing, and sawing of the concrete. The module also looks at how to identify proper material handling.

### TCCC Design of Pavement

(Course No. FHWA-NHI-134101—1 hour)

Participants will learn how the principles of pavement design and subgrade con-

cepts relate to materials and construction. The module provides construction crews with insights into the primary goal of pavement design, which is to produce safe, long lasting, cost-effective, low maintenance, and constructible pavements.

### **TCCC Troubleshooting for Concrete Pavements**

(Course No. FHWA-NHI-134102—1 hour)

The module uses a series of case studies to highlight the identification and diagnosis of problems related to concrete pavement, both pre- and postconstruction. Using information available in the IMCP manual, participants will practice developing a plan to address issues they might encounter in the field.

All of the training courses in the TCCC concrete series are available for scheduling at any time through the NHI online course catalog ([www.nhi.fhwa.dot.gov/training/brows\\_catalog.aspx](http://www.nhi.fhwa.dot.gov/training/brows_catalog.aspx)). For additional information on the TCCC courses, contact Christopher Newman at FHWA, 202-366-2023 (email: [christopher.newman@fhwa.dot.gov](mailto:christopher.newman@fhwa.dot.gov)). To learn more about the TCCC's many training resources, visit [www.nhi.fhwa.dot.gov/tccc](http://www.nhi.fhwa.dot.gov/tccc).



A two-lift concrete pavement test section under construction in Pleasanton, KS, in June 2008 on U.S. 69 and East 1100 Road.

## **SHRP 2: Advancing the Nation's Highway System**

The Strategic Highway Research Program (SHRP) 2 continues to move forward with accelerating solutions for highway safety, renewal, reliability, and capacity. The program's goal is to develop recommended procedures, practices, and applications to advance the Nation's highway system in these four key focus areas. In the renewal area, research addresses the need to complete renewal work quickly and with minimal disruption to the community, as well as to produce facilities that are long lasting. As the SHRP 2 2008 annual report notes, "SHRP 2 research aims to institute a new way of thinking of highway renewal so that the benefits of rapid renewal can be achieved consistently and systematically."

Three renewal projects have been completed to date, R15, "DOT-Utility Coordination: Understanding Key Aspects of the Problem and Opportunities for Improvement," R06, "A Plan for Developing High Speed, Nondestructive Testing Procedures for Both Design Evaluation and Construction Inspection," and R01, "Encouraging Innovation in Locating and Characterizing Underground Utilities." Nineteen projects are in progress, with seven more expected to begin by the end of 2009. To download the final report from Renewal Project R15, *Integrating the Priorities of Trans-*

*portation Agencies and Utility Companies*, as well as the final report from Project R06, visit [www.trb.org/SHRP2](http://www.trb.org/SHRP2). SHRP 2 has also launched a follow-on project, R15-B, "Identification of Utility Conflicts and Solutions." This project is designed to create tools and methods that public agencies and utilities can use to identify and resolve utility conflicts and improve the overall project development process.

More information on all of the SHRP 2 projects is available in the program's 2008 Annual Report, *Building the Vision*. The report is available online at [onlinepubs.trb.org/onlinepubs/shrp2/SHRP2AnnualReport2008.pdf](http://onlinepubs.trb.org/onlinepubs/shrp2/SHRP2AnnualReport2008.pdf). For more information on SHRP 2, visit [www.trb.org/SHRP2](http://www.trb.org/SHRP2). Information about SHRP 2 is also available by contacting Linda Mason, Communications Officer for SHRP 2 at the Transportation Research Board (TRB), 202-334-3241 (email: [SHRP2@nas.edu](mailto:SHRP2@nas.edu)). SHRP 2 updates are regularly featured in TRB's weekly Transportation Research e-newsletter. To subscribe to the newsletter, send an email with the subject header of "TRB E-Newsletter" to [Rhouston@nas.edu](mailto:Rhouston@nas.edu). The newsletter is posted online at [www.trb.org/Publications/Public/PubsTRBENewsletter.aspx](http://www.trb.org/Publications/Public/PubsTRBENewsletter.aspx).

**SHRP2**  
STRATEGIC HIGHWAY RESEARCH PROGRAM



To learn more about SHRP 2's work to advance the Nation's highway system, visit [www.trb.org/SHRP2](http://www.trb.org/SHRP2).

# FHWA Launches Information Exchange for Bridges

Come join the Federal Highway Administration's (FHWA) new online Information Exchange for Bridges (IEB) at [knowledge.fhwa.dot.gov/cops/ep.nsf/home](http://knowledge.fhwa.dot.gov/cops/ep.nsf/home). Launched by FHWA's Highways for LIFE program and Office of Bridge Technology, the site offers information on innovative products and processes for bridge construction, including details on preparing project descriptions, specifications, and construction drawings. Also featured are the text and construction drawings from FHWA's recently released *Connection Details for Prefabricated Bridge Elements and Systems* manual (see June 2009 *Focus*).

As the IEB is designed to be an electronic sharing library, visitors to the site are encouraged to submit their own documents for posting. Documents can be submitted in the topic areas of fabrication/construction, joints, substructure, and superstructure, as well as various subtopics (select the topic area and then click on "Submit a Reference"). Each document is peer reviewed before posting and assigned a rating indicating its general acceptance by industry reviewers.

"The information sharing aspect of the IEB is a great way for innovative designs and technologies to gain exposure and be refined," says Charlie Goodspeed, Associate Professor of Civil Engineering at the University of New Hampshire in Durham, New Hampshire.

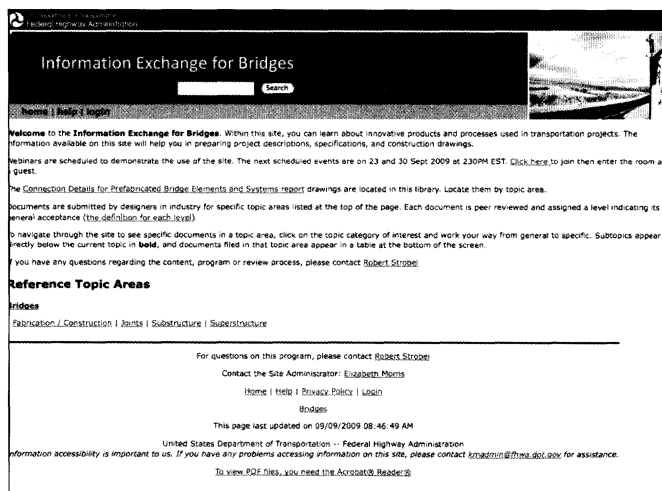
"The world of accelerated construction is evolving from day to day. Each year, more departments of transportation are developing designs for prefabricated bridge elements and systems," notes Mike Culmo, Vice President of Transportation and Structures at CME Associates, Inc., in East Hartford, Connecticut. "The IEB will be a fluid resource that can provide practicing engineers with up-to-the-minute information on bridge technology. It has the potential to be a living version of the FHWA *Connection Details* manual, which will be benefi-

cial to engineers as this technology evolves."

For more information on the IEB, contact Robert Strobel at the University of New Hampshire Technology Transfer Center, 603-862-4348 (email: [robert.strobel@unh.edu](mailto:robert.strobel@unh.edu)). To download a copy of *Connection Details for Prefabricated Bridge Elements and Systems* (Pub. No. FHWA-IF-09-010), visit [www.fhwa.dot.gov/bridge/prefab](http://www.fhwa.dot.gov/bridge/prefab). For more information about the *Connection Details* manual, contact Vasant Mistry in FHWA's Office of Bridge Technology, 202-366-4599 (email: [vasant.mistry@fhwa.dot.gov](mailto:vasant.mistry@fhwa.dot.gov)). To learn more about Highways for LIFE, visit [www.fhwa.dot.gov/hfl](http://www.fhwa.dot.gov/hfl).

The site offers information on innovative products and processes for bridge construction, including details on preparing project descriptions, specifications, and construction drawings.

For additional resources on using prefabricated bridge elements and systems, visit [www.fhwa.dot.gov/bridge/prefab](http://www.fhwa.dot.gov/bridge/prefab). Resources available include examples of innovative projects, videos, and such publications as FHWA's *Framework for Prefabricated Bridge Elements and Systems Decision-Making*.



# Accelerating Construction with EPS Geofoam:

## *Webinar Highlights Advancements in Transportation Applications*

**S**olutions for accelerating construction of highway embankments on soft or unstable ground, a problem that has long challenged transportation engineers, will be highlighted in a free Web conference sponsored by the Federal Highway Administration's (FHWA) Highways for LIFE program and National Highway Institute (NHI).

Scheduled for October 7, 2009, from 2:30–4 p.m. (eastern standard time), Advancements in EPS Geofoam for Transportation Applications will examine how the use of super-lightweight fills such as Expanded Polystyrene (EPS) geofoam to mitigate soft ground problems is becoming more popular. This out-of-the-box solution has enabled transportation agencies to build better, faster, and more cost effectively.

The Web conference will cover applications for EPS Geofoam in highway construction, the benefits and limitations of using the technology, design and construction considerations, and successful case studies from State transportation agencies. Information will also be provided

on current updates to guideline specifications and design guidance for slope remediation.

The EPS Geofoam Webinar is part of the monthly NHI Innovation series, which is designed to bring representatives from State and local transportation agencies, industry, academia, and others up-to-

the-minute information on today's highway technology advances. To register for the EPS Geofoam Web conference, visit the NHI Web site at [www.nhi.fhwa.dot.gov/about/innovationseries.aspx](http://www.nhi.fhwa.dot.gov/about/innovationseries.aspx). To sign up for the NHI Innovations mailing list and receive information about future sessions, send an email to [NHImarketing@fhwa.dot.gov](mailto:NHImarketing@fhwa.dot.gov). For more information on the NHI Inno-

vations series, contact Mary Huie at FHWA, 202-366-3039 (email: [mary.huie@fhwa.dot.gov](mailto:mary.huie@fhwa.dot.gov)).

**This out-of-the-box solution has enabled transportation agencies to build better, faster, and more cost effectively.**

Stay up to date with new course offerings and other information from the National Highway Institute (NHI) by signing up for free email updates. To subscribe to the NHI updates, visit [www.nhi.fhwa.dot.gov/esubscribeinfo.aspx](http://www.nhi.fhwa.dot.gov/esubscribeinfo.aspx). Subscribers can select how often they wish to receive the updates (immediately, daily, weekly, or monthly).

Presentations and audio files from NHI Innovations Web conferences held to date are available online at [www.nhi.fhwa.dot.gov/about/innovationseries.aspx](http://www.nhi.fhwa.dot.gov/about/innovationseries.aspx).

Previous conferences include:

- Best Practices in Accelerated Construction Techniques.
- Precast Concrete Pavement Systems.
- Connections Manual for Prefab Bridges.
- Performance Contracting for Construction.
- Safety Edge.
- Bridge Inspection.
- Self-Consolidating Concrete.

Also available online are presentations and recordings from the NHI Real Solutions Seminar Series, a free monthly series featuring guest speakers discussing problems or issues they have faced in the field and the steps they have taken to solve the problems. Past seminars include:

- Using the Critical Path Method Schedule to Avoid and Measure Project Delays.
- Smart Corridors and Complete Streets.
- Administrative Records: Supporting Your Decision.

To download files or for more information on upcoming Real Solutions seminars, visit [www.nhi.fhwa.dot.gov/about/realsolutions.aspx](http://www.nhi.fhwa.dot.gov/about/realsolutions.aspx).

# Next Generation Transportation Solutions

new series of fact sheets available from the Federal Highway Administration (FHWA) highlights the next generation transportation solutions of FHWA's Exploratory Advanced Research (EAR) Program.

The EAR Program focuses on long-term, high-risk research with a high pay-off potential. The program addresses underlying gaps faced by applied highway research programs, anticipates emerging issues with national implications, and reflects broad transportation industry goals and objectives.

Fact sheets now available include *Real-Time Measurement of Soil Stiffness During Static Compaction* (Pub. No. FHWA-HRT-09-047) and *Increasing Highway Throughput: Communications and Control Technologies to Improve Traffic Flow* (Pub. No. FHWA-HRT-09-037). To see the full list of fact sheets and to download copies,

visit [www.fhwa.dot.gov/advancedresearch/pubs.cfm](http://www.fhwa.dot.gov/advancedresearch/pubs.cfm). Printed copies are available at no charge from the FHWA Research, Development, and Technology Products Distribution Center, 814-239-1160 (email: [Report.Center@dot.gov](mailto:Report.Center@dot.gov)).

To learn more about the EAR Program, contact David Kuehn at FHWA, 202-493-3414 (email: [david.kuehn@fhwa.dot.gov](mailto:david.kuehn@fhwa.dot.gov)), or Terry Halkyard at FHWA, 202-493-3467 (email: [terry.halkyard@fhwa.dot.gov](mailto:terry.halkyard@fhwa.dot.gov)). Information is also available on the Exploratory Advanced Research Web site at [www.fhwa.dot.gov/advancedresearch](http://www.fhwa.dot.gov/advancedresearch). The site includes details on research solicitations, updates on ongoing research, summaries of past EAR Program events, and information about upcoming events.

## FHWA to Host Workshop on Pavement Health Track Analysis Tool

Bring your laptop and get ready to learn about the Federal Highway Administration's (FHWA) new Pavement Health Track Analysis Tool at a workshop scheduled for October 18, 2009, in Portland, Oregon. The free half-day workshop is being held in conjunction with the Eighth National Conference on Transportation Asset Management, which begins October 19 in Portland.

Developed by FHWA's Office of Asset Management, the new tool allows users to determine and report on the health of their pavement network based on the concepts of remaining service life. The pavement health is evaluated by looking at pavement life, rideability, or distress by pavement type under various conditions, such as climate or whether it is in a rural or urban environment. The tool can be used for projects, corridors both within a State and ones that cross State lines, and networks.

"This is a valuable tool that fills the communication gap between engineers and decisionmakers and allows transportation agencies to distribute funding based on a clear picture of network needs," says Nastaran Saadatmand of FHWA's Office of Asset Management. The primary input needed to use the Pavement Health Track Analysis Tool is data from the Highway Performance Monitoring System 2010. Data can also be added from a State's pavement management system database. The tool will be available from FHWA in spring 2010.

To register for the workshop or for more information on obtaining a copy of the Pavement Health Track Analysis Tool once it is released, contact Nastaran Saadatmand at FHWA, 202-366-1337 (email: [nastaran.saadatmand@fhwa.dot.gov](mailto:nastaran.saadatmand@fhwa.dot.gov)).

### EXPLORATORY ADVANCED RESEARCH



#### The Exploratory Advanced Research Program Fact Sheet Real-Time Measurement of Soil Stiffness During Static Compaction

Exploratory Advanced Research Program Fact Sheet Series

Real-time measurement of soil stiffness during static compaction is a critical component of the design and construction of flexible pavement structures. This fact sheet describes the development and implementation of a real-time measurement system for soil stiffness during static compaction. The system uses a combination of sensors and data processing techniques to provide real-time feedback to the operator, allowing for adjustments to be made during the compaction process. This system is designed to improve the quality of the pavement structure and reduce the risk of failure.

#### New Approach to Intelligent Compaction

Most pavement and subgrade soils are laid compacted into place and then rolled, yet the roller's compaction is not uniform. This is because the roller's contact with the soil is not uniform. This fact sheet describes a new approach to intelligent compaction that uses a combination of sensors and data processing techniques to provide real-time feedback to the operator, allowing for adjustments to be made during the compaction process. This system is designed to improve the quality of the pavement structure and reduce the risk of failure.

**The Exploratory Advanced Research Program Fact Sheet**  
**Increasing Highway Throughput**  
Communications and Control Technologies to Improve Traffic Flow

Increasing highway throughput is a critical component of the design and construction of flexible pavement structures. This fact sheet describes the development and implementation of a real-time measurement system for soil stiffness during static compaction. The system uses a combination of sensors and data processing techniques to provide real-time feedback to the operator, allowing for adjustments to be made during the compaction process. This system is designed to improve the quality of the pavement structure and reduce the risk of failure.

**Using the Potential of Intelligent Infrastructure Effectively**

The ability to regulate the speed and spacing of individual vehicles in traffic is a critical component of the design and construction of flexible pavement structures. This fact sheet describes the development and implementation of a real-time measurement system for soil stiffness during static compaction. The system uses a combination of sensors and data processing techniques to provide real-time feedback to the operator, allowing for adjustments to be made during the compaction process. This system is designed to improve the quality of the pavement structure and reduce the risk of failure.

# Highway Technology Calendar

*The following events provide opportunities to learn more about products and technologies for accelerating infrastructure innovations.*

## **Paving Smarter with Asphalt** October 5–6, 2009, Atlanta, GA

Cosponsored by the National Asphalt Pavement Association (NAPA) and Federal Highway Administration (FHWA), this conference will look at the many choices available in the asphalt toolbox, including recycled asphalt pavement, asphalt rubber, perpetual pavements, warm-mix asphalt, intelligent compaction, and thin lifts. The event is aimed at both highway agency and contractor personnel.

*Contact:* Audrey Copeland at FHWA, 202-493-3097 (email: [audrey.copeland@fhwa.dot.gov](mailto:audrey.copeland@fhwa.dot.gov)), or visit [www.hotmix.org](http://www.hotmix.org) (select “Meetings and Events” and then click on “Paving Smarter with Asphalt”).

## **Eighth National Conference on Transportation Asset Management: Putting the Asset Management Pieces Together** October 19–21, 2009, Portland, OR

The conference will highlight emerging issues in transportation asset management, including trade-off analysis, optimization, system management, and safety. Three thematic tracks will be featured: Safety, Pavement Management, and Data and Information Infrastructure. Practical examples of asset management implementation within a State, region, or local community will also be spotlighted.

*Contact:* Tom Palmerlee at the Transportation Research Board (TRB), 202-334-2907 (email: [tpalmerlee@nas.edu](mailto:tpalmerlee@nas.edu)); or Francine Shaw-Whitson at FHWA, 202-366-8028 (email: [francine.shaw-whitson@fhwa.dot.gov](mailto:francine.shaw-whitson@fhwa.dot.gov)).

## **Fourth Asphalt Shingle Recycling Forum** November 5–6, 2009, Chicago, IL

Hosted by the Construction Materials Recycling Association, forum sponsors also include the Asphalt Roofing and Manufacturers Association, Owens Corning, FHWA, U.S. Environmental Protection Agency, National Roofing Contractors Association, and NAPA. Three roundtables will be held on November 5 for transportation agency officials; environmental officials; and shingle recyclers, hot-mix asphalt producers, and other industry partners.

*Contact:* Audrey Copeland at FHWA, 202-493-3097 (email: [audrey.copeland@fhwa.dot.gov](mailto:audrey.copeland@fhwa.dot.gov)), or visit [www.shinglerecycling.org](http://www.shinglerecycling.org).

## **World Steel Bridge Symposium** November 17–20, 2009, San Antonio, TX

Organized by the National Steel Bridge Alliance (NSBA) and FHWA, the symposium brings together steel bridge owners, designers, and contractors from around the world to discuss all aspects of steel bridge design and construction.

*Contact:* Elizabeth Robelet at the American Institute of Steel Construction, 312-670-5421 (email: [robelet@aisc.org](mailto:robelet@aisc.org)); or Vasant Mistry at FHWA, 202-366-4599 (email: [vasant.mistry@fhwa.dot.gov](mailto:vasant.mistry@fhwa.dot.gov)). Information is also available at [www.steelbridges.org](http://www.steelbridges.org).

## **TRB 89th Annual Meeting** January 10–14, 2010, Washington, DC More than 3,000 presentations in nearly 600 sessions will spotlight current

developments in transportation research, policy, and practice. The theme for the 2010 meeting is “Investing in Our Transportation Future—Bold Ideas to Meet Big Challenges.”

*Contact:* For information, visit the TRB Web site at [www.trb.org](http://www.trb.org) (click on “Annual Meeting”). Questions about the meeting can be emailed to [trbmeetings@nas.edu](mailto:trbmeetings@nas.edu).

## **First International Conference on Pavement Preservation** April 12–16, 2010, Newport Beach, CA

An array of pavement preservation issues will be featured at the conference, including benefits of pavement preservation, treatments for flexible and rigid pavements, strategy selection, integration of pavement preservation into pavement management systems, promotion of pavement preservation to the public and elected officials, and funding.

*Contact:* Christopher Newman at FHWA, 202-366-2023 (email: [christopher.newman@fhwa.dot.gov](mailto:christopher.newman@fhwa.dot.gov)). For more information, visit [www.pavementpreservation.org/icpp](http://www.pavementpreservation.org/icpp).

## **The Fifth International Conference on Bridge Maintenance, Safety, and Management** July 11–15, 2010, Philadelphia, PA

Organized by the International Association for Bridge Maintenance and Safety, the conference will cover such topics as measurement and monitoring, fatigue analysis, repair and strengthening, bridge testing and assessment, advanced materials technology, and innovative

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# FOCUS

*Focus* (ISSN 1060-6637), which is published monthly by the U.S. Department of Transportation's Federal Highway Administration (FHWA), covers the implementation of innovative technologies in all areas of infrastructure.

Its primary mission is twofold: (1) to serve the providers of highway infrastructure with innovations and support to improve the quality, safety, and service of our roads and bridges; and (2) to help promote and market programs and projects of the various offices of FHWA's Office of Infrastructure.

*FHWA Administrator:*  
Victor M. Mendez

*Managing Editor:* Zachary Ellis  
Tel: 202-493-3193 (fax: 202-493-3475)  
zachary.ellis@fhwa.dot.gov

*Editor:* Lisa Pope  
Tel: 202-234-7157 (fax: 202-347-6938)  
lgpope@woodwardcom.com

Federal Highway Administration (HRTM)  
6300 Georgetown Pike  
McLean, VA 22101-2296

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Send address to  
Woodward Comm  
1420 N St., NW, Suite 102  
Washington, DC 20005  
fax: 202-347-6938  
email: lgpope@woodwardcom.com

## Highway Technology Calendar,

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construction technology. Sponsors include the American Association of State Highway and Transportation Officials, FHWA, TRB, Pennsylvania Infrastructure Technology Alliance, American Concrete Institute, and Lehigh University.

*Contact:* For more information, visit [www.iabmas2010.org](http://www.iabmas2010.org).

## International Conference on Sustainable Concrete Pavements: Practices, Challenges, and Directions

September 15–17, 2010, Sacramento, CA

The conference will present innovative processes for achieving sustainable concrete pavements throughout the pavement's life cycle. Topics will include exist-

ing technologies, emerging research, approaches to measuring energy and environmental impact, user considerations, and international practices and experiences. Case studies from around the world will also be presented. The conference is being organized by FHWA and the National Concrete Pavement Technology Center as part of the technology transfer efforts of FHWA's Advanced Concrete Pavement Technology Products Program.

*Contact:* Shiraz Tayabji at Fugro Consultants, Inc., 410-997-9020 (email: [stayabji@aol.com](mailto:stayabji@aol.com)); or Sam Tyson at FHWA, 202-366-1326 (email: [sam.tyson@fhwa.dot.gov](mailto:sam.tyson@fhwa.dot.gov)). Information is also available online at [www.fhwa.dot.gov/pavement/concrete/2010acptpconf.cfm](http://www.fhwa.dot.gov/pavement/concrete/2010acptpconf.cfm).

U.S. Department  
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**Federal Highway  
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