

# FOCUS

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## Join the Accelerated Bridge Construction Project Exchange

**L**earn from other States' accelerated bridge construction (ABC) projects and explore the details of everything from specifications to contract plans by joining the free National Accelerated Bridge Construction Project Exchange.

Launched after a 2-year collaborative effort among the Federal Highway Administration (FHWA), American Association of State Highway and Transportation Officials, and State transportation agencies, "the Exchange includes detailed information on 100 projects that use prefabricated bridge elements and systems technologies along with

"The Exchange includes detailed information on 100 projects that use prefabricated bridge elements and systems technologies along with other innovative strategies to meet the objectives of ABC."

other innovative strategies to meet the objectives of ABC," said Benjamin Beerman of the FHWA Resource Center.

For each bridge project, Exchange members can find a two- to three-page Project Summary Report that offers an overview of such information as the project name, owner, geographical coordinates, type of funding, planning, and procurement and contracting methods. Also included is a synopsis of the success stories and lessons learned from the project stakeholders. Subdirectories containing detailed information

such as photos, contract plans, specifications, bid tabulations, construction schedule,

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[www.fhwa.dot.gov/publications/focus/index.cfm](http://www.fhwa.dot.gov/publications/focus/index.cfm)



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Join the National Accelerated Bridge Construction Project Exchange to find details on projects using prefabricated bridge elements and systems technologies, including self-propelled modular transporters.

# FHWA and AASHTO Launch Second Round of SHRP2 Implementation Assistance

The Federal Highway Administration (FHWA) and American Association of State Highway and Transportation Officials (AASHTO) are accepting applications for the second round of the SHRP2 Implementation Assistance Program.

Research projects conducted under the second Strategic Highway Research Program (SHRP2) have resulted in an array of advanced tools and technologies for improving highway safety, renewal, reliability, and capacity. These new tools and technologies are now being released as SHRP2 Solutions products. Funding awarded through the Implementation Assistance Program helps State departments of transportation (DOT), metropolitan planning organizations, tribal agencies, local agencies, and others as they implement the new products.

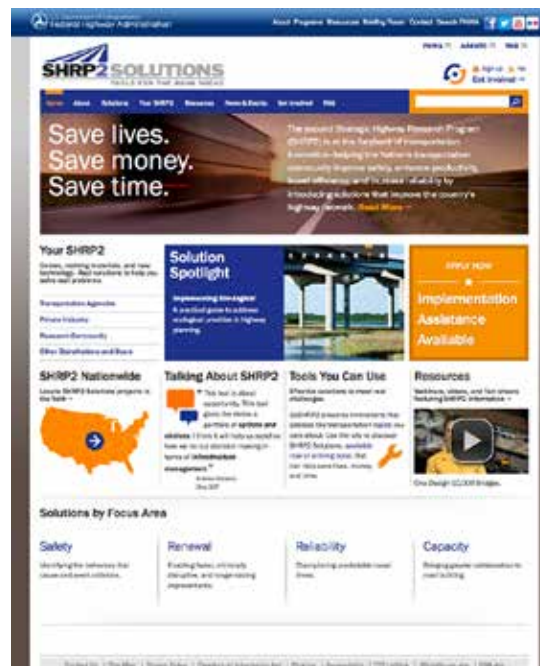
Four products are featured in the second round, with assistance available for serving as a “lead adopter” for the technology or for using the new product.

- *Expediting Project Delivery (Product C19)*—Features 24 strategies to address or avoid 16 common constraints in speeding delivery of transportation planning and environmental review projects. Five Lead Adopter and five User Incentives will be awarded.
- *Performance Specifications for Rapid Renewal (Product R07)*—Contains sample construction performance specifications for accelerating road and bridge projects. Four Lead Adopters will be selected.
- *Managing Risk in Rapid Renewal Projects (Product R09)*—Previously featured in the first round of Implementation Assistance opportunities,

when two pilot projects were selected. FHWA and AASHTO are now seeking four Lead Adopters to use the product’s tools to identify, assess, mitigate, allocate, and monitor risk on accelerated reconstruction projects.

- *Railroad–DOT Mitigation Strategies (Product R16)*—Contains model legal agreements, recommended practices, sample contracts, and training materials agencies can use to resolve conflicts and streamline review and agreement processes. Four Lead Adopter and four User Incentives will be awarded.

For application information, visit the GoSHRP2 Web site at [www.fhwa.dot.gov/goSHRP2](http://www.fhwa.dot.gov/goSHRP2). The application deadline is September 6, 2013. The new GoSHRP2 site also offers extensive product resources and technical materials that agencies can use as they implement SHRP2 technologies. Additional information is available by contacting Carin Michel at FHWA, 410-962-2530 (email: [goSHRP2@dot.gov](mailto:goSHRP2@dot.gov)), or Pam Hutton at AASHTO, 303-263-1212 (email: [phutton@aashto.org](mailto:phutton@aashto.org)). \*



For resources and information on implementing SHRP2 technologies, visit [www.fhwa.dot.gov/goSHRP2](http://www.fhwa.dot.gov/goSHRP2).

# Faster, Safer, and More Efficient

## 2013 Highways for LIFE Projects Showcase Innovation

**I**nnovative highway and bridge projects in 13 States and the District of Columbia received a boost with the award of \$16.3 million in funding from the Federal Highway Administration's (FHWA) Highways for LIFE (HfL) program. The program promotes proven innovations for accelerating project completion and achieving safer and more efficient highways and bridges with longer life spans.



**Top:** Innovations funded by the 2013 Highways for LIFE program grants include use of the geosynthetic reinforced soil-integrated bridge system (GRS-IBS). The Bowman Road Bridge in Defiance County, OH, was the first bridge in the world to use GRS-IBS.

**Bottom:** Several States will use Highways for LIFE program grants to help implement intelligent compaction technology, which improves pavement density and durability and reduces maintenance costs.

Several projects will use accelerated bridge construction (ABC) technologies. Iowa received \$400,000 for its I-92 bridge project in Cass County. The new bridge will be built near the existing bridge using prefabricated bridge elements and then moved into position with a lateral slide, reducing the amount of time the roadway will need to be closed. In Oklahoma, a \$718,000 grant will also help fund state-of-the-art bridge moving technology, as the State replaces the SH-51 over Cottonwood Creek Bridge near the city of Mannford.

Kentucky will use its \$120,000 grant to accelerate the replacement of the KY 70 Bridge over Stoner Creek in Taylor County. Louisiana will apply the geosynthetic reinforced soil-integrated bridge system (GRS-IBS) and prefabricated bridge elements and systems (PBES) as it uses a \$376,572 grant to reconstruct the Maree Michel and Creek Bridges in Vermilion Parish. And the District of Columbia will use \$104,000 in grant funding as it incorporates GRS-IBS to streamline replacement of the 27th Street, NW, Bridge over Broad Branch Stream.

A bridge replacement project on I-70 over Smith Road and the Union Pacific Railroad in Aurora, Colorado, will be the first in the country to use GRS-IBS for a multi-span bridge on an Interstate. Colorado received a \$2 million grant for the groundbreaking project.

To learn more about ABC technologies, including PBES, slide-in bridge construction, and GRS-IBS, visit [www.fhwa](http://www.fhwa).

[dot.gov/everydaycounts/edctwo/2012/abc.cfm](http://dot.gov/everydaycounts/edctwo/2012/abc.cfm).

Along with bridge innovations, technology is improving tunnels, including Nevada's I-80 Carlin Tunnels project east of Carlin. A \$1.2 million grant will fund use of a Construction Manager at Risk project that follows the principles of the Construction Manager/General Contractor (CMGC) contracting method and installation of a new tunnel lighting system. For additional information on CMGC, visit [www.fhwa.dot.gov/everydaycounts/edctwo/2012/cmgc.cfm](http://www.fhwa.dot.gov/everydaycounts/edctwo/2012/cmgc.cfm).

Innovations are also making a difference in today's paving projects. A \$2 million grant to Indiana for its I-465/I-65 South Interchange project in Indianapolis will fund use of new concrete surface technology that results in a quieter and more skid-resistant highway surface. Hawaii will use a \$3 million grant as it resurfaces Honolulu's Middle Street using post-tensioned, precast concrete and cast-in-place portland cement concrete pavement, minimizing inconvenience to users while providing a durable, long-lasting surface. For more information on precast concrete pavement technologies, visit [www.fhwa.dot.gov/hfl/innovations/precast.cfm](http://www.fhwa.dot.gov/hfl/innovations/precast.cfm).

Tennessee received \$1,445,600 to use intelligent compaction technology at four locations in the State (State Route 331 in Knox County, State Route 58 in Hamilton County, U.S. 64 in Lincoln County, and U.S. 412 in Crockett County). The technology will improve overall pavement density and durability and reduce maintenance costs. Vermont will also apply its \$1.9 million grant to using intelligent compaction technology, as well as three-dimensional modeling, for a reclamation project on Route 107 in Stockbridge and Bethel. Additional information on intelligent compaction is available at

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# Improving Continuously Reinforced Concrete Pavements with Pavement ME Design

A new TechBrief released by the Federal Highway Administration (FHWA) introduces highway pavement engineers to use of the Pavement ME Design™ software for designing continuously reinforced concrete pavement (CRCP). Available from the American Association of State Highway and Transportation Officials' (AASHTO) AASHTOWare® line of products, Pavement ME Design is the accompanying software to the *Mechanistic-Empirical Pavement Design Guide* (MEPDG) adopted by AASHTO in 2008.

CRCP is reinforced with continuous steel bars throughout the length of the pavement and has no constructed transverse contraction or expansion joints except at bridges or pavement ends. The pavement's unique design means that it can extend, joint free, for many miles and has low maintenance requirements. As noted in the TechBrief, the Pavement ME Design program offers "significant advancement for the design of economical, long-life CRCP under a variety of climate conditions, traffic loadings, and local materials."

*Continuously Reinforced Concrete Pavement: Design Using the AASHTO Pavement ME Design Program* (Pub. No. FHWA-HIF-13-027) describes the primary data inputs needed to use the Pavement ME Design software for CRCP design. Also included are examples demonstrating the application of the software to both new CRCP design and CRCP overlays. Using the MEPDG and the software, engineers can assess how the various inputs and features selected for a particular project affect the final CRCP design. While there are approximately 150 potential data inputs for CRCP design, many default values in the software can be used. As highlighted in the TechBrief, the most important inputs for optimizing the CRCP design include slab thickness, steel content, bar depth, bar size, local climate,



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Continuously reinforced concrete pavement can extend joint free for many miles and has low maintenance requirements.

construction month, concrete strength, concrete elastic and thermal properties, lane width, and traffic.

The TechBrief summarizes the steps to follow in the design process when using the software and then examines the individual critical inputs. For example, a user should select the appropriate design type, such as new pavement or overlay. The program will then automatically select a portland cement concrete (PCC) surface layer with default properties. PCC thickness and material properties can be modified so that they are project-specific, including concrete thermal properties, cementitious content, and concrete strength.

Another critical input is climate. The Pavement ME Design models account for daily and seasonal variations in temperature and moisture profiles in the CRCP and soil layer through site-specific climate factors, including percentage of sunshine, air temperature, precipitation, wind, and water table depth. Users can select data from several hundred weather stations across North America or create a virtual weather station by applying local weather data to a specific project site.



To download a copy of the TechBrief, visit [www.fhwa.dot.gov/pavement/pub\\_details.cfm?id=871](http://www.fhwa.dot.gov/pavement/pub_details.cfm?id=871). A more comprehensive Technical Summary on the topic is available at [www.fhwa.dot.gov/pavement/pub\\_details.cfm?id=887](http://www.fhwa.dot.gov/pavement/pub_details.cfm?id=887). For more information on using CRCP, contact Sam Tyson at FHWA, 202-366-1326 (email: [sam.tyson@dot.gov](mailto:sam.tyson@dot.gov)), or Shiraz Tayabji at Fugro Consultants, Inc., 410-707-4902 (email: [stayabji@aol.com](mailto:stayabji@aol.com)). For information on purchasing the Pavement ME Design software, visit [www.darwinme.org/MEDesign/Index.html](http://www.darwinme.org/MEDesign/Index.html). \*

# MAP-21: Putting Performance into Action

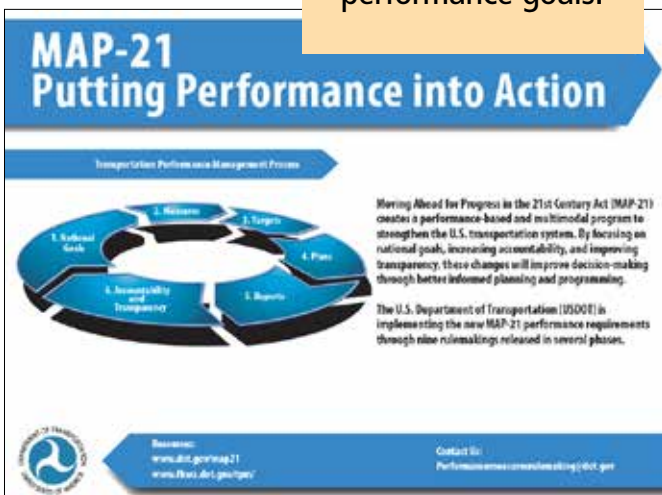
**F**ind out how the U.S. Department of Transportation (USDOT) is putting performance into action.

A new USDOT fact sheet highlights the implementation process for the new performance-based and multimodal transportation program created by the 2012 Moving Ahead for Progress in the 21st Century Act (MAP-21). Transportation performance management (TPM) is a strategic approach that uses system information to make improved investment and policy decisions in support of national performance goals.

As covered in the fact sheet, USDOT is implementing the MAP-21 performance requirements through nine interrelated rulemakings released in several phases. These rulemakings cover the categories of Planning, Highway Safety, Highway Conditions, Congestion/System Performance, and Transit Performance.

Transportation performance management (TPM) is a strategic approach that uses system information to make improved investment and policy decisions in support of national performance goals.

To download *MAP-21: Putting Performance into Action*, or for additional information about TPM, visit [www.fhwa.dot.gov/tpm](http://www.fhwa.dot.gov/tpm). Comments and questions can be sent to [PerformanceRulemaking@dot.gov](mailto:PerformanceRulemaking@dot.gov). \*



ABC Project Exchange,  
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and other information are also provided for each project. All posted materials can be downloaded and are approved for use.

The Exchange also offers a Microsoft Excel® spreadsheet that allows members to search the more than 1,800 project documents using key words. For example, users can search for a particular bridge element technology such as a precast deck panel, modular decked beam element, or prefabricated pier. Exchange members can also search for projects that use prefabricated systems technologies, including self-propelled modular transporters, longitudinal launching, or lateral sliding construction methods. Once a particular project or group of projects is identified, hyperlinks in the spreadsheet will take the user directly to the project directory that houses the detailed information.

A July 25, 2013, Webinar hosted by the Accelerated Bridge Construction Center at Florida International University demonstrated how to search the Exchange and obtain project information. To view presentations from the Webinar, visit [www.abc.fiu.edu](http://www.abc.fiu.edu), select "Archive of Past Events," and click on "Webinar held on 7/25/2013." The archive also contains the ABC Project Exchange User's Guide, which provides detailed, step-by-step instructions on how to join the Exchange and search for project information.

For additional information on the ABC Project Exchange, contact Benjamin Beerman at the FHWA Resource Center, 404-562-3930 (email: [benjamin.beerman@dot.gov](mailto:benjamin.beerman@dot.gov)). To learn more about ABC technologies, visit [www.fhwa.dot.gov/everydaycounts/edctwo/2012/abc.cfm](http://www.fhwa.dot.gov/everydaycounts/edctwo/2012/abc.cfm). \*

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# Infrastructure Innovation Webinars

*These free Webinars provide a quick introduction to the latest infrastructure innovations and technologies.*

## Fully Precast Bridge Bents for Use in Seismic Regions

August 22, 2013, 2:30–4 p.m. eastern daylight time (EDT)

Presented by the Federal Highway Administration's (FHWA) Highways for LIFE program, the Webinar is a follow-up to an August 2011 session on using fully precast bridge bents in seismic regions. Since the first Webinar, additional testing and assessment have been completed and a demonstration bridge built in Washington State using the system. Lessons learned from this project will be discussed. New material on design specifications, construction specifications, and design examples will also be covered.

To register, visit [www.nhi.fhwa.dot.gov/resources/webconference/web\\_conf\\_learner\\_reg.aspx?webconfid=26344](http://www.nhi.fhwa.dot.gov/resources/webconference/web_conf_learner_reg.aspx?webconfid=26344).

## Asset Management Book Club

All Webinars are from 2–3:30 p.m. (EDT).

August 28, 2013—Information Systems and Data (Chapter 8 and Appendix E of *Transportation Asset Management Guide*)

September 25, 2013—Bringing It All Together and Moving Forward (Appendix D of *Transportation Asset Management Guide*)

In 2011 the American Association of State Highway and Transportation Officials (AASHTO) published the *Transportation Asset Management Guide*:

*A Focus on Implementation*, which encourages transportation agencies to use asset management principles. Sponsored by FHWA and AASHTO, this Webinar series will review the content of the guide and share experiences from practitioners. To register, visit [www.fhwa.dot.gov/asset/bookclub.cfm](http://www.fhwa.dot.gov/asset/bookclub.cfm). Advance registration is required for each individual Webinar. For additional information, contact Nastaran Saadatmand at FHWA, 202-366-1337 (email: [nastaran.saadatmand@dot.gov](mailto:nastaran.saadatmand@dot.gov)).

## Load Rating of Steel Truss Bridges

September 12, 2013, 1–3:30 p.m. (EDT)

Sponsored by FHWA, this Webinar will cover fundamental information, lessons learned, and resources available to evaluate the live load carrying capacity of steel truss bridges. The Webinar will focus on new Load and Resistance Factor Rating (LRFR) method provisions for gusset plates. Since October 1, 2010, States have been required to use the LRFR method to load rate new bridges and total bridge replacements. The Webinar is designed for bridge and structures staff from local, regional, and State transportation agencies; FHWA division bridge engineers; and private consultants. Participants will have the opportunity to ask questions and download presentations.

To register, visit <https://connectdot.connectsolutions.com/steeltrusses01/event/registration.html>. For more information, contact Lubin Gao at FHWA, 202-366-4604 (email: [lubin.gao@dot.gov](mailto:lubin.gao@dot.gov)). \*

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[www.fhwa.dot.gov/everydaycounts/edctwo/2012/ic.cfm](http://www.fhwa.dot.gov/everydaycounts/edctwo/2012/ic.cfm) or [www.intelligentcompaction.com](http://www.intelligentcompaction.com).

Illinois will incorporate three-dimensional modeling technology as it uses its \$880,000 grant for an alignment project on Highway 4 near Galesburg in Knox County. The new technology will allow Illinois to complete the construction faster, while reducing the need for lane closures, increasing worker safety, and cutting costs. More information on three-dimensional modeling can be found at [www.fhwa.dot.gov/everydaycounts/edctwo/2012/3d.cfm](http://www.fhwa.dot.gov/everydaycounts/edctwo/2012/3d.cfm).

Missouri received \$150,000 to apply a high friction surface treatment (HFST) to Highways 54 and 179 in Jefferson City and two sites on I-44 near Rolla. HFST is applied to pavements to help motorists maintain better control in both dry and wet driving conditions. To learn more about using HFST, visit [www.fhwa.dot.gov/everydaycounts/edctwo/2012/friction.cfm](http://www.fhwa.dot.gov/everydaycounts/edctwo/2012/friction.cfm).

In Alabama, a \$2 million grant will be used to improve traffic operations and management at intersections along U.S. 280 in Birmingham, Homewood, Mountain Brook, Vestavia Hills, and Hoover. Innovations such as adaptive signal control technology will help reduce highway congestion in a critical corridor of the State. For details on adaptive signal control technology resources, visit [www.fhwa.dot.gov/everydaycounts/technology/adsc](http://www.fhwa.dot.gov/everydaycounts/technology/adsc).

For more information about the 2013 HfL projects and their featured innovations, visit [www.fhwa.dot.gov/hfl](http://www.fhwa.dot.gov/hfl), or contact Ewa Flom at FHWA, 202-366-2169 (email: [ewa.flom@dot.gov](mailto:ewa.flom@dot.gov)). \*

# Highway Technology Calendar

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

## **Midwestern States Regional In-Place Recycling Conference**

September 10–12, 2013, Schaumburg, IL

The conference will feature improvements in research, design, specifications, and materials and construction practices for in-place recycling. Also featured are site visits to in-place recycling projects and a recycling facility. The event is designed for State, local, and Federal government staff; contractors; suppliers; consultants; members of academia; and metropolitan planning organization representatives. Sponsors include the American Recycling and Reclaiming Association, Federal Highway Administration (FHWA), and National Center for Pavement Preservation (NCPP).

*Contact:* Lee Gallivan at FHWA, 317-226-7493 (email: victor.gallivan@dot.gov), or Patte Hahn at NCPP, 517-432-8220 (email: hahn@egr.msu.edu). Registration information is available at [www.pavementpreservation.org/conferences/regional-in-place-recycling-conferences](http://www.pavementpreservation.org/conferences/regional-in-place-recycling-conferences).

## **Sixth Rubber Modified Asphalt Conference**

October 15–17, 2013, Tempe, AZ

Advances in research, design, specifications, and materials and construction practices will be spotlighted at the conference. Participants will include State, local, and Federal government staff; contractors; suppliers; consultants; and members of academia. International participants will have the opportunity to discuss technology advancements worldwide. Sponsors include FHWA.

*Contact:* Lee Gallivan at FHWA, 317-226-7493 (email: victor.gallivan@dot.gov); Michael Blumenthal at the Scrap

Tire Research and Education Foundation, 202-682-4805 (email: michael@stref.org); or Patte Hahn at NCPP, 517-432-8220 (email: phahn@rma.org). To register, visit [http://stref.org/events/rubber\\_modified\\_asphalt\\_conference/index.cfm](http://stref.org/events/rubber_modified_asphalt_conference/index.cfm).

## **Sixth Asphalt Shingle Recycling Forum**

November 7–8, 2013, Denver, CO

The forum will highlight practical applications for shingles in pavements, modifications to American Association of State Highway and Transportation Officials (AASHTO) standards, and ongoing research efforts to advance the technology. Sessions will be of interest to State, local, and Federal government staff; contractors; suppliers; consultants; and members of academia. Sponsors include FHWA.

*Contact:* Lee Gallivan at FHWA, 317-226-7493 (email: victor.gallivan@dot.gov), or William Turley at the Construction and Demolition Recycling Association, 630-585-7530 (email: turley@cdrecycling.org). Registration information is available at [www.shinglerecycling.org/content/home](http://www.shinglerecycling.org/content/home).

## **Transportation Research Board (TRB) 93rd Annual Meeting**

January 12–16, 2014, Washington, DC

Transportation professionals from around the world will gather to share perspectives on current developments in transportation research, policy, and practice. The conference will feature more than 4,000 presentations in nearly 750 sessions and workshops. The spotlight theme for 2014 is “Celebrating Our Legacy, Anticipating Our Future.”

*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).

## **2014 Design-Build in Transportation Conference**

March 19–21, 2014, San Jose, CA

Join transportation leaders in discussing lessons learned in the use of the design-build project delivery method for transportation projects. Topics will include choosing the right delivery method, contracting approaches, innovative financing solutions, risk allocation, and performance contracting.

*Contact:* Jerry Yakowenko at FHWA, 202-366-1562 (email: gerald.yakowenko@dot.gov), or visit [www.dbtransporto.com](http://www.dbtransporto.com).

## **Tenth National Conference on Transportation Asset Management**

April 28–30, 2014, Miami, FL

The conference is designed for transportation agencies and metropolitan planning organizations in all stages of asset management implementation. Themes will include establishment and monitoring of asset management plans, performance measures for asset management, tools and technology to assist decisionmaking, and adaptation to extreme weather events and climate change, including using risk assessment and vulnerability analysis. Strategies for overcoming barriers to asset management implementation will also be discussed. Organized by TRB, the conference is also supported by FHWA and AASHTO.

*Contact:* Steve Gaj at FHWA, 202-366-1336 (email: stephen.gaj@dot.gov), or visit [www.trb.org/conferences/AssetManagement2014.aspx](http://www.trb.org/conferences/AssetManagement2014.aspx). \*

# 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.

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### ABC Webinar Resources

To view presentations from previous ABC Webinars hosted by Florida International University's Accelerated Bridge Construction Center, visit [www.abc.fiu.edu](http://www.abc.fiu.edu) and click on "Archive of Past Events." More than 28 Webinar sessions have been conducted to date. Topics include Applying ABC Concepts to Long-Span/Complex Bridges, ABC

and Geosynthetic Reinforced Soil Bridge Abutments in Ohio, ABC Bridges from a County Perspective, and Work-Zone Road User Costs—Comparison Between ABC and Conventional Construction. Visitors can also select "Upcoming Webinars" to see announcements of new sessions.