

# Centered on Service

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*Centered on Service is dedicated to sharing success stories and updates on FHWA Resource Center projects and ongoing news about services provided by the Technical Service Teams to the FHWA Division Offices, Headquarters Offices, and State Partners.*

## Protecting Our Nation's Bridges and Tunnels: Engineers Face New and Unexpected Challenges

*You are looking at a bridge when you notice a suspicious package. Is it a bomb or just something else? Regardless, are you prepared to handle the situation?*

Subsequent to the terrorist attack of September 11, 2001, bridge and highway engineers faced new and largely unexpected challenges related to protecting the physical security of critical transportation assets against possible attacks. Though the 9/11 events targeted buildings of significance, an Al Qaeda



terrorist training manual captured in England contains goals that included missions for “gathering information about the enemy and blasting and destroying bridges leading into and out of cities.”<sup>1</sup> State Highway Agencies (SHAs) must now identify any “missing” gaps and seek “best practices” guides and innovative techniques to enhance the security of their critical assets. However, the SHAs do not often possess the required resources and expertise to develop such technical standards

<sup>1</sup> Recommendations for Bridge and Tunnel Security, prepared by the Blue Ribbon Panel on Bridge and Tunnel Security, September 2003.

and innovative ways of reducing the structural impacts of terrorist threats.

In 2002, the Federal Highway Administration (FHWA) assembled the Engineering Assessment Team for Security in an effort to address this concern. The team is comprised of employees from the FHWA Resource Center, Headquarters, the Turner-Fairbank Highway Research Center, the Federal Lands Highway Division, and Division offices. The mission of the Team is to assess structures in order to reduce vulnerability, minimize damage, and facilitate recovery from terrorist attacks.

Two of the main activities that the Engineering Assessment Team has undertaken in support of its mission are to perform vulnerability assessments of critical structures and to provide security training to SHAs and other bridge owners.

## Vulnerability Assessments

Vulnerability assessments are an intense investigation of the critical components of bridge and tunnel structures that considers the likelihood that a terrorist can get an explosive, or other threat, to the critical locations and cause catastrophic damage. This information can then be used to develop cost-effective, prioritized strategies to make these facilities more resilient to these threats. The Engineering Assessment Team has worked with five SHAs to assess their critical infrastructure by identifying vulnerable components and recommending mitigation measures to lessen the concern; plus there have been three project-specific reviews in other States. In addition, the team has provided expertise to the United States Coast Guard as they completed assessments of every port across the country.

## Training

The Engineering Assessment Team has developed a one-day workshop on Bridge and Tunnel Security. It has been

"Thank you to all of you for the great job on this security assessment. It is one of the cornerstones for (our) highway infrastructure security effort. We appreciate your efforts in developing this study. It is an excellent demonstration of the professional work FHWA does."

Director of Infrastructure Security  
(location intentionally withheld)

"The threat is real: attacks at choke points could be devastating."

Blue Ribbon Panel on Bridge and Tunnel Security



delivered six times since September 2004 and there are four other workshops requested. The goal of the workshop is to identify threats to bridges and tunnels, list vulnerable bridge and tunnel components, recommend mitigation measures to help protect the structures, and identify a method of risk assessment.

In 2006, this workshop will be offered in two formats. One will be an abbreviated version of the current workshop for inspectors and maintenance personnel. This workshop will focus on identifying threats and locating vulnerable components on bridges and tunnels.

The second format will be extended to cover the material over 1½ days and is targeted towards engineers and other technical personnel. The additional time will be utilized to cover the risk-based method in more detail to prioritize mitigation measures for vulnerable components.

"The Team from the Federal Highway Administration provided valuable insight into the challenges we face not only today, but in the future, as we prepare for design, and ongoing operation and maintenance of this critical transportation corridor infrastructure."

Fire Chief  
(location intentionally withheld)

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## TECHNICAL ASSISTANCE

### U.S. and Mexico Partner in the First Bi-National Border Finance Conference

Innovative Solutions to Challenges to Border Finance Projects is the theme for the first-ever Border Finance Conference that will be hosted in San Antonio, Texas, on August 16-18, 2005. As the Federal Highway Administration (FHWA) has long supported the use of alternative project development and financing arrangements to advance critical border projects, this conference has developed from the emergent needs of State and local decision makers along the ten-state U.S./Mexico border region.

The partnership between the United States and Mexico has been a growing entity since 1994 when NAFTA stimulated the formation of the U.S./Mexico Joint Working Committee (JWC) to serve as a bi-national surface transportation workgroup that improves the planning, financing, coordination, and development of critically needed border projects designed to facilitate the safe and secure movement of goods and people between the United States and Mexico. Eleven years after its inception and under the direction of the U.S. Federal Highway Administration and Mexico's Secretariat of Communication and Transportation, the JWC looks forward to this collaborative effort and collection of shared information and best practices for the entire region.

The Border Finance Conference will review and address strategic financing options to include the use of public-private partnerships, TIFIA credit, tax-exempt private activity bonds, the new SEP-15 process, and other financing approaches not typically found in the FHWA financing toolbox. The objectives of this conference will be to emphasize the importance of accelerating border projects to meet the FHWA's global connectivity goal, facilitate growing NAFTA commerce, and improve ties between the U.S. and Mexico consistent with President Bush's recently announced Security Prosperity Partnership initiative.

Guests for this conference should expect to gain innovative tactics to the following:

- Identifying and eliminating obstacles to advance “stalled” projects.
- Emerging approaches for financing border projects, including public-private partnerships, government credit programs, multilateral agency credit programs, concession arrangements, and innovative revenues.

In 2002, the Federal Highway Administration (FHWA) and the American Association of State Highway and Transportation Officials (AASHTO) jointly established the FHWA/AASHTO Blue Ribbon Panel on Bridge and Tunnel Security, to provide guidance to bridge and tunnel owners in this important area.

The charge to the panel was as follows:  
Develop short- and long-term strategies for improving the safety and security of the Nation's bridges and tunnels, and provide guidance to highway infrastructure owners/operators.

The panel's objective was to apply its collective experience and knowledge about structural design, structural integrity, and environmental stress and strain to new ways of examining how critical bridges and tunnels can be protected against potential terrorist attacks.

#### Members:

**Mr. James E. Roberts**  
Chair, IBSEN and Associates

**Dr. John M. Kulicki**  
Vice-Chair, Modjeski & Masters

**Mr. Dwight Beranek**  
U.S. Army Corps of Engineers

**Mr. Joseph M. Englot**  
Port Authority of New York & New Jersey

**Dr. John W. Fisher**  
Lehigh University

**Mr. Henry Hungerbeeler**  
Missouri Department of Transportation

**Dr. Jeremy Isenberg**  
Weidlinger Associates

**Dr. Frieder Seible**  
University of California at San Diego

**Mr. Kenneth E. Stinson**  
Peter Kiewit Sons, Inc.

**Dr. Man Chung Tang**  
T.Y. Lin International

**Mr. Kary Witt**  
Golden Gate Bridge Highway and  
Transportation District

- Public finance industry options for advancing projects, including bank credit, credit guarantees, and bonding.
- Best practices and case studies for project planning and finance.

Though the financing tools and information exchanged at the conference will primarily provide pertinent information to the ten-state U.S./Mexico border region, the technical information and best practices are applicable to projects in other regions.

In addition to the general partnership between the FHWA and Mexico's Secretariat of Communication and Transportation, the FHWA's Office of Planning, Environment, and Realty along with the Finance Technical Service Team and Mexico's Toll Highway Unit make up the visionary leadership team for this event. Anticipated speakers at the Border Finance Conference include Governor Perry of Texas, Governor Richardson of New Mexico, and Governor Waltham of the Mexican State of Baja California. With an expected attendance of 150 to 200 participants, guests will range from the public and private sector to include Federal, State, and local governments, with concentrations in the finance and policy disciplines; border region interest and advocacy groups, such as the I-35 Corridor and Ports to Plains advocacy groups; bilateral and multilateral entities, such as the North American Development Bank, the Export-Import Bank, and the Interamerican Development Bank; the public finance sector including investment banks, bond rating agencies, bond insurers, law firms, and consulting firms; and the project development and construction sector.

A full conference agenda, hotel accommodations, and registration for the conference can be found by visiting the Border Finance Conference website at <http://www.fhwa.dot.gov/resourcecenter/borderfinance>.

To learn more about innovative financing tools utilized by the FHWA or this upcoming event, contact the FHWA Resource Center's Finance Technical Service Team.

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## FHWA Presents Technical Assistance Workshop in Nanjing, China



*The City of Shanghai*

Our safety on the Nation's roads can often be compromised over time as pavement begins to wear and perform poorly. In fact, more than \$20 billion in Federal funds are spent by transportation agencies each year to maintain and improve the Nation's roads. But thanks to Mechanistic-Empirical Pavement Design, we can increasingly find ourselves less in danger of the poor performance as this technology contributes to longer life cycles for pavements and cost savings to users. Essentially, mechanistic-empirical pavement is an analysis tool that allows engineers to better understand pavement performance and create more reliable pavement designs. As this technology begins to be deployed across America, the Federal Highway Administration (FHWA) has encouraged States to evaluate the utility that the Mechanistic-Empirical Design Guide (M-E DG) provides and to carefully implement the guidelines and recommendations. Recently, this Guide crossed international boundaries as it was showcased at the Introduction to Mechanistic-Empirical Design Guide Workshop in Nanjing, China.

In April 2005, the FHWA Resource Center staff was invited to present the workshop during a special session organized by the Jiangsu Transportation Research Institute. As one of the Institute's goals to advance highway engineering in China, Monte Symons, FHWA Pavement and Materials Technical Service Team Leader, and Keith Herbold, FHWA Pavement and Materials Technical Service Team Pavement Engineer, served as "expert visitors" to present an expanded version of the team's standard 1-day workshop to about 130 attendees on the M-E DG, materials test information, and life-cycle cost analysis.

## What Is the M-E DG?

In spring 2004, the National Cooperative Highway Research Program (NCHRP) released the Mechanistic-Empirical Design Guide for New and Rehabilitated Pavement Structures. The guide provides uniform guidelines for designing common features of flexible, rigid, and composite pavements. Targeted to pavement engineers, the guide can be used to analyze and predict pavement distress including fatigue, rutting, thermal cracking in asphalt pavements, and cracking and faulting in concrete pavements. It also offers recommendations for evaluating existing pavements and recommendations for rehabilitation treatments, drainage, and foundation improvements.

### The Design Guide Implementation Team (DGIT)

As major deployment of the M-E DG will take an estimated 5 to 8 years, the FHWA organized a Design Guide Implementation Team (DGIT) in 2004 to immediately begin the process of informing, educating, and assisting the FHWA's field offices, State highway agencies, industry, and others about the Guide. Along with its 13 Introductory Workshops initiative, DGIT has established a Lead States Group consisting of representatives from 15 States. The goal of this group is to promote and facilitate the refinement, implementation, and evolution of Mechanistic-Empirical Pavement Design procedures in conjunction with AASHTO, NCHRP, and FHWA activities. As the team continues its efforts to deploy the guide, several Materials Input Workshops are being offered throughout the year. The next workshop is scheduled for July 7-8 in Lincoln, Nebraska. To learn more about M-E DG and DGIT, please visit:  
<http://www.fhwa.dot.gov/pavement/dgit/index.cfm>

Though asked to present at the Institute, the expert visitors made the most of their time by accepting an invitation to tour the southeastern portion of China to experience its highway transportation network along the cities of Beijing, Jiaxing, Hangzhou, Nanjing, Shanghai, and Suzhou. Symons and Herbold reported that an abundance of the construction in the region was ongoing within its rural expressways and toll roads, and very little pavement distress could be seen on major roads. In the major urban areas, traffic flow was inhibited by crowded streets with cars, buses, taxis, mopeds, bicycles, pedestrians, and just about every conceivable means of transportation moving along the roadway.

Though it may be years before Chinese provinces can incorporate mechanic-empirical design practices into their transportation industry, the success of this exchange will be seen in the future. As the trip was summarized by Symons,

“They have made great strides but much remains to be accomplished. We consider this effort to be one of ‘planting the seed’ for future use.” Overall, the FHWA Pavement and Materials Technical Service Team will continue to be a resource for technical assistance to the Jiangsu Transportation Research Institute and has already recommended a direct contact to provide training, specification and testing advice, and field observations for superpave asphalt mixtures in the near future.

In moving forward with the team mission—to advance the use of transportation technologies through training and technical assistance—the Pavement and Materials Technical Service Team will provide national and international assistance to deploy new technologies. On April 18, Monte Symons, Keith Herbold, and Jim Walls (Pavement Design Engineer) presented the M-E DG workshop to 60 professionals from all over Canada at a workshop sponsored by the Transportation Association of Canada.

To gain more information on training and technical assistance offered by the Pavement and Materials Technical Service Team, you can visit the FHWA Resource Center website at: <http://www.fhwa.dot.gov/resourcecenter>.

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## Bridging Gaps—Structures Team Plays Key Role in Conferences Held In Virginia and Maryland

Over the past 2 months, the Federal Highway Administration's (FHWA) Structures Technical Service Team has played a key role in three conferences held in the Mid-Atlantic States.



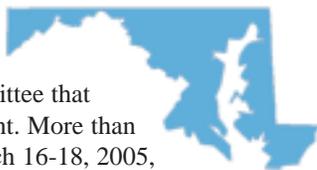
### 4th Annual Concrete Conference: Virginia

March 10-11, 2005, the Virginia Concrete Conference was held in Richmond. This 4th annual event drew more than 200 people to a general session and breakout sessions related to concrete structures and pavements. Structures topics included various corrosion protection and prevention methods, bridge aesthetics, prefabricated bridge elements, and splicing prestressed concrete girders. The FHWA Resource Center's exhibit staff distributed concrete pavement marketing products, and bridge High Performance Concrete

(HPC) items that had been produced by the FHWA HPC Technology Delivery Team. These included CDs of the March 2005 HPC Guide for Structural Designers, CDs of the 2003-04 national survey on HPC implementation, and brochures describing the HPC Team and its community of practice Web site. Also included were CDs of a compilation of early HPC bridge projects.

### 2005 FHWA Conference: Integral Abutment and Jointless Bridges Conference—Baltimore

Next was a national conference on integral abutment bridges, where the High Performance Materials (HPM) specialist was a member of the steering committee that developed and hosted the event. More than 200 people attended this March 16-18, 2005, event in Baltimore. They were treated to interesting presentations on current practices with design guidelines and foundation design, several case studies, construction, maintenance, and rehabilitation practices. A panel of State Department of Transportation (DOT) experts on the subject closed out the conference. Key issues were targeted for follow-up action by the steering committee. These included posting proceedings and presentations on a Web site, writing articles for trade publications, developing a new community of practice, verifying dates from a national survey on the state of the practice, developing a National Cooperative Highway Research Program (NCHRP) synthesis of practice, and updating an FHWA technical advisory on the subject.



### 5th Annual Concrete Conference: Maryland

Finally, the HPM specialist also was a member of the steering committee for the 5th annual Maryland Concrete Conference, held on April 6, 2005, in Frederick. This conference also drew more than 200 people to a general session and breakout sessions on general concrete technology, architectural concrete, concrete pavements, and transportation structures. The FHWA Resource Center's Structures Team member moderated the structures session, which included presentations on the Woodrow Wilson Bridge project, prefabricated bridge elements for accelerating construction, and concrete bridge deck overlays.



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## TRAINING

### Engaging the Private Sector in Freight Planning

The volumes of freight movement we are currently experiencing on our transportation system, and that we foresee 20 years into the future, clearly indicate that information on freight movement needs to be included in the scope of many transportation projects. Yet a lack of understanding by public sector planners of private sector business needs, and conversely by the private sector of the public sector transportation planning process hinders the effective integration of freight into many statewide and regional plans and transportation investment decisions. Developing and sustaining relationships, either formally or informally, with key private sector stakeholders is critical to effective freight planning.

To address this issue, the Federal Highway Administration (FHWA) has designed a 1-day workshop for planners on tools, techniques, and methods for engaging the private sector—creating and strengthening relationships to address freight planning and make improved transportation decisions. The workshop was created to assist Metropolitan Planning Organizations (MPO), State Departments of Transportation (DOT), and local governments.

On April 14, 2005, Jocelyn Jones, an FHWA transportation planner, led a pilot session of the workshop, Engaging the Private Sector in Freight Planning, at the Regional Council of Governments in Denver, Colorado. Jones specializes in freight planning with the FHWA Resource Center's Planning Technical Service Team. Joining her as the co-



*Jocelyn Jones, FHWA Planning Technical Service Team, leads pilot session for workshop, Engaging the Private Sector in Freight Planning, in Denver, Colorado.*

instructor for the workshop was Mark Berndt of Wilbur Smith Associates.

The DOTs and MPOs in Colorado and the neighboring State, Wyoming, were invited to participate in the pilot workshop. Representatives were in attendance from the CDOT, Denver Regional Council of Governments, Pueblo Area Council of Governments, Pikes Peak Area Council of Governments, the Cheyenne MPO, the North Front Range MPO, and planners from the Colorado and Wyoming FHWA Division offices.

The workshop is designed to enable participants to:

- Understand the value freight stakeholders can add to the planning process.
- Use tools and resources to identify freight stakeholders in their areas.
- Learn techniques for engaging freight stakeholders in the planning process.

The workshop also frames this freight relationship as an element of the public involvement process already performed by DOTs and MPOs, and discusses a variety of techniques for identifying, communicating, and working with freight stakeholders. As an example of a type of informal engagement that the workshop promotes, attendance at a meeting of a private sector industry group, the Denver Roundtable of the Council of Supply Chain Management Professionals (CSCMP) was offered to all participants.

Participants in the pilot session cited the following training lessons as valuable:

- Examples of methods to approach freight stakeholders.
- Identification of barriers—an understanding of what areas to be aware of in building relationships with stakeholders.

“Involving the freight industry has been difficult since the removal of economic regulations in the 1970s. The freight industry focus is so much shorter term than the governmental processes. This leads to misfits in how the private sector and governmental sector can work together. The FHWA course provides tools that can be used by State DOTs, MPOs, and others engaging the freight sector in transportation planning.”

John Coil  
Transportation and Programming Data Manager  
Denver Regional Council of Governments

- Ideas of how to work and collaborate with other public partners.

In Colorado, several action items also were identified by the group:

- CDOT committed to take the lead on developing a common set of methods and techniques that the DOT and the CO MPOs could work on to engage the private sector.
- Pikes Peak Area Council of Governments developed a set of steps to begin building a relationship with their Chamber of Commerce, which they view as a key partner.
- All participants saw the value of finding an intermediary or partner to assist the public agencies in contacting and engaging the private sector (such as a Chamber).
- All participants recognized and were excited by the potential opportunity to engage the private sector on “quick start” type projects, where the private sector will have the prospect to see some early win-wins. This will help keep the private sector involved for the long haul. “Quick Start” projects are improvements or projects that can be addressed in the short-term. Examples include repaving, signal retiming, and signage.
- All participants saw the need and importance of “getting out of our offices”—the public sector must be willing to get out there, and go to the meetings of their stakeholders and private partners.
- All participants saw freight planning, and the private sector role in particular, in a new light, from a public involvement perspective, which will require extra and concerted efforts to acquire and maintain.

According to Tammy Goorman, the Information Branch Manager for CDOT, “The training was a great opportunity for the CDOT and our planning partners to coordinate future activities to involve the private sector in our long-range planning process. The training course assisted us in identifying common goals and how to develop strategies for the future.”

The workshop is part of the Freight Professional Development Program, a joint effort of the Office of Freight Management and Operations (HOFM), the Office of Planning, Environment, and Realty (HEP), and the FHWA Planning Technical Service Team. Tony Furst,

Director of the HOFM, also added that “Understanding trends, patterns and demands are key to effective transportation planning; this workshop does a great job in providing practical options for accessing that information from the freight community.” Additional training opportunities can be found at the FHWA’s Office of Freight Management and Operations website: Freight Professional Development Program.

Participants should be familiar with general freight terminology, modes, and trends before taking this workshop. The National Highway Institute course, Integrating Freight in the Transportation Planning Process (#139001), can provide the fundamentals needed to prepare for this workshop.

For more information about the training workshop, Engaging the Private Sector in Freight Planning, you may contact:

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## Taking the Show on the Road—FHWA Promotes High Performance Materials Usage in Every State

The Grand Canyon. The Washington Monument. The Indy 500. The Bill Clinton Presidential Library. HPM? Aside from being popular attractions to see while touring the United States, Arizona, the District of Columbia, Indiana, and Arkansas also were host to the Federal Highway Administration’s High Performance Materials (HPM) Seminars this spring and past winter. With these seminars, FHWA would like to see these States known for more than just their famous tourist stops.

Whether exemplified by the FHWA Executive Director’s challenge that “every State build at least one High Performance Concrete bridge by 2002,” or FHWA’s National Performance Plan performance measure to “increase the number of States that incorporate high-performance materials and use best practices in design, construction, and inspection of highway bridge projects,” the word is out on HPM.

During the past 6 months, the FHWA’s Structures Technical Service Team has answered that call and, in response, joined with a cross section of industry specialists including engineers from the FHWA’s Headquarters Bridge Office;

Turner-Fairbank Highway Research Center’s Structures Research Team; Division Office experts; State DOT personnel; as well as practitioners from the industry and academia to spread the news about the time saved and cost effectiveness of using HPM in the development of transportation-related structures.

Embraced as innovative technology by countries across the globe, the FHWA’s goal is that the use of HPM will become the de facto standard in the implementation of its transportation projects nationwide.

Three main HPM components identified as “key” in the initial HPM informational rollout by the Structures Technical Service Team are Fiber Reinforced Polymer (FRP) composites, High Performance Concrete (HPC), and High Performance Steel (HPS). These components were the main topic areas of the five seminars delivered in States across the country this fiscal year.

All in all, more than 200 participants from various State DOTs, counties, consulting firms, and the industry attended.

### Indiana—Fall 2004

The tour kicked off in late November 2004, when the Structures Technical Service Team traveled to Indiana, where it conducted the HPS seminar for the Indiana Department of Transportation. The seminar had the largest number of attendees, and was considered an overwhelming success based on the number and cross section of participants, the enthusiasm and quality of information exchanged during question-and-answer periods, and the follow-up actions taken by the Indiana DOT.



In addition, a FHWA survey was given to participants at the conclusion of the seminar, who rated the session a “4” out of a possible “5” measure of excellence.

### District of Columbia—Early Winter 2005

Washington, DC, was the next stop on the HPM tour, where the key topic area was FRP Composites Technology.

The 1-day seminar, conducted on January 28, 2005, provided information on FRP materials and rebar issues; FRP mechanics and general design issues; State DOT experiences



with FRP bridge deck and superstructure projects, with wrapping/strengthening projects, and other construction issues; and other innovative infrastructure applications. The seminar targeted State, Federal, and local agency DOT personnel who have responsibility for either bridge design, construction, materials, specifications or research; as well as personnel from the contracting and consultant engineering industries, materials suppliers, and academia.

The FHWA's Structures Technical Service Team was pleased that the seminar earned an overall rating of 4.2 out of 5 for excellence and generated some significant follow-up discussion regarding the applicability of FRP composites as the State DOT prepares for a congressionally earmarked pedestrian bridge and subsequent bridge projects.

### Arizona—Late Winter 2005

Arizona was home to the third HPM seminar held this year, and offered two different sessions, including FRP Composites on February 1 and HPC on February 2, 2005. The FRP composites seminar closely mirrored the session offered in DC a week earlier and was met with great enthusiasm and interest.



The HPC seminar provided information on HPC definitions, benefits, costs, and case studies; HPC materials components including fly ash and silica fume mineral admixtures, and ground granulated blast furnace slag; HPC mix design and construction practices; prescription to performance specifications and quality control/quality assurance provisions; and HPC implementation and experiences by specific State DOTs.

The seminar was intended for State, Federal, and local agency DOT personnel who have responsibility for either bridge design, construction, materials, specifications, or research, as well as personnel from the contracting and consulting industries, materials and concrete ready-mix suppliers, the precasting/prestressing industry, and academia.

"Our goal is to have the State DOTs utilize High Performance Materials whenever and wherever possible. Incorporating HP Materials in structures and highway applications will help to ensure a longer-lasting infrastructure with the best utilization of Federal dollars."

Joseph E. Chilstrom  
Connecticut Division Structural Engineer

The FHWA's Structures Technical Service Team was pleased that attendees surveyed gauged their competencies of HPC issues as raised significantly following their participation in the session.

### Arkansas—Spring 2005

Arkansas was home to the last HPM seminar held this year. Building on the HPC seminar offered earlier this year in Arizona, the session instructors strove to reinforce the FHWA HPC Technology Delivery Team's goal to promote the "full utilization of HPC in all appropriate concrete bridge components, as it becomes part of all States' standard bridge design practices and construction specifications."

Well on its way to achieving the goal of promoting the use of HPM at the State level, the Structures Technical Service Team is looking forward to continuing its mission of informing the FHWA's State, local, and private-industry partners of the benefits of HPM and is eager to offer its services via a visit to any of the States to provide mini-showcase presentations on HPM topics and/or to participate in roundtable discussions of HPM experiences.

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## ACT NOW! Southern Transportation and Air Quality Summit (STAQS)

Register Online Today at:

<http://www.fhwa.dot.gov/resourcecenter/staqs/>

The Southern Transportation and Air Quality Summit 2005 is an event sponsored by the Federal Highway Administration and Environmental Protection Agency Regions 3, 4, and 6. It takes place August 23-25 in Charleston, South Carolina.

The purpose of the summit is to bring together stakeholders from both the transportation and air quality communities to discuss the current and coming regulatory environment, technologies and current practices vital to the field of air quality and transportation. The summit is geared to practi-

tioners involved with public agencies at all levels. A host of speakers from within the southern and eastern regions will present a number of key topics, best practices and latest information vital to transportation, planning and air quality professionals.

#### Hotel Information:

Registration will be limited; however, you may book your hotel room today. For reservations call (843) 722-0600 or (877) 756-2121

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## TECHNOLOGY DEPLOYMENT

### HIPERPAV II Adopted by Ohio DOT

As Portland Cement Concrete (PCC) overlays are increasingly being used as a rehabilitation technique for States seeking to extend service life, reduce maintenance requirements, and lower life-cycle costs, the technology must be used with the right tools. HIPERPAV II is one of these tools. The FHWA Office of Pavement Technology and the FHWA Pavement and Materials Technical Service Team partnered in February to present three 1-day training sessions on HIPERPAV II for the Ohio Department of Transportation (DOT), Ohio FHWA Division Office, and local highway contractors.

With more than 80 road construction projects scheduled for 2005, the Ohio DOT benefited from the sessions conducted by Gary Crawford, Concrete Quality Engineer with the FHWA Office of Pavement Technology, and Angel Correa,

Pavement Design Engineer with the Pavement and Materials Technical Service Team. HIPERPAV II (the name derives from High PERFORMANCE PAVING) is a comprehensive, user-friendly software package. Its predecessor, HIPERPAV, was a two-module program that contained a set of guidelines to help users predict potential pavement performance problems. The latest version of the software allows users to evaluate the effects that materials, construction, environment, and design practices have on the short-term and long-term performance of PCC pavements. By utilizing HIPERPAV II, users can optimize any of the variables involved during construction operations to minimize the potential for random cracking of concrete slabs.

#### How Is Ohio Benefiting From Using HIPERPAV II?

Since HIPERPAV II was released by the FHWA in 2004, experts like Correa and Crawford have traveled across the United States to deploy use of the software. In Ohio, 50 participants took advantage of the training, and the Ohio DOT has now drafted a construction specification requiring all contractors to run a HIPERPAV analysis on all PCC pavement construction projects prior to paving. The effects of this analysis will ensure that all environmental and construction factors involved in the analysis period will not produce stresses higher than the strength of the concrete, therefore minimizing the potential for cracking. If the HIPERPAV analysis shows high risk for cracking, the contractor and DOT will make modifications to the construction operations to lower that risk.

#### The Bottom Line

The use of HIPERPAV II in Ohio will result in longer lasting PCC pavements throughout the State. The effects of this technology can be seen, as it will produce potential cost savings for both the State and contractors, and less traffic disruptions to the highway users.

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#### *Ohio DOT Construction Specifications:*

##### Lloyd Welker

Office of Materials Management  
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## CENTERED ON RESULTS

### FHWA Resource Center Adds New Staff and Expertise



#### ENVIRONMENT

**David Grachen**  
Environmental Program Specialist  
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David is an Environmental Program Specialist on the Federal Highway Administration (FHWA) Resource Center's Environment Technical Service Team (TST). David joined the FHWA in 1987 and has served in various environmental, project development, and construction positions in several locations during his career. Most recently, David served as the Project Development Manager for the FHWA Georgia Division and directed a staff having oversight for the environmental, preliminary design, and right-of-way activities associated with Georgia's \$1 billion/year Federal-aid Highway Program. In addition to his Division responsibilities, David has served as a nationwide instructor for both the Basic NEPA<sup>1</sup> and the Introductory Public Involvement courses delivered by the National Highway Institute for the past several years. He plans to continue such service at the Resource Center. Last year, Dave was instrumental in assisting the Georgia Department of Transportation in completion of an award-winning project that developed advance mitigation of transportation impacts to a Native American cultural district in north Georgia and produced a video documentary of the tribal consultation process. He also led a multi-agency wetland and stream mitigation banking effort that was recognized with an FHWA Exemplary Ecosystem Award in 2004. He is a graduate of the University of Maryland with a Bachelors of Science in Civil Engineering.

<sup>1</sup> NEPA, National Environmental Policy Act of 1969

**Kimberly Majerus**  
Biology/Water Quality Specialist  
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Kimberly Majerus has joined the FHWA Resource Center as a Biology/Water Quality Specialist by way of a Program Coordinator position in the Project Management Branch, Chicago District, U.S. Army Corps of Engineers. In her

most recent position with the Corps, Kimberly was responsible for coordinating projects involving restoration of ecosystems and natural habitats, stream bank stabilization, flood control, and environmental enhancement. In previous assignments with the Corps, Kimberly led teams responsible for implementation of several types of Federal projects. This project work included planning for and maintenance of compliance with the environmental requirements concerning NEPA, threatened and endangered species, wetlands, water quality, and, conservation and preservation of natural and cultural resources. Her project management experience turned on her responsibility for scope, schedule, and budget for these projects. In addition to experience with the Corps, Kimberly served for 3 years as Head of the Environmental Studies Unit for District One of the Illinois Department of Transportation. Kimberly earned both a Bachelors of Science degree in Natural Resource Conservation and a Masters in Forest Ecology from the University of Illinois.

**Kevin Moody**  
Environmental Program Specialist  
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Kevin Moody recently joined the FHWA Resource Center as an Environmental Protection Specialist on the Environment TST. Kevin most recently served as the Regional Environmental Coordinator for the U.S. Fish and Wildlife Service's Southeast Region. In that position, Kevin coordinated NEPA activities for the Southeast Region; provided technical assistance and support on NEPA-related matters, including internal compliance consultations and reviews of planning documents from other agencies. He worked with counterparts in other agencies to resolve NEPA-related conflicts and served as one of two NEPA course instructors for the Service. He previously held positions in NEPA compliance and habitat restoration with the Bureau of Reclamation in California. Kevin is a graduate of Clark University in Worcester, MA, with a Bachelors of Science degree in Environment and Technology.



#### SAFETY AND DESIGN

**Mark Doctor**  
Safety and Geometric Design Engineer  
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With a graduate degree from the University of Florida, it is fair to call Safety and Design TST member, Mark Doctor, a Gator. Mark joined the TST this spring as a Safety and Geometric Design Engineer and since then has been busy

providing technical assistance in the areas of geometric design, intersection safety, and interchange design. Mark has been with the FHWA since 1988 and has worked in the Florida Division and former Region Four office in Atlanta. Before joining the Resource Center, Mark was a part of the FHWA Tennessee Division Office as a Field Operations Team Leader and also a Safety/Traffic Operations Team Leader. Mark has a Bachelors of Science in Civil Engineering from Clemson University and a Masters in Transportation Engineering from the University of Florida. Mark will stay true to his southern roots and will be based out of the Atlanta office of the FHWA Resource Center.



## STRUCTURES

**Shay Burrows**  
Senior Structural Engineer  
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Shay is a Senior Structural Engineer with the FHWA Resource Center. His emphasis areas include bridge management systems, the National Bridge Inventory Standards (NBIS), infrastructure bridge engineering and management, infrastructure technology delivery, bridge inspection practices and technologies, and bridge management practices and software tools. He began his experience in structural engineering in 1994, and he joined FHWA in 1996. He is responsible for developing a workshop on Bridge and Tunnel Security as part of FHWA's Engineering Assessment Team for Security; has been involved in several State and Coast Guard vulnerability assessments; and provides guidance, training, technical assistance, and professional expertise relating to bridge management systems and inspection issues, with emphasis in bridge management and related software, bridge inspection data analysis, advancement of inspection techniques, and new technology development and deployment. Shay is also an instructor of NHI courses in the area of bridge inspection and management, and acts as technical contact for the NHI course on Bridge Construction Inspection. Prior to joining the Resource Center Structures Technical Service Team, Shay served as assistant bridge engineer, New Jersey Division. Shay earned both his Bachelor's of Science degree from Rutgers University. He is also a registered Professional Engineer.

## CONTACT INFORMATION

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