Reporting on innovative products
and strategies for building better, safer roads

FOCUS

December
2000

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Asset Management and the Quality Equation

As more highway agencies embrace the asset management approach to highway operations, which emphasizes the timely preservation, maintenance, and upgrading of highway assets through cost-effective planning and resource allocation decisions, an important byproduct is an increased emphasis on quality.

"Because of its focus on long range planning, financial analysis, and integration of other engineering management processes such as pavement or bridge management systems, asset management can have a significant effect on improving the quality of a highway system," says Ken Jacoby of the Office of Asset Management at the Federal Highway Administration (FHWA).

Highway agencies are using pavement, bridge, and maintenance management systems, for example, to collect and monitor information on current conditions, forecast future conditions, and determine the best program of highway or bridge investments to pursue over a certain time period. These actions will help agencies to maintain a steady level of performance and quality.

Another tool that provides States with a more effective way to plan projects and prioritize needs is the use of performance-related specifications (PRS), which allow highway agencies to link construction quality to long-term product performance. The PRS are similar to quality assurance specifications, but the acceptance quality characteristics they measure have been determined to be more directly related to product performance. For example, acceptance quality characteristics for pave-

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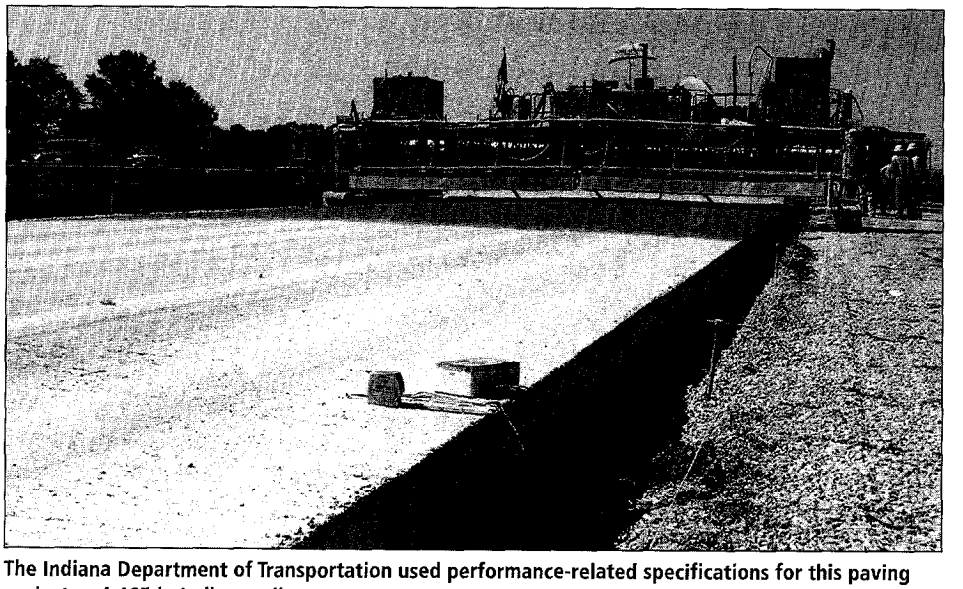


The Indiana Department of Transportation used performance-related specifications for this paving project on I-465 in Indianapolis.

U.S. Department of Transportation
Federal Highway Administration

TRB Annual Meeting Sessions Highlight Infrastructure Technologies

The current status of the long-term pavement performance (LTPP) program, the practice of asset management worldwide, and the progress made towards a future Strategic Highway Research Program (F-SHRP) are among the infrastructure-related topics that will be featured at the Transportation Research Board (TRB) 80th Annual Meeting, scheduled for January 7–11, 2001, in Washington, DC.

Infrastructure-related sessions of interest include, but are not limited to, the following. For details on the many other opportunities at the annual meeting to learn about infrastructure topics, check the TRB Web site at www.nationalacademies.org/trb/meeting.

Long-Term Pavement Performance Today and Tomorrow
Session 3, Monday, Jan. 8, 8:00 a.m., MW
Charles Churilla, Federal Highway Administration, presiding

Long-Term Pavement Performance: Year in Review
Allan L. Abbott, City of Lincoln, Nebraska

Benefitting from Long-Term Pavement Performance Now and in the Future
Cheryl Richter, Federal Highway Administration

Completing the Long-Term Pavement Program Mission
Charles Churilla, Federal Highway Administration

Asset Management, Part 1: It's More Than Stocks and Bonds
Session 21, Monday, Jan. 8, 8:00 a.m., HW
Timothy J. Lomax, Texas Transportation Institute, presiding

AASHTO's New Asset Management Strategic Plan
Mary Peters, Arizona Department of Transportation

State Guideline Project
Lance Newmann, Cambridge Systematics, Inc.

Federal Highway Administration's Asset Management Role: Today and Tomorrow
Anthony R. Kane, Federal Highway Administration

Local Government and the Asset Management Experience
Andrew C. Lemer, The Matrix Group, LLC

Asset Management Worldwide
Neville Potter, OECD Asset Management Expert Group, France

Accelerated Portland Cement Concrete Pavement Construction: It Works
Session 47, Monday, Jan. 8, 10:15 a.m., MW
Lawrence W. Cole, American Concrete Pavement Association, presiding

Weekend Interstate Lane Replacement: I-10 near Pamona, California
Roesler Jeffrey, University of Illinois, Urbana-Champaign

Reconstructing Runway 9R-27L in 33 Days at Atlanta-Hartsfield Airport
Robert McCord, APAC, Inc.

Weekend Intersection Reconstruction: Washington State Department of Transportation Experience
Jeff S. Uhlmeyer, Washington State Department of Transportation

Feasibility of Using Precast Concrete Panels to Expedite Construction of Portland Cement Concrete Pavements
David K. Merritt, B. Frank McCullough, and Ned H. Burns, University of Texas, Austin

Asset Management, Part 2: Applications
Session 56, Monday, Jan. 8, 10:15 a.m., HW
David S. Ekern, Minnesota Department of Transportation, presiding

Applying the Government Accounting Standards Board Statement 34: Lessons from the Field
Sue McNeil, University of Minnesota; Anthony J. Kadlec, Goodpointe Technology

Asset Management Guidance for Transportation Agencies, NCHRP 20-24
Lance Newmann and Michael J. Markow, Cambridge Systematics, Inc.

Asset Management and Innovative Finance
Daniel L. Dornan, Infrastructure Management Group, Inc.

Cost Benefit Model for Bridges
Rita Gregory, Georgia Institute of Technology; Cornelia Demers, University of Arizona

Asset Management, Part 3: User and Provider Perspectives
Session 56, Monday, Jan. 8, 10:15 a.m., HW
Daniel L. Dornan, Infrastructure Management Group, Inc., presiding

Maintenance Rating Programs: Development and Implementation
R. Boyden Underwood III, Applied Research Associates, Inc.

Real World Application of Transportation Asset Management
Dennis Vignola, VMS, Inc.

Managing Assets on a Linear Network
Graham Stickler, Exor Corporation

Long Term Performance Criteria to Achieve Asset Management
Brian R. McWaters, Koch Materials Company

Washington DC's Asset Management Initiative
Dan Tagherlini, DC Department of Public Works

Innovations in Pavement Management Systems and Other Pavement Issues
Session 99, Monday, Jan. 8, 2:30 p.m., MW

Asset Management, continued from page 1

ments might include concrete strength, slab thickness, and initial smoothness. A highway agency can choose to implement different levels of PRS, with the most basic level for pavements including such elements as defining the general project information and determining the distress indicator models for pavement performance, such as transverse cracking and pavement smoothness over time. Implementing a higher level might mean performing more nondestructive pavement sampling and testing or more testing on site.

Using PRS and setting the acceptance quality characteristics can help highway agencies determine whether a contractor should receive incentive or disincentive payments for a project, depending on the as-constructed quality of the work. The implementation of PRS, with well-defined quality levels that are understandable to contractors, is expected to lead to improved product performance and a reduction in life-cycle costs. While PRS have generally only been used for pavements up till now, ultimately they could also be applied to structures or other aspects of highway construction.

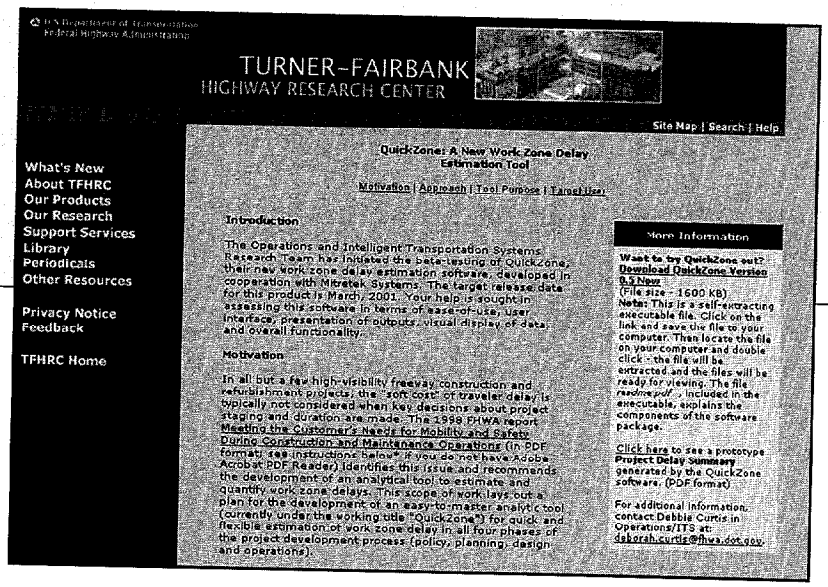
The many cost analysis and program decisions supported by aspects of asset management have a tremendous impact on quality, but equally important in the quality equation is a skilled workforce. To ensure that highway personnel have adequate training, FHWA has formed a national team that also includes representatives from the American Association of State Highway and Transportation Officials, regional training organizations, and industry to develop core training materials that can be used by States or regional training groups to train and qualify personnel to work on highway construction projects.

For more information on using asset management tools to achieve continuous quality improvements in highway management, contact Ken Jacoby at FHWA, 202-366-6503 (fax: 202-366-9981; email: ken.jacoby@fhwa.dot.gov).

In Brief...

From Virginia to Texas, States across the country are building durable, cost-effective bridges using high-performance concrete (HPC). To find out details about HPC bridge projects, learn the answers to frequently asked questions about the technology, or find a list of useful publications on the subject, consult *HPC Bridge Views.* The bimonthly newsletter is published by the Federal Highway Administration (FHWA) and National Concrete Bridge Council (NCBC). For a free subscription, contact Shri Bhide at NCBC, 847-966-6200, ext. 385 (fax: 847-966-9781; email: ncbc@portcement.org). Previous issues of the newsletter can be found on the Web at www.portcement.org/br/newsletters.asp. For more information on HPC, contact Terry Halkyard at FHWA, 202-366-6765 (fax: 202-366-3077; email: terry.halkyard@fhwa.dot.gov).

A prototype version of QuickZone, a new work zone delay estimation software developed by FHWA in cooperation with Mitretek Systems, is now available on the Web for use and assessment. The software can be downloaded at www.tfhrc.gov/its/quickzon.htm. A user need only have Microsoft Excel 97 or higher running on a Windows-based PC to use the QuickZone application. The software allows the user to compare the traffic impacts for work zone mitigation strategies and estimate the costs associated with these impacts. The costs can be estimated for both an average day of work and for the whole life cycle of construction. Version 0.99 of QuickZone is scheduled to be released in April 2001. For more information, contact Deborah Curtis at FHWA, 202-493-3267 (fax: 202-493-3419; email: deborah.curtis@fhwa.dot.gov).



Highway Technology Calendar

Reporting on innovative products and strategies for building better, safer roads.

American Association of State Highway and Transportation Officials Annual Meeting
December 8–12, 2000, Indianapolis, IN

The meeting will include tracks on "Innovations in Design and Construction," "Making It Work, Making It Last," "Planning for Customer Communities," and "Managing the New DOT."

Contact: Hannah Whitney at AASHTO, 202-624-8489 (fax: 202-624-7788; email: hannahw@aashto.org; Web: www.aashto.org).

Asphalt Technology 2000
December 10–13, 2000, Austin, TX

The conference is designed to provide a forum for transportation professionals and industry representatives to share information on practical engineering solutions to pavement problems. Topics covered will include specifications, pavement maintenance, and state-of-the-art technology.

Contact: Sharon Campos at the University of Texas at Austin, 512-471-3396 (fax: 512-471-0831; email: scampos@mail.utexas.edu).

LTPP State Coordinators Meeting
January 7, 2001, Washington, DC

The meeting will cover such topics as the SPS traffic data collection plan, highlights from the LTPP program in 2000, and what's in store for the program in 2001.

Contact: Neil Hawks at TRB, 202-334-1430 (fax: 202-334-3471; email: nhawks@nas.edu).

Superpave Binder Course
January 31–February 2, 2001, Indianapolis, IN
March 26–28, 2001, Indianapolis, IN

The course will provide detailed instruction on the Superpave binder specifications and testing procedures. An overview of the binder aging methods and direct tension tests will also be provided. The course includes both classroom instruction and hands-on laboratory work.

Contact: For information about course content, contact Rebecca McDaniel at the North Central Superpave Center, 765-463-2317, ext. 226 (fax: 765-497-2402; email: rsmcdani@purdue.edu; Web: bridge.ecn.purdue.edu/~spave/). For registration information, contact Nona Schaler at Purdue University, 765-494-2756 or 800-359-2968, ext. 92N (fax: 765-494-0567; email: njschaler@conf.purdue.edu).

Superpave Volumetric Mix Design Refresher Course
February 12–13, 2001, Indianapolis, IN

This refresher course provides an overview of Superpave volumetric mix design, including an introduction to how asphalt mixtures behave and an outline of the Superpave aggregate requirements and design aggregate structures. The course is designed for State highway personnel, contractors, and others involved in mix design and testing. Some knowledge of the basic principles of mix design and mixture volumetrics is required.

Contact: For information about course content, contact Rebecca McDaniel at the North Central Superpave Center, 765-463-2317, ext. 226 (fax: 765-497-2402; email: rsmcdani@purdue.edu; Web: bridge.ecn.purdue.edu/~spave/). For registration information, contact Nona Schaler at Purdue University, 765-494-2756 or 800-359-2968, ext. 92N (fax: 765-494-0567; email: njschaler@conf.purdue.edu).

Fourth Annual Asphalt Conference & Expo
March 11–14, 2001, Atlanta, GA

Conference topics will include work zone safety, quality control/quality assurance, choosing the right aggregate, and recycling and reclaiming. The conference will also feature outdoor repaving and reclamation demonstrations.

Contact: Kristin Himmelmann at 888-343-6462 (fax: 816-254-7446; email: kristin@asphaltconference.com).

2001 AASHTO Value Engineering Conference
July 10–13, 2001, San Diego, CA

The conference will feature main tracks on starting and maintaining a value engineering program and advanced tools and techniques for value engineering, as well as a number of case studies.

Contact: Earl Burgess at the California Department of Transportation, 916-653-4436 (fax: 916-653-1527; email: earl.burgess@dot.ca.gov; Web: www.dot.ca.gov/hq/oppd/value).

International Symposium on Transportation Technology Transfer
July 29–August 2, 2001, St. Petersburg, FL

The symposium will bring together transportation professionals from around the world to discuss their advances and experiences in technology transfer techniques. Symposium topics

will include marketing and promoting the transfer of technology, funding and sustaining technology transfer centers and programs, and partnering with technology transfer centers. The event is being sponsored by the Federal Highway Administration (FHWA), Local Technical Assistance Program, World Road Association, Organisation for Economic Co-operation and Development, Transportation Research Board, and Pan American Institute of Highways.

Contact: The Office of International Programs at FHWA, 202-366-9636 (fax: 202-366-9626; email: 2001symposium@fhwa.dot.gov; Web: www.international.fhwa.dot.gov).

Seventh International Conference on Concrete Pavements
September 9–13, 2001, Orlando, FL

Designed for pavement and geotechnical engineering professionals, the conference's focus is on using concrete to develop long-lasting pavement solutions for the 21st century. The event will highlight new technologies related to the design, construction, and rehabilitation of various types of concrete pavements. Another highlight will be a day of workshops and technical sessions on "Formulating the Long Range Research Needs for PCC Pavements." In addition, an exhibit hall will showcase new products and services.

Contact: Shiraz Tayabji at Construction Technology Laboratories, Inc., 410-997-0400 (fax: 410-997-8480; email: stayabji@ctlgroup.com; Web: iscp.tamu.edu).

Expert Task Group Defines LTPP Data Analysis Program

More than 10 years of long-term pavement performance (LTPP) data have been collected at sites across the country, with the analysis of that data now well underway. What will that analysis mean for State highway agencies and others? Under the Long-Term Pavement Performance Data Analysis Program developed by the Transportation Research Board (TRB) Expert Task Group (ETG) on LTPP Data Analysis, the outcome will include improvements in traffic characterization and prediction, material characterization, and consideration of environmental effects in pavement design, among other advances.

At its October 2000 meeting, the ETG further defined a program of national-level analysis of the LTPP data. The Data Analysis Program encompasses analysis work that will be directly sponsored by the Federal Highway Administration (FHWA), as well as work that is being proposed for pursuit via the National Cooperative Highway Research Program, pooled fund initiatives, and other entities. The analysis work addresses needs defined in the November 1999 *Strategic Plan for Long-Term Pavement Performance Data Analysis,* including such goals as improved evaluation and use of pavement condition data, evaluation of pavement response and performance models, and guidance on maintenance and rehabilitation strategy selection and performance prediction.

The program is the culmination of several years of effort on the part of the ETG and others. The majority of the LTPP data analysis projects were defined through a series of annual workshops sponsored by TRB that began in 1998. The remaining projects were defined through FHWA data analysis planning efforts that began in 1997. The program defined by the ETG builds upon this prior work by showing how the individual projects relate to one another and to the Strategic Plan objectives.

Special credit is due ETG member Mike Murphy of the Texas Department of Transportation, who chaired the work group that developed the Strategic Plan and devised a graphical representation of the analysis program.

The graphical representation of the Data Analysis Program can be found on the LTPP Web page (www.tfhrc.gov/pavement/ltpp/ppt/ltppchart.ppt). You can also find a copy of the 1999 Strategic Plan on the Web at www.tfhrc.gov/pavement/ltpp/resource.htm. For more information on the Data Analysis Program, contact Cheryl Richter at FHWA, 202-493-3148 (fax: 202-493-3161; email: cheryl.richter@fhwa.dot.gov).

LTPP Data Analysis Contest Postponed

To accommodate updates to the long-term pavement performance (LTPP) program data that will be available in the spring of 2001, the Federal Highway Administration (FHWA) and American Society of Civil Engineers (ASCE) have postponed the deadline for the third annual International Contest on LTPP Data Analysis (see September 2000 *Focus*) from June 1, 2001, until June 1, 2002. For more information on the contest, contact Edwina Chen at ASCE, 703-295-6199 (fax: 703-295-6132; email: echen@asce.org). To obtain a free copy of the DataPave software, contact the LTPP customer service center at 865-481-2967 (fax: 865-481-8555; email: ltppinfo@fhwa.dot.gov; Web: www.ltppdatabase.com). More information on the contest is also available at the LTPP Web site (www.tfhrc.gov/pavement/ltpp/contest.htm).

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