



OPERATIONS

NDGPS: Providing Real-Time Location Innovations

Across the Nation, 91-m communications towers are sprouting up. These towers look no more imposing than the average radio station tower, but they are part of a significant information breakthrough. The new towers, along with some existing towers, will form the Nationwide Differential Global Positioning System (NDGPS). This new system, which will be operational across the country by 2002, will refine and improve the ability of the existing Global Positioning System (GPS) technology to provide real-time location information. NDGPS will, for the first time, provide a valuable resource for many surface transportation applications, especially Intelligent Transportation Systems (ITS), that require more accuracy than can be provided by the existing system, which is accurate to within 100 m. The improvement will be so profound that it will create an ever-increasing number of applications in transportation and other fields.

To improve understanding and outreach to the potential users within the U.S. DOT a GPS/NDGPS Technology and Applications Seminar, sponsored by FHWA's Office of Research, Development, and Technology,

was held on September 26.

The workshop, including presentations and a real-world system demonstration, covered the introduction and DOT Initiative (Joseph Canny, DOT/OST), GPS deployment status (Ray Swider, DOD), NDGPS Working Group (Sheldon Blue, OST NDGPS PIT Group), Rail Integration (Steve Ditmeyer, FRA), Advanced Fleet Management (Ronald Beaonau, FTA),

Commercial Applications (Phyllis Young, FMCSA), Air Traffic Control (Chris Hegarty, FAA), Location System (Lenard Allen, USCG), and ITS Implementation Potential (James A. Arnold, FHWA). The conference proceeding, currently being prepared, will be released on a multimedia CD early next year.

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Workshop participants tour the exhibit that showcased the latest in NDGPS technology.

The *Research and Technology Transporter* communicates FHWA research, development, and technology accomplishments, findings, information, and technology transfer opportunities. Its audience is transportation engineers and professionals in State and local highway agencies, State DOTs, Local Technical Assistance Programs, Divisions, Resource Centers, Core Business Units, academia, and the research community. The eight-page newsletter is published monthly by FHWA's RD&T service business unit. Editorial offices are housed at the Turner-Fairbank Highway Research Center. Comments should be sent to the editor at the address below. Field offices are encouraged to submit articles for publication via the appropriate agency technology leader from the editorial board listed below. The newsletter can be viewed online at www.tfhrc.gov. Subscriptions to the *Transporter* are free. Send your request to Judy Dakin at the address below, or send email to judy.dakin@fhwa.dot.gov.

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INFRASTRUCTURE

International Symposium Offers Chance to Discuss HPC

At the second International Symposium on High Performance Concrete (HPC) attendees discussed recent developments and shared experiences relating to high performance concrete. The conference was held September 25–27 in Orlando, FL, in conjunction with the Precast/Prestressed Concrete Institute's 46th Annual Convention and Exhibition. This HPC symposium, sponsored by PCI, FHWA, and the Fédération Internationale du Béton, focused on the "Economical Solution for Durable Bridges and Transportation Structures."

Participants at the conference attended joint sessions on HPC general history, marketing, and implementation; materials and

mix design; laboratory research and future direction; quality concepts, fabrication, and transportation; construction techniques; structural design and concepts; structural performance and code requirements; and FHWA showcase projects and case studies.

Total registration for the conference exceeded 1500; 42 countries and 30 State highway agencies were represented. FHWA representatives attended from 20 division offices, all resource centers, Federal Lands Highway divisions, Offices of Bridge Technology and Pavement Technology, and the Office of Research, Development, and Technology.

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FHWA Executive Director Tony Kane receives a plaque from PCI Board Chairman William Witcher attesting to the progress of HPC.

New Gauge Set for Use with 20 States

On November 29 and 30, representatives from over 20 States and industry met at TFHRC and organized the technical structure of a new national pooled fund study. The study is titled *The Use of Non-nuclear Testing Devices for Determining Soil and Unbound Aggregate Compaction and Stiffness Values in Highway Construction*. It will focus on the use of the GeoGauge, an acoustic-based testing device. The device was originally developed by the Department of Defense's

Advanced Research Programs Administration and further refined under a cooperative arrangement between the FHWA and Humboldt, Inc. If successful, the GeoGauge will quickly measure a more fundamental property of the in-place materials at construction sites, and will reduce the administrative burden of having to use nuclear devices that are less accurate.

The study will focus on four key elements: 1) correlation with moisture/density compaction

relationships; 2) effectiveness in testing chemically modified soils; 3) modulus comparisons with plate load tests; and 4) effectiveness in reducing pavement foundation variability. Each State in the study will be receiving a GeoGauge, along with individual training. Participants may volunteer to work on key sub-elements of the study if they so desire. The study is expected to last through December 2001.

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ENVIRONMENT

Environmental Research: A Decade of Accomplishments, 1990–2000

FHWA's Planning and Environment Core Business Unit (HEP) marks 10 years of supporting transportation environmental research with the release of a new report, *Environmental Research: A Decade of Accomplishments, 1990–2000*. The publication documents the history and accomplishments of the FHWA Environmental Research Program (ERP) and highlights some of the most significant research endeavors. Available in both print and CD-ROM formats, the report includes a detailed database of all of the research activities funded by the environmental program offices under HEP during the last decade. The research projects include



model development, investigative studies and analyses, funded conferences/workshops, grants, and cooperative agreements. The research projects have advanced the programs of the Offices of Natural Environment, Human Environment, and the Office of National Environmental Policy Act (NEPA) Facilitation.

In addition to the print and CD formats, a web-enabled version of the database is being developed and tested. The Web version can be used to search for specific research topics or reports and will allow researchers to use the Internet to learn about completed and ongoing research

activities, request copies of publications and reports, and link to related Web sites on the research and program activities of FHWA and other organizations. The Web site will be a valuable tool in developing and maintaining cooperative research efforts, and in leveraging financial and other resources needed to sustain a viable and responsive research program.

An announcement of the completion of the web-searchable database, and the availability of the full accomplishments report on the FHWA Web site will be forthcoming. Additional details may be obtained by contacting:

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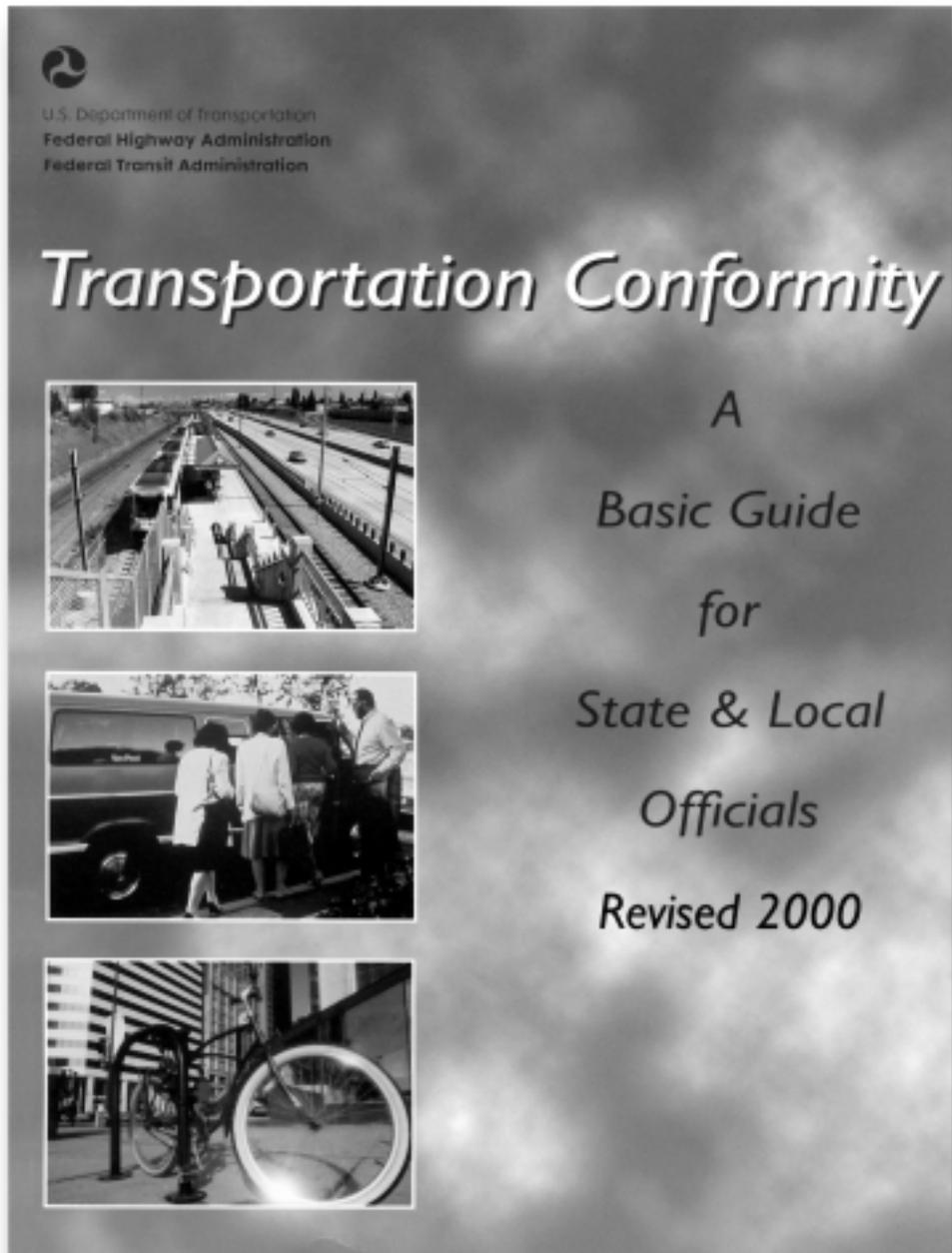
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FHWA Releases Revised Guide For Clean Air Requirements

In early October, FHWA released the revised *Transportation Conformity: A Basic Guide for State & Local Officials*. The new version of this report is intended to facilitate compliance by State and local agencies with the transportation conformity requirements in the Clean Air Act Amendments of 1990.

The updated guide, designed for State and local transportation officials, explains the basics of the transportation conformity process. It covers the definition and what actions are subject to transportation conformity, who makes conformity determinations and how often they are made, the key components of conformity determinations, and the consequences of failing to make a conformity determination. The guide also discusses the roles and responsibilities in the conformity process.

The guide was prepared by FHWA and the Federal Transit Administration (FTA), in cooperation with the Environmental Protection Agency (EPA). It reflects the implementation of the Transportation Equity Act of the 21st Century, and the March 2, 1999 decision by the U.S. Court of Appeals for the District of Columbia which affected certain conformity provisions.



This report will help State and local agencies with the transportation conformity requirements in the Clean Air Act Amendments of 1990.

The guide was originally published in 1997, but this revised version reflects changes in the transportation conformity provisions. The guide can be viewed on

the Internet at www.fhwa.dot.gov/environment/conformity/basic_gd.htm
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International Pavement Recycling Workshop Held in Houston

A workshop titled Partnerships for Sustainability: A New Approach to Highway Materials was hosted by the Texas Department of Transportation from October 9–11 in Houston. The workshop was a follow-up activity to a successful International Technology Scanning Tour in September, 1999 that explored recycled materials use, practices, and technologies in Europe.

A key goal of the workshop, attended by more than 90 highway, environmental, and recycling professionals from across the country, was to bring Federal and State DOT and Environmental Protection Agency materials engineers and environmental staffs together to find common ground and encourage cooperation in all aspects of recycled materials use.



Speakers from the Netherlands, Germany, Denmark, and Sweden made presentations on their countries' experience with recycling programs. Of particular interest was a presentation on European Leaching Protocols, which the workshop attendees determined merited further investigation for application in the United States. The group also made site visits to a concrete-crushing facility in

Houston, as well as a composting plant where they learned of the potential uses of compost in construction applications.

One of the main outcomes of the workshop was that the AASHTO Materials Committee will develop standards and guidelines for recycled materials use in highway construction, and seek additional future funding for research in this area.

The main sponsors of the workshop included FHWA, AASHTO, EPA, the American Association of State and Territorial Solid Waste Management Officials, the Recycled Materials Highway Research Center at the University of New Hampshire, Associated General Contractors of Texas, and the Texas Department of Transportation. Several other associations and private businesses also supported the workshop.

Workshop presentations are available online at www.rmrc.unh.edu. A copy of *Recycled Materials in European Highway Environments: Uses, Technologies, and Policies* is available online at www.international.fhwa.dot.gov. Hard copies are available by sending an email request to the following:
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Prior to the workshop, some participants saw how waste-to-energy bottom ash is being used in road embankments in the Netherlands.

PLANNING

Bridging the Border

In October, the U.S. and Mexico Joint Working Committee (JWC) formally agreed to continue cooperation in binational planning activities for border transportation. The committee met in Santa Fe, NM, where they finalized several aspects of a new 2-year work plan to create a border infrastructure needs assessment study, geographic information systems platform for border ports of entry, intelligent transportation systems information exchange activities, and a coordination system for operation of border ports of entry.

The meeting came in the wake of the signing of a binational Memorandum of Understanding on transportation planning by U.S. Department of Transportation Secretary Rodney Slater and Mexican Secretariat of Communications and Transportation Secretary Carlos Ruiz on October 12 at the

International Transportation Symposium. This memo re-emphasizes the importance of combined binational and multi-state efforts to improve border activities.

The JWC was established by a formal agreement between the U.S. States, the Mexican states, and the two Federal governments in April 1994. Its goal is to establish coordinated binational planning processes for border transportation activities. The JWC is comprised of representatives from FHWA, the Mexican Secretariat of Communication and Transportation (SCT), the U.S. Department of State, the Mexican Secretariat of Foreign Relations, the six Mexican border states (Tamaulipas, Nuevo Leon, Coahuila, Chihuahua, Sonora, and Baja California), and the four U.S. border States (Texas,

New Mexico, Arizona, and California). It is co-chaired by FHWA Environment and Planning Program Manager Cindy Burbank and Oscar De Buen of SCT.

The JWC completed a transportation planning study to establish the framework for binational planning and coordination.

This \$2.5 million study was jointly funded by the U.S. border States and SCT. It identified many opportunities for improving planning and operations at the border ports of entry. Copies of it are available on CD by contacting the Office of Intermodal and Statewide Programs at (202) 366-0233 or on the Web at www.fhwa.dot.gov/binational
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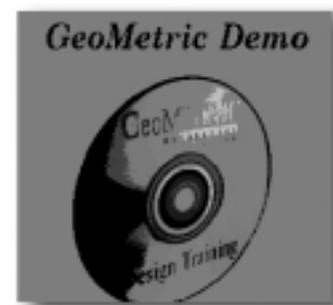
TECHNOLOGY TRANSFER

FHWA Facilitates Web-Based Learning Project

Online lessons on geometric design have received rave reviews as they were demonstrated at the AASHTO National Geometric Design Meeting in Rapid City, SD. A group of States has been pooling their State Planning & Research Part II funds to develop similar web-based learning modules. To date, 8 lessons on geometric design have been developed, with 26 additional lessons in the

works. Many additional States are taking the necessary steps to join the project, which will ensure that many more courses will be developed in other technical areas. If your State or agency would like to join the project, please contact your FHWA division office, resource center contact, or:

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This CD contains the online lessons in geometric design that may become the archetype for future training.

SAFETY

FHWA Announces Availability of Work Zone Guidebook

Striving toward a goal of no delays and no crashes in work zones, Federal Highway Administrator Kenneth R. Wykle in October released a guide to improving safety and mobility in highway work zones called *Work Zone Best Practices Guidebook*.

The guidebook provides practitioners with information on



best practices that are designed to save lives, reduce injuries, and enhance mobility in highway construction work zones. It assists construction workers by providing descriptions of safe work zones and links to further information and expertise. Transportation experts from around the country were surveyed for the guidebook and they serve as the

points of contact for further information about every stage of a project, from planning and design through construction and maintenance.

The document can be accessed from FHWA's Web site at <http://ops.fhwa.dot.gov/wz/workzone.htm>.

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FHWA's goal is to see that work zones do not delay traffic and keep drivers from crashing.



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HRTS

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PROFESSIONAL DEVELOPMENT

National Highway Institute Unveils New Web Site

The National Highway Institute (NHI) recently unveiled its new Web site. In addition to providing general information on NHI's programs—State Programs, Universities & Grants Programs, and the Affiliate Programs—the new Web site includes several new features, among them:

- A link to the *Transportation Training Resources Catalog 2000*. This publication includes NHI's courses, as well as those from other transportation training organizations. The catalog provides information on course objectives, descriptions, and contacts.

- *Frequently Asked Questions*, which includes answers to typically asked questions about State Programs, the Universities and Grants Programs, and the Instructor Certification Program.
- Online forms for applicants to the Universities and Grants Programs. Customers can now download these applications.
- The Affiliates Programs, with a link to the Local Technical Assistance Program (LTAP) Clearinghouse.

Customers will find a new feedback section, allowing them to



make comments directly to an NHI staff member. Links to other transportation-related Web sites are also listed. The Web site can be viewed at www.nhi.fhwa.dot.gov.

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