



## ***The LTPP Materials Action Plan***

The Federal Highway Administration (FHWA), working with the Transportation Research Board (TRB) Long-Term Pavement Performance (LTPP) Committee, determined that one of the priorities of the program is to fill the gaps that exist in the LTPP database. One area where gaps exist is in the Specific Pavement Study (SPS) materials data. State and Provincial (Canadian) departments of transportation (DOTs) did an excellent job testing the samples from the SPS projects, but some needed data are missing for a variety of reasons. FHWA developed a materials action plan to fill these gaps, and will need the agencies' help in executing the plan.

The plan included three areas of priorities—filling the gaps in the materials database, conducting new tests, and conducting aging tests. The new tests were not originally included in the program because they had not been developed when the program began, or because of their cost. The aging tests were designed to examine what happens to materials properties over time. The [2005 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users \(SAFETEA-LU\)](#) provides funding to proceed only with LTPP's first priority item—to fill the gaps in the materials database.

Rather than asking the DOTs to both obtain and test additional samples, FHWA awarded a single contract to perform all of the material tests. The LTPP regional contractors, with the assistance of the State and Provincial DOTs, are developing sampling plans and acquiring core samples of asphalt and concrete pavements and bulk samples of the subbase and subgrade materials from the SPS-1, -2, -5, -6, and -8 projects. These materials will be shipped to the materials testing contractor.

The materials testing contract was awarded September 7, 2005 to Braun Intertec of Minneapolis, MN. Work is scheduled to commence October 1, 2005.

For further information, please contact Mr. Jack Springer (phone: 202-493-3144 or e-mail [jack.springer@fhwa.dot.gov](mailto:jack.springer@fhwa.dot.gov)).

## **The Importance of Forensic Studies**

*The following is a message from Professor Carl L. Monismith, Director of the Pavement Research Center at the University of California, Berkeley. Prof. Monismith is a member of the TRB LTPP Committee.*

During its June 2–3, 2005 meeting, the TRB LTPP Committee discussed the importance of conducting forensic studies of the SPS pavement sections that include trench sections. ***We urge all highway agencies to initiate these studies.***

Testing trench sections is extremely important to properly assess the performance of each section and is essential to the validation of the [NCHRP 1-37A \(Mechanistic-Empirical\) Pavement Design Guide](#) (ME-PDG). During the periodic measurements of performance of the SPS sections, only surface measurements and observations are made. These measurements are useful, but they do not provide the requisite information to perform the necessary performance analyses. Trench sections provide essential information on rutting, cracking, and potential moisture sensitivity problems in asphalt-based layers. These sections also provide specimens that are useful for materials testing to define material characteristics of the pavement section when each section is taken out of service.

Relative to material characteristics, there are several sources of information. Slabs and cores of asphalt mixes provide specimens for flexural and diametral stiffness and for flexural fatigue testing, and may provide an indication of moisture effects (e.g., stripping). Slabs of concrete permit determination of modulus of rupture and flexural stiffness. Materials from granular layers can be re-compacted in the laboratory to their in-situ density, and water content conditions and triaxial compression repeated load tests could determine stiffness moduli. Undisturbed samples of fine-grained subgrade soils can be used for stiffness moduli determinations. If the pavements are composed of other materials, appropriate tests can also be performed on extracted samples.

For asphalt pavements, determination of the rutting attributed to each of the pavement layers is necessary for validation of the ME-PDG. Such measurements can be made only from trench sections.

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Fatigue cracking in asphalt pavements can be properly defined only by examining slab samples and/or trench sections. Surface cracking can be observed, but it is necessary to observe the cross-section of the asphalt-bound layer to ascertain whether cracking is bottom up or top down. Further, it is necessary to learn if cracking occurred in only the top layer because of slippage between the top and underlying layers due to improper use or lack of a tack coat.

For more information, contact Mr. Aramis López (phone: 202-493-3145 or e-mail [aramis.lopez@fhwa.dot.gov](mailto:aramis.lopez@fhwa.dot.gov)).

### Materials Reference Library

The LTPP Program currently maintains the [Materials Reference Library \(MRL\)](#) to store materials collected at LTPP General Pavement Study ([GPS](#)) and Specific Pavement Study ([SPS](#)) sites throughout the United States and Canada. In addition, the facility also contains asphalts and aggregates from the Strategic Highway Research Program ([SHRP](#)) and material samples from [WesTrack](#). All of these materials are available to researchers. Requests to the MRL for use of the materials need approval by FHWA. For directions on how to request materials and receive an inventory of materials contained in the MRL, please go to [www.ste-group.com/mrl.htm](http://www.ste-group.com/mrl.htm).

For additional information, contact Mr. Jack Springer (phone: 202-493-3144 or e-mail [jack.springer@fhwa.dot.gov](mailto:jack.springer@fhwa.dot.gov)) or Mr. Sirous Alavi (phone: 775-827-4400 or e-mail [sirous@ste-group.com](mailto:sirous@ste-group.com)).

### *In Brief*

#### First Weigh-In-Motion Equipment Installed in Illinois

The first weigh-in-motion (WIM) equipment installation for the [LTPP SPS Traffic Pooled Fund Study, TPF-5 \(004\)](#), took place the week of July 25, 2005 at the SPS-6 site in Illinois. The Phase II contractor installed a bending plate at the site. Aside from dealing with a transverse profile issue, the installation of the scales went well. The bending plate was shimmed to address the transverse profile issue with no affect on data quality. The electronics and cabinet were installed the following week and calibration activities began on August 10, 2005. An initial problem with the equipment involving misclassification of Class 12 vehicles was

corrected. A report is being prepared on the calibration activities.

Work is rapidly proceeding on WIM equipment installations in other States participating in the study. Grinding of the SPS-5 site in Maryland will take place by September 16, 2005. The section will then be profiled, and the WIM system is scheduled for installation the week of October 10, 2005.

More details about the Illinois installation will be featured in FHWA's [Focus](#) newsletter. For questions about this installation or for more information about the pooled fund study, contact Ms. Deborah Walker (phone: 202-493-3068 or e-mail [deborah.walker@fhwa.dot.gov](mailto:deborah.walker@fhwa.dot.gov)).

#### 2006 International Contest on LTPP Data Analysis

The FHWA and the American Society of Civil Engineers (ASCE) are cosponsoring the 2006 International Contest on LTPP Data Analysis. Now in its sixth year, the contest is designed to encourage university students, professors, and highway department engineers from around the world to use the LTPP database. The contest deadline for submitting entries is June 30, 2006. Prizes include cash awards and certificates. We encourage you and your colleagues to participate.

For more information, contact [antonio.nieves@fhwa.dot.gov](mailto:antonio.nieves@fhwa.dot.gov) or visit the website at [www.fhwa.dot.gov/pavement/ltpptcontest2006.cfm](http://www.fhwa.dot.gov/pavement/ltpptcontest2006.cfm).

#### Article about LTPP in the *Lansing State Journal*

The *Lansing State Journal* published an article by Mr. Hugh Leach about pavement research and LTPP sites in Michigan in its August 11, 2005 issue. If you would like to read the article, see <http://www.lsj.com/apps/pbcs.dll/article?AID=/20050811/NEWS01/508110355/1001/news>.

#### **Coming in our November/December 2005 Issue:**

The next issue of the *LTPP Newsletter* will feature an update on the new LTPP budget mandated by SAFETEA-LU, the new highway bill recently passed by the United States Congress. The issue will outline the bill's implications for the fiscal years 2006 through 2009.

For more information about LTPP, go to: [www.fhwa.dot.gov/pavement/ltppt](http://www.fhwa.dot.gov/pavement/ltppt)