



## **LTPP Completes Transition of IMS Operations to the Federal Highway Administration (FHWA)**

In 2009, the Long-Term Pavement Performance program (LTPP) Team at the Turner-Fairbank Highway Research Center (TFHRC) successfully set up a new state-of-the-art server to store LTPP information. This was the first step in integrating the LTPP Information Management System (IMS) as part of the daily LTPP program activities. Now in 2011, the transition of all LTPP IMS Operations to FHWA is complete.

The LTPP IMS consists of the Pavement Performance Database (PPDB) and the Ancillary Information Management System (AIMS). The PPDB contains pavement-related data, computed parameters, and summary weather and traffic data. It currently has 330 million data records. The AIMS is the collection of LTPP information that is not contained in the PPDB. This information includes all documents, videos, photos, raw data files, software, manuals, and protocols created as part of the LTPP program. The AIMS repository contains 2.2 million files and is updated annually. The entire data warehouse—PPDB and AIMS—consumes 4.5 terabytes of storage on the LTPP repository.

To preserve this national information database, which is designed to support pavement, traffic, and other transportation disciplines into the future, the FHWA completed the following activities:

- Established a secure room on Government property for the LTPP Information and Customer Support Center.
- Installed a secure state-of-the-art database server.
- Installed the production PPDB on the server.
- Loaded all AIMS files on the server.
- Hired a dedicated database administrator to handle all database and file operations.
- Established a physical research library containing paper copies of all significant LTPP legacy, analysis, and program documents.
- Awarded a contract to provide safe, offsite storage of the LTPP data backups.



**The LTPP Information and Customer Support Service Center in a secured room at the FHWA TFHRC.**

With the completion of these activities, the LTPP Team is in the process of developing a strategic plan for LTPP IMS activities for the next 5 years. This process, which began more than a year ago and includes inputs from stakeholders such as the Transportation Research Board (TRB) LTPP Committee and TRB Expert Task Group on LTPP Special Activities, is helping to shape the next steps in the LTPP IMS plan with a focus on making the IMS easier to use.

Part of making the IMS easier to use is making the LTPP data and AIMS files more available to users. Two significant projects that support this objective are underway. The first is a re-design of DataPave Online with a geographic data review and selection interface and enhanced data extraction utilities. Look for a public version in 2011. The LTPP Program is also re-designing the IMS platform from a client-server infrastructure to a Web-centric operations environment. For more information, contact Jane Jiang at [jane.jiang@dot.gov](mailto:jane.jiang@dot.gov) or (202) 493-3149.

## **LTPP Performance Forecast**

Developed as part of the "Effect of Multiple Freeze-Thaw Versus Deep Frost Penetration on Pavement Performance" Pooled-Fund Study, TPF-5(013), the LTPP Performance Forecast product produces freeze/thaw performance predictions for both rigid and flexible pavements. These predictions are based on regression models using data available from approximately 800 in-service test sections in the LTPP database. These sections consist of a variety of

climates with various subgrade types and a range of loading conditions. Using the LTPP Performance Forecast, users can compute roughness, structural cracking, environmental cracking, rutting, and faulting predictions as a function of pavement age. The forecasts are based on user-defined inputs for traffic, structure, environment, and subgrade conditions.

Complete details on model development and the overall fund study can be found in the final report, [Effects of Multiple Freeze Cycles and Deep Frost Penetration on Pavement Performance and Cost](#) (FHWA-HRT-06-121). Since the main objective of the study was to quantify the impacts of frost on pavement performance, the models developed and implemented in this application cover both frost and non-frost regions and are applicable to a range of climates.

While the LTPP Performance Forecast is not a pavement design program, it can be used to help agencies check and calibrate a mechanistic empirical-based pavement design program (i.e., the *Mechanistic Empirical Pavement Design Guide* (MEPDG)) against local conditions. The MEPDG was developed using national models that represent average performance trends throughout the United States; however, there are significant differences in pavement performance across the United States based on various local environmental conditions. Agencies should consider calibrating the MEPDG for their local conditions by adjusting MEPDG calibration factors. Procedures on how to use the LTPP Performance Forecast to calibrate MEPDG models to local conditions are described in the final report. This is particularly useful for agencies that do not have measured pavement performance data available for calibration purposes.

The LTPP Performance Forecast can be used by State, county, and local agencies to forecast or estimate performance trends for pavement sections of interest in specific user-defined environmental settings. Similarly, the LTPP Performance Forecast could also be used to check and develop pavement performance trends used in an agency's pavement management system. The online application can be found at [www.ltp-products.com](http://www.ltp-products.com). For more information, contact Larry Wiser at [larry.wiser@dot.gov](mailto:larry.wiser@dot.gov) or (202) 493-3079.

## **Thank You for Saying “Yes” When We Called**

Fifty pavement specialists from State Highway Agencies (SHAs), universities, and consulting firms across the country met at the Arnold and Mabel Beckman Center of the National Academies in Irvine, California, for 3 days in the late summer to develop recommendations for improvements to the FHWA's *Strategic Plan for LTPP Data Analysis*.

This LTPP Pavement Analysis Forum was jointly planned and implemented by the FHWA's LTPP Team and the TRB LTPP Committee to enable these specialists to set aside their regular duties for a few days and apply their energies and expertise to reviewing, revising, and enhancing the targeted analytical outcomes and the descriptions of the projects that would yield these outcomes in the strategic plan.

The forum was designed to identify, define, and prioritize the analytical studies that will produce results that can be further developed and combined into products that SHAs as well as others can use to help design, build, and maintain—on a mechanistic/empirical basis—existing and future highway pavements.

The forum consisted of opening and closing plenary sessions, but the forum format consisted primarily of breakout meetings of small work groups. Work groups were created to focus on each of the seven specific objectives in the strategic plan, and to review, revise, and enhance the work in each to heighten its relevance to the needs of the SHAs. A total of 124 analysis outcomes, project definitions, or problem statements were developed.

The forum's output was compiled and provided to the TRB LTPP Committee and its traffic and special activities Expert Task Groups for their review and recommendation for implementation in 2011 and beyond.

This forum could not have happened without the dedication and support from those who attended and even those who wanted to participate but had other engagements. As Aramis López, the LTPP Team Leader stated in his opening and closing remarks at the forum, “Thank you for saying yes when we called.” For more information, contact Larry Wiser at [larry.wiser@dot.gov](mailto:larry.wiser@dot.gov) or (202) 493-3079.

## *In Brief*

### **Standard Data Release 25 (SDR 25) Is Here**

The new release of the LTPP database is available now. You can request a copy of SDR 25 by contacting the LTPP Customer Support Service Center at [ltpinfo@dot.gov](mailto:ltpinfo@dot.gov) or (202) 493-3035.

### **LTPP Keeps Rolling**

The September/October 2010 issue of *Public Roads* magazine includes an article that describes the LTPP program's history and future direction. Click [here](#) to read more about how LTPP has impacted pavement engineering over the last 20 years and how it will influence the industry into the future.

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