

LTPP Newsletter

Volume 1, Issue 3

July/August 2005

Smooth Pavements Produce Higher Quality Weigh-In-Motion (WIM) Data

The smoothness of the pavement surface at the approach to a WIM scale directly affects the scale's ability to accurately estimate static loads from measured dynamic forces. Lack of smoothness may create difficulties in calibrating WIM equipment and cause poor results in subsequent vehicle weight data collection efforts.

The Long-Term Pavement Performance (LTPP) Program recently developed the WIM Smoothness Index Software, Version 1.0 and an accompanying manual as part of the LTPP Specific Pavement Study (SPS) Traffic Data Collection Pooled Fund Study, [TPF-5\(004\)](#). The software will be used primarily in evaluating the WIM approach slabs for the Phase I and Phase II sites in the pooled fund study. The purpose of using the software is to determine if remedial work on the pavement surface near the WIM equipment is needed. LTPP regional support contractors have been instructed and encouraged to begin using the new software to help support the highway agencies in their region.

Many Departments of Transportation are installing WIM equipment at strategic locations throughout their States as part of the pooled fund study as well as for their own needs. They want to collect higher quality data for the LTPP Program and to provide traffic load spectra data for input into the new [Mechanistic Empirical Pavement Design Guide](#) (MEPDG).



WIM approach at the Maryland SPS-5 site

The American Association of State Highway and Transportation Officials (AASHTO) adopted a provisional specification based on the LTPP WIM Smoothness Index Software. Provisional specification MP14-05 entitled "The Smoothness of Pavement at the Approaches to Weigh-In-Motion (WIM) Scales" is designed to help States construct smoother approaches to the WIM for a functional installation.



Field Verification of a WIM Site in Texas

The specification requires collection of profile data at a WIM approach or at a candidate WIM site. Computer software is then used to calculate indices of long- and short-range pavement surface roughness that are then compared to upper and lower thresholds through a pass fail criteria. Criteria are provided for both American Society of Testing Materials (ASTM) Type I and Type II WIM installations.

When constructing special approach pavement sections, or utilizing existing pavements for WIM installations, agencies should consider using MP14-05. This specification will be available this summer. For more technical information about the provisional specification, please contact Mr. Mike Moravec at (410) 962-5623 or email mike.moravec@fhwa.dot.gov.

For technical questions about the WIM Smoothness Index Software, contact Mr. Larry Wiser at (202) 493-3079 or email larry.wiser@fhwa.dot.gov. Contact LTPP Customer Support Service at (865) 481-2967 or email ltppinfo@fhwa.dot.gov to request a copy of the software and the accompanying manual.

LTPP's Website Has a New Address!

www.fhwa.dot.gov/pavement/ltp/index.cfm

The Federal Highway Administration (FHWA) has upgraded the LTPP web pages as part of a larger Pavements Topics-based website. The topic-based website has been established as the central source of FHWA's technical information on pavements and can be accessed at www.fhwa.dot.gov/pavement. The new pages have been designed to make it easier to navigate through the Focus Areas of the entire FHWA Pavement Program and provide better access to the FHWA Knowledge System, including publications, software, and information on upcoming events, workshops and training.

Users do not need to know the FHWA office responsible for a particular aspect of the pavement topic and no longer need to search through several different websites to find information. Users can look for information based on various phases of pavement life (i.e. Design, Construction, Preservation, Maintenance, Management, or Rehabilitation), by the type of activity they want to know about (i.e. Technical Guidance, Research, or Technology Transfer), or through major program focus areas (i.e. Optimize Pavement Performance, Advanced Quality Systems, Pavement Surface Characteristics, or Environmental Stewardship).

There is an extensive list of contacts in the FHWA Pavement offices and other transportation-related links on the new website. Although the basic content of the LTPP site has not changed, the design has been improved to give it a layout that is consistent with other Pavement Topic sections. The LTPP website will also continue to be accessible through the Turner-Fairbank Highway Research Center site – www.tfhr.gov. Please send any comments or suggestions on the new website to mary.deeney@fhwa.dot.gov.

In Brief:

First WIM Installation Confirmed for Illinois

The first WIM installation for the Phase II activities under the LTPP SPS Traffic Data Collection Pooled Fund Study, [TPF-5\(004\)](#) will take place at Illinois' SPS-6 (Rehabilitation of Jointed Portland Cement Concrete Pavements) test site. The installation will begin July 26 with equipment calibration beginning July 29.

Details about the Illinois installation will be featured later this year in an article in the FHWA's [Focus](#) Newsletter. For questions about this installation or to get more information about the pooled fund study, contact Ms. Deborah Walker at (202) 493-3068 or email deborah.walker@fhwa.dot.gov.

New Publications

The following three LTPP-related reports have been recently published and are now available for viewing and printing on the linked websites. For more information on other LTPP publications, visit: http://www.fhwa.dot.gov/pavement/pub_listing.cfm?are=as=LTPP

- [Structural Factors of Jointed Plain Concrete Pavements: SPS-2—Initial Evaluation and Analysis](#) (FHWA-HRT-01-167). This report documents the first comprehensive review and evaluation of the Specific Pavement Studies 2 (SPS-2) experiment, Strategic Study of Structural Factors of Jointed Plain Concrete Pavements (JPCP). The main objective of this experiment is to determine the relative influence and long-term effectiveness of JPCP design features and site conditions on performance. The evaluation concludes that many important and useful findings and results can be obtained from the SPS-2 sites.
- [Achieving a High Level of Smoothness in Concrete Pavements Without Sacrificing Long-Term Performance](#) (FHWA-HRT-05-069). The roughness data collected from the LTPP General Pavement Studies (GPS)-3 experimental jointed plain concrete (JPC) test sections were used to study the roughness progression of JPC sections. The experiment showed that pavements that are built smoother retain their smoothness over a longer period than those that are built less smooth. Hence, pavements that are built smoother provide a longer service life and provide road users a better ride quality. The study was performed as part of the Concrete Pavement Technology Program – www.fhwa.dot.gov/pavement/concrete/sr04indx.cfm.
- *LTPP Data Analysis: Influence of Design and Construction Features on the Response and Performance of New Flexible and Rigid Pavements, Final Report Prepared for the National Cooperative Highway Research Program (NCHRP) Project [20-50\(10&16\)](#)*. The project analyzed data from the LTPP Program to assess the influence of structural and site factors on the response and performance of new flexible and rigid pavements. This analysis confirmed current understanding of pavement performance and highlighted the interactions between design and site factors. The agency report is available online as [NCHRP Web-Only Document 74](#).

Coming in our September/October 2005 issue:

We will provide an update on the progress of the LTPP Materials Action Plan, the new Materials testing contract, and the importance of forensic studies of the SPS pavement sections.