LTBP News

LTBP Newsletter

ANNOUNCING THE INAUGURAL 2020-2021 STUDENT DATA ANALYSIS CONTEST

The Federal Highway Administration (FHWA) Long-Term Bridge Performance (LTBP) Program and the Long-Term Pavement Performance (LTPP) Program are pleased to announce the 2020–2021 Student Data Analysis Contest. The contest is designed to encourage undergraduate and graduate students to use bridge or pavement data to research topics in these areas and explore a career in bridge or pavement engineering.

Students are required to use the LTBP InfoBridge™ and LTPP InfoPave™ Web portals to study the various factors affecting bridge and pavement lifecycles and to develop a technical paper to document their research. Sample topics and other contest details are available at the Student Data Analysis Contest website. The papers are due by July 30, 2021. Those who cannot meet the deadline are encouraged to submit their work for next year's contest.

INFOBRIDGE™
RECENT ENHANCEMENTS

The most recent version of InfoBridge, released in January 2021, included several usability enhancements and data analysis tools. For a complete list of new InfoBridge features and enhancements, visit InfoBridge Update Notes. Highlights from this list include:

- The Geosynthetic Reinforced Soil–Integrated Bridge System (GRS–IBS) Project has been added to the Special Projects filter. The data available under the GRS–IBS Data tab include data for structure type and elements, dimensions and clearances, load rating and posting, stream information, and primary drivers for the GRS–IBS project bridges.

- A new topic—Steel Bridges—has been added to the Historical Spec Changes under the Library tab. This topic includes a historical review of how steel composition, steel properties, and steel bridge design evolved from 1900 to 2015.

- The use of the entire screen for displaying results. Full-width design allows users to navigate through the portal using wider screens for better visualization and overall experience.
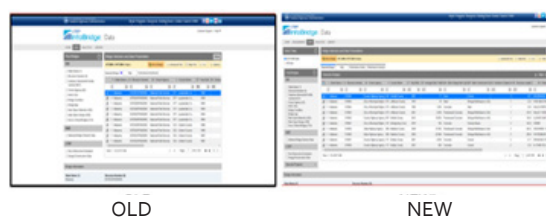
OLD   NEW

Full-Width Graphical User Interface

Source: FHWA.

- A new tab titled Performance Forecast displays the condition forecasts for groups (networks) of bridges selected by the user. The graph displays the historical and forecast condition of bridges in Good/Fair/Poor ratings. The forecasts conform to user-selected bridge preservation levels.

Network Performance Forecast

Source: FHWA.

- Two options for the data selection: 2020 National Bridge Inventory (NBI) Data, and All Data. All Data filters through all NBI and other data records that are included in the database, such as previous years of NBI, special projects, and LTBP data.

- The condition forecast for an individual bridge is now extended to cover deck, superstructure, and substructure for all three forecast models: time in condition, machine learning, and survival models.

- National Bridge Element (NBE) data can now be visualized graphically under Analytics/Charts.

Source: FHWA.

NBE (Bearings) Graph

RESEARCH UPDATE
Fast Track Ultrasonic Imaging of Concrete Bridge Decks Using Roller Type Array Transducers

Source: FHWA.

Fast Track Ultrasonic Imaging of Concrete Bridges

The LTBP Program needs innovative, low-cost methods for concrete bridge deck assessment to enhance the efficiency and repeatability of the LTBP program's field data collection. Concrete bridge deck assessment technologies that allow traffic lanes to remain open would greatly reduce the cost associated with data collection. Phase I of a recently completed Small Business Innovative Research project—Fast Track Ultrasonic Imaging of Concrete Bridge Decks Using Roller Type Array Transducers—showed that a rolling system with tire material and coupling can be achieved using P-wave sensors. Such a system coupled with specialty algorithms produces higher-resolution images to capture internal bridge deck defects. A recently awarded phase II project will develop a prototype of the proposed specialty vehicle with modular electromechanical components housing a fast-track ultrasonic imaging system with a roller-type array.

INFOBRIDGE WEBINARS

LTBP staff provide on-demand online webinars to introduce InfoBridge to those interested. Users include bridge owners, researchers, consultants, and students. Several webinars have been presented to DOTs, researchers, and university students and professors. If you are interested in arranging a webinar for your colleagues, please contact Shri.Bhide@dot.gov.

LTBP DATA COLLECTION WORKSHOP

LTBP program staff conducted a virtual Data Collection Workshop during February and March 2021. The objective of the workshop was to receive input from the bridge community's subject matter experts (SMEs) to assist FHWA in assessing the LTBP Program's future data collection efforts. More than 60 SMEs, including members of the Transportation Research Board Long-Term Infrastructure Performance Expert Task Group on Bridges (ETG), State departments of transportation (DOTs), academia, industry, and FHWA participated in the workshop. The workshop consisted of five work groups, and each focused on previously identified, high-priority bridge performance issues.

The work groups included warm-weather reinforced concrete bridge decks, cold-weather reinforced concrete bridge decks, bridge deck joints and superstructure bearings, corrosion protection for structural steel, and pretensioned and post-tensioned strands.

ETG members served as chairs and co-chairs of the work groups, and FHWA staff served as facilitators and coordinators. The excellent ideas and suggestions generated during the workshop are being considered in developing the future data collection efforts and other work programs of LTBP.

A TechBrief will be published this summer summarizing the planning, conduct, and outcomes from the workshop. If you have any questions or would like to learn more about the workshop, please contact Robert.Zobel@dot.gov.

PUBLICATIONS

Reports:

Historical Changes to Steel Bridge Design, Composition, and Properties, FHWA, FHWA-HRT-21-020. January 2021. [PDF]

Repair and Maintenance of Post-Tensioned Concrete Bridges, National Academy of Sciences, Transportation Research Board, NCHRP Synthesis 562. 2021. [PDF]

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