Long-Term Bridge Performance Committee Letter Report: February 19, 2013

DETAILS

0 pages | 8.5 x 11 | PAPERBACK

ISBN 978-0-309-43464-5 | DOI 10.17226/22641

AUTHORS

Long-Term Bridge Performance Committee

TRB TRANSPORTATION RESEARCH BOARD
OF THE NATIONAL ACADEMIES

February 19, 2013

Mr. Victor M. Mendez
Administrator
Federal Highway Administration
U.S. Department of Transportation
1200 New Jersey Avenue, SE
HOA-1, Room E87-314
Washington, DC 20590-9898

Dear Mr. Mendez:

Re: 3rd letter report of the TRB Long-Term Bridge Performance (LTBP) Committee

I am writing to report the findings and recommendations of the Transportation Research Board (TRB) LTBP Committee that were developed at its meeting on November 27-28, 2012. Mr. Ananth Prasad and Mr. Malcolm Kerley, Committee Chair and Vice Chair, respectively, were unable to attend due to last-minute scheduling conflicts, and I served as Acting Chair for this meeting. The committee's membership roster is attached.

As you know, this Federal Highway Administration (FHWA) long-term program is addressing the challenges faced by federal, state, and local transportation agencies in the operation and maintenance of their deteriorating highway bridges. The program will collect research-quality data on a large representative sample of in-service U.S. highway bridges and analyze these data to improve understanding of the mechanisms and timing of bridge deterioration due to the effects of age, materials, traffic, and weather. The data collection and analysis will also help evaluate the effectiveness of intervention options in ameliorating this deterioration.

Through a contractual arrangement with FHWA, the National Research Council of The National Academies provides advice and assistance on the conduct of the LTBP program through the work of its TRB LTBP Committee.

The agenda[1] of this meeting consisted of briefings by FHWA staff and contractors, each followed by a question-and-answer period and discussion. The topics included the status of the LTBP program; information provided by the durability and preservation, evaluation and monitoring, and traffic and truck weights expert task groups (ETGs); and update reports on the bridge portal, reference and cluster[2] bridges, traffic corridors, mid-Atlantic states field testing plans, and automated data collection. Additional topics included the LTBP strategic plan, the LTBP data analysis plan, supporting FHWA studies, LTBP publications, and a new FHWA truck pooled-fund study.

[1] See Attachment 1.
[2] A "cluster", in the context of the LTBP program, is a geographically compact group of bridges that will be stu way bridges.

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At the conclusion of these open sessions, the committee held a closed session to deliberate on its findings and formulate its consensus recommendations, which are summarized here:

- [LR03/01][3] We are pleased that the LTBP Team recognizes that the LTBP program enables them to harvest near-term products while the program's long-term goals are pursued. As the strategic data analysis and data collection plan becomes more detailed and is implemented, projects undertaken midway in pursuit of a goal often produce findings that state agencies can incorporate immediately into their operations. Additionally, research by other FHWA offices conducted in parallel with LTBP, such as the performance of unpainted weathering steel bridges, or the pooled fund weigh-in-motion (WIM) study, just to mention two, will enhance the FHWA's role of addressing the needs of the U.S. bridge community.

- [LR03/02] We note that significant progress has been made in defining candidate bridges for inclusion in the first few clusters, focusing effort on data collection and analysis to answer important questions, and awarding four contracts for conducting assessments and field monitoring of the first clusters. We support enthusiastically plans to continue the quarterly newsletter as a means of sharing information with LTBP stakeholders.

- [LR03/03] We share with the LTBP Team its excitement over the addition to the team of Mr. Aramis López. While we regret the departure of Dr. Firas Ibrahim, who was instrumental in developing and launching the LTBP program, and whose leadership of it was highly evident, we are certain that LTBP will benefit substantially from the closer collaboration with the Long-Term Pavement Performance (LTPP) program that the assignment of Mr. López facilitates. We welcome Mr. López, and look forward to a productive collaboration with him as LTBP matures.

  To the extent that it is practical, LTBP should continue to interface with and learn from LTPP what are the most efficient and effective ways to plan and execute the data collection, data analysis, and product development activities of the program.

- [LR03/04] As in our earlier meetings, we have discussed the committee's role with the LTBP Team and agree that we are to focus on programmatic matters, and will rely on our expert task groups (ETGs) to review and report on LTBP's technical issues. The committee will continue to receive ETG reports, and will consider that information when we prepare our letter reports.

  Furthering this consideration of our role. we would welcome receipt of a brief assessment by the LTBP Team of the impact that we and our ETGs have had on the program to date. This information will help us focus our future feedback to maximize productivity.

- [LT03/05] The new schedule of one meeting per year, as proposed by the LTBP Team, presents challenges to the relevance of these meetings and the timeliness of the advice they are intended to generate. LTBP is an active and multi-faceted program that appropriately confronts and resolves problems as soon as they occur, and makes progress and applies results continually. In this fast-paced environment, procedures are

[3] Each finding–recommendation pair is shown as a “bullet” that is given a unique designator of [letter report number/recommendation number] to facilitate future referencing. The usual format of a bullet consists of a paragraph summarizing the committee’s finding and a paragraph containing the committee’s recommendation. The latter paragraph appears in italicized and underlined type.

needed that will keep the committee and ETGs informed and able to participate in the problem resolution process. The plan to conduct 2-hour webinars midway between meetings is a step in this direction, but a more detailed plan of long-distance interactions and exchanges of correspondence and reading materials is needed.

We request further discussion of the measures by which the LTBP Team proposes to keep the committee informed about the program's ongoing decision-making process.

- [LR03/06] We have noted, and our ETGs have reported, that informational materials are rarely provided in advance of a meeting. The brief time at a meeting for receipt and discussion of material renders the comments and advice we are able to provide preliminary at best. In many instances, we learn that written material has been drafted but is not considered ready for distribution to us.

  Further, our ETG meetings, in particular, would be more productive if we received advance copies of the questions for committee response or issues for group discussion. This would permit meeting time to be used to maximize dialog and interaction. Background information or program updates that support the questions or issues could be included.

  We invite the LTBP Team to work with us to explore ways to share interim materials with us at least one week in advance of meetings.

- [LR03/07] We congratulate the LTBP Team for developing an extensive roster of protocols for field testing of bare bridge decks, and for conducting a series of pilot tests to evaluate them. We have reviewed these protocols, and are pleased that efforts are under way to incorporate changes based on our comments. Still, as the program's field testing now proceeds beyond the pilot test stage, our questions remain concerning which parameters will be monitored and analyzed.

  We recommend that a list of performance parameters be developed, and the data to be collected and equipment to be used specified, for the field tests that are to be conducted first. As this testing is to begin early in 2013, we request receipt of this information as soon as possible.

- [LR03/08] We congratulate the LTBP Team for its preliminary drafting of a strategic data analysis and data collection plan, and we look forward to its further development. We are pleased that this plan reflects the experience of the LTPP program, especially its being founded on stated objectives, from which necessary technical results will be identified, and the requisite data to be collected and analyzed will be specified.

  At an earlier meeting, we commented on the need for LTBP to identify the end products that it would seek to deliver. We believe this strategic data analysis and data collection plan will help focus the efforts to produce these products. Currently, the products being sought are deterioration and life-cycle cost models for bridge decks. Continuing evaluation of the progress of the program in developing and delivering these products is encouraged.

  We recommend that the further development of this strategic plan be given high priority by referencing it officially as the LTBP Data Analysis and Collection Plan, and by preparing

annually a prioritized and task-oriented set of actions through which the year's progress under the plan will be sought.

- [LR03/09] Establishing validated WIM truck data is vital to LTBP's success. LTBP's efforts to correlate WIM data that is collected from stationary equipment to on-bridge response data are commended and supported.

  Whether this data is collected from existing owners' sources or generated from new data collection efforts, LTBP should take the lead in vetting the data in cooperation with other data collection efforts, and establishing a national repository of such data.

- [LR03/10] As the plans for LTBP's collection of field data on bridge decks are implemented, we commend the intention to also collect state data on deck materials, design, construction, and detailing practice changes to facilitate identification of important factors in deck performance, and guide the analysis of the data.

  We recommend that consideration be given to forming an ETG or temporary subcommittee for this purpose and to develop guidelines for characterization of material and construction methods used for bridge decks.

- [LR03/11] We note that heavily burdened trucks are being temporarily routed over bridges in Pennsylvania, Texas, and other states where hydraulic fracturing is being conducted to recover natural gas and oil from deep shale formations.

  We recommend that LTBP respond to this unique opportunity by developing plans and protocols to gather deterioration data on these bridges. Studying these bridges now can provide an early means of evaluating the protocols to be implemented on the cluster bridges.

In closing, as before, we recognize that the preparations for this meeting required extensive effort by many people. We appreciate everyone's efforts and particularly thank Hamid Ghasemi, Susan Lane, Thomas Saad, Robert Zobel, and their colleagues for a highly informative and productive meeting.

Sincerely,

Bruce V. Johnson
Acting Chair
TRB LTBP Committee

Attachment 1: Meeting agenda
Attachment 2: Roster of committee members indicating attendance at the meeting of November 27-28, 2012

Attachment 1

Agenda
TRB Long-Term Bridge Performance Committee
November 27-28, 2012
The National Academies' Keck Building
500 Fifth Street NW, Washington DC, 20001

This committee provides an ongoing peer review of the Long-Term Bridge Performance (LTBP) Program, which is a 20-year research effort to measure and monitor the performance of a nationally representative sample of bridges. The committee reviews the LTBP Program's plans, operations, progress, and products, and provides advice to the FHWA on the Program's strategic plan; data definition, standardization, quality control, and collection efforts; sampling plan; and overall R&D program management and direction.

Tuesday, November 27, Keck 201

1:00 – 1:15 pm	Welcome and Introductions	Robert Raab, Ananth Prasad, FHWA
1:15 – 1:30 pm	Review of Role, Scope, and Operations of the TRB Advisory Committee	Ananth Prasad, Robert Raab
1:30 – 2:15 pm	Reports from 3 Expert Task Groups (ETGs)	Bruce Johnson, Jugesh Kapur, Sreenivas Alampalli
2:15 – 3:00 pm	LTBP Program -- Update -- FHWA Response to Letter Report #2	 Hamid Ghasemi Hamid Ghasemi
3:00 – 3:15 pm	Break	
3:15 – 3:45 pm	Bridge Portal	Rob Zobel
3:45 – 4:30 pm	Clusters and Corridors Update, Mid-Atlantic States Rollout, and Automated Data Collection	Hamid Ghasemi
4:30 – 5:00 pm	Strategic Plan and Data Analysis Plan (Tablecloth)	Sue Lane, Dennis Mertz
5:00 pm	Adjourn	

Wednesday, November 28, Keck 201

8:00 – 8:20 am	Closed Session: Biases and Conflicts of Interest	Robert Raab
8:20 – 8:30 am	Scheduling of Next Meeting	Robert Raab
8:30 – 9:30 am	LTBP Program Updates -- Supporting Studies -- Publications --Truck Pooled-Fund Study	 Rob Zobel Sue Lane Tom Saad
9:30 – 9:45 am	Break	
9:45 – 12:00 pm	Closed Session: Committee's Consensus Recommendations	Ananth Prasad, Robert Raab
12:00 pm	Adjourn	

Attachment 2

ROSTER OF THE TRB LONG-TERM BRIDGE PERFORMANCE COMMITTEE INDICATING ATTENDANCE[1] AT THE MEETING OF NOVEMBER 27-28, 2012

Ananth K. Prasad, Chair
Secretary
Florida Department of Transportation

Malcolm T. Kerley, Vice Chair
Chief Engineer
Virginia Department of Transportation

R. SCOTT CHRISTIE
Deputy Secretary for Highway Administration
Pennsylvania Department of Transportation

W. Gene Corley
Senior Vice President
CTL Group

KARL H. FRANK
Chief Engineer
Hirschfeld Industries

BRUCE V. JOHNSON, Acting Chair
State Bridge Engineer
Oregon Department of Transportation

JUGESH KAPUR
State Bridge and Structures Engineer
Washington State Department of Transportation

JOHN M. KULICKI
Chairman and CEO
Modjeski and Masters, Inc.

RICHARD D. LAND
Chief Deputy Director (Interim)
California Department of Transportation

Sandra Q. Larson
Research and Technology Bureau Director
Iowa Department of Transportation

ANDRZEJ S. NOWAK
Professor
University of Nebraska

KENNETH D. PRICE
Vice President, National Bridge Practice
HNTB Corporation

[1] Attendees of the meeting are indicated in underlined bold capital italics.