U.S. GOVERNMENT ACCOUNTABILITY OFFICE
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October 29, 2015

The Honorable Bill Shuster
Chairman
The Honorable Peter A. DeFazio
Ranking Member
Committee on Transportation and Infrastructure
House of Representatives

The Honorable Sam Graves
Chairman
The Honorable Eleanor Holmes Norton
Ranking Member
Subcommittee on Highways and Transit
Committee on Transportation and Infrastructure
House of Representatives

Transportation Infrastructure: Information on Bridge Conditions

Bridge safety remains a high-priority issue for our transportation system. Despite recent progress in improving bridge conditions, 10 percent of the nation's 610,000 bridges were considered structurally deficient as of December 2014, according to the Federal Highway Administration's (FHWA) National Bridge Inventory (NBI).

FHWA, within the federal Department of Transportation (DOT), provides funding for the design, construction, maintenance, inspection, evaluation, protection, and preservation of the nation's bridges and oversees the implementation of the National Bridge Inspection Standards, among other duties. State-level DOTs are responsible for ensuring bridge inspections are completed and for inventorying bridges within their states according to federal standards. The Moving Ahead for Progress in the 21st Century Act (MAP-21)[1] made some substantial changes in how bridge projects can be managed, funded, and prioritized by states.[2] You asked us to determine what available federal bridge data indicate about the condition of bridges throughout the United States. This report examines the current conditions of the nation's bridges, as well as changes in bridge conditions that have occurred over the last 10 years. On September 22, 2015, we briefed committee staff on our preliminary findings, and this report transmits a final version of those briefing slides (see enclosure I for briefing slides).

[1]Pub. L. No. 112-141, § 1106,126 Stat. 405,432 (2012).

[2]MAP-21 authorizes funding, through the National Highway Performance Program and the Surface Transportation Program, to assist states in replacing and rehabilitating bridges.

To conduct this work, we reviewed applicable laws, including MAP-21, and relevant FHWA program guidance and documents. We reviewed and analyzed FHWA's NBI data from calendar years 2005 through 2014—for the nation, each of the 50 states, the District of Columbia (D.C.), and Puerto Rico—by number of bridges and total deck area[3] (which accounts for differences in the size of bridges). Specifically, we limited our analysis to structures classified as highway bridges in the NBI that are at least 20 feet in length, which are those subject to the National Bridge Inspection Standards. We included the following key data elements: deficiency status,[4] whether the bridge was located on or off the National Highway System (NHS),[5] and the bridge's owner. We assessed the reliability of the data that we used by reviewing documentation and conducting electronic testing and found the data to be reliable for our purposes. We also interviewed FHWA officials on bridge conditions.

We conducted this performance audit from July 2015 to October 2015 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

In summary, based on 2014 NBI data, the nation has 610,749 bridges. Of those bridges, 23 percent are on the NHS, and this 23 percent comprise 58 percent of the nation's total deck area. Nearly 25 percent of all bridges are deficient, with 10 percent categorized as structurally deficient and 14 percent categorized as functionally obsolete. Of bridges on the NHS, 4 percent are categorized as structurally deficient while 17 percent are categorized as functionally obsolete. State agencies own about half of all bridges and over 90 percent of NHS bridges.

We also identified the following trends:

- **Between 2005 and 2014, the nation added over 15,000 bridges and almost 400-million square feet of deck area.** Between 2005 and 2012, the number of

[3]The deck area of a bridge is the width of the roadway surface of a bridge multiplied by the length of the bridge. The deck area of a bridge is an indicator as to the size of the bridge.

[4]According to FHWA, bridges that receive low ratings on specific structural or functional bridge elements are classified as deficient. Bridges may be classified as *deficient* for one of two reasons. A *structurally deficient* bridge has one or more structural components, such as the deck that carries vehicles, in poor condition. A *functionally obsolete* bridge has a configuration or design that may no longer be adequate for the traffic it serves, such as being too narrow or having inadequate overhead clearance. A bridge that is both structurally deficient and functionally obsolete is listed as structurally deficient in the NBI. According to FHWA officials, functionally obsolete is a classification that was used to make funding decisions prior to MAP-21 and does not measure bridge condition.

[5]The NHS includes about 230,000 miles of highway that are important to the nation's economy, defense, and mobility.

NHS bridges increased by 2,238.[6] Legislative changes in MAP-21 in 2012 expanded the NHS and reclassified some existing bridges.

- **The number of deficient bridges decreased from 2005 to 2014.** Specifically, our analysis of bridge condition data by number of bridges as well as by deck area indicates that structurally deficient bridges decreased by 21 percent between 2005 and 2014, and functionally obsolete bridges decreased by 6 percent; but at the same time, structurally deficient deck area decreased by 20 percent while functionally obsolete deck area increased by 9 percent.

- **The number of deficient NHS bridges decreased from 2005 to 2012**. Structurally deficient NHS bridges decreased by 20 percent and functionally obsolete NHS bridges decreased by 2 percent. However, functionally obsolete deck area for NHS bridges increased by 6 percent.

- **The number of deficient bridges owned by local and state agencies decreased from 2005 to 2014.** Among bridges owned by local agencies, the number of structurally deficient bridges decreased by 20 percent while functionally obsolete bridges decreased by 9 percent. Among bridges owned by state agencies, structurally deficient bridges decreased by 24 percent while functionally obsolete bridges decreased by 3 percent. However, functionally obsolete deck area on state-owned bridges increased by 12 percent.

- **Improvement of deficient bridges varied by state**. Between 2005 and 2014, the number of structurally deficient bridges decreased in 43 states and D.C. but increased in 7 states and Puerto Rico. The number of functionally obsolete bridges decreased in 33 states and D.C. but increased in 17 states and Puerto Rico.

We provided a draft of this report to DOT for review and comment. DOT provided technical comments that were incorporated, as appropriate.

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies to the appropriate congressional committees and the Secretary of Transportation. In addition, the report will be available at no charge on the GAO website at http://www.gao.gov.

If you or your staff have any questions about this report, please contact me at (202) 512-2834 or goldsteinm@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff members who made key contributions to this report were Heather MacLeod (Assistant

[6]We did not include 2013 and 2014 data on NHS bridges in our conditions trend analysis due to the reclassification of some bridges as NHS bridges and the resulting change in deficient numbers of NHS bridges.

Director), Brian Chung, Dave Hooper, Mitch Karpman, Les Locke, SaraAnn Moessbauer, Malika Rice, Amy Rosewarne, Chris Zbrozek, and Nancy Zearfoss.

Mark Goldstein
Director, Physical Infrastructure Issues

Enclosure

Enclosure I: Briefing Slides

[Accessible Briefing Slides are located in the other file included in this PDF Portfolio, titled "GAO-16-72R Briefing Slides"]

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