U.S. House of Representatives
Committee on Transportation and Infrastructure
Washington, DC 20515

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SUMMARY OF SUBJECT MATTER

TO: Members of the Subcommittee on Highways and Transit

FROM: Subcommittee on Highways and Transit Staff

SUBJECT: Hearing on "Oversight of the Highway Bridge Program and the National Bridge Inspection Program"

PURPOSE OF THE HEARING

The Subcommittee on Highways and Transit is scheduled to meet on Wednesday, July 21, 2010, at 10:00 a.m., in room 2167 of the Rayburn House Office Building to receive testimony regarding oversight by the Federal Highway Administration (FHWA) of the Federal Highway Bridge Program (HBP) and the National Bridge Inspection Program (NBIP). The Subcommittee will hear testimony from the U.S. Department of Transportation (U.S. DOT) Office of Inspector General (IG), FHWA, the Government Accountability Office (GAO), and the American Association of State Highway and Transportation Officials (AASHTO). This hearing is part of the Subcommittee's effort to prepare for the reauthorization of Federal surface transportation programs under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) (P.L. 109-59), which expired in October 2009. This hearing is also being conducted as one of several hearings under the requirements of clauses 2(n), (o), and (p) of Rule XI of the Rules of the U.S. House of Representatives.

BACKGROUND

After the collapse of the I-35W highway bridge in Minneapolis, Minnesota, the IG, at the request of the Secretary of Transportation, conducted two evaluations of FHWA's management of bridge safety and oversight of the Federal HBP. Those evaluations, as well as a 2006 IG audit, collectively document deficiencies related to States' and FHWA's management and oversight of various aspects of the HBP, including:

- Chronic data quality issues with key bridge inspection data;
- Inconsistent or incomplete evaluations by FHWA division offices of States' compliance with bridge inspection and load rating requirements;
- FHWA's inability to effectively track and evaluate the effectiveness of Federal bridge spending on improving the nation's deficient bridges; and
- FHWA's lack of a data-driven, risk-based approach to identify and target remediation efforts.

In 2008, the GAO also investigated the Federal HBP. The purpose of this hearing is to examine the issues raised by the IG and GAO reports.

I. The Condition of the Nation's Highway Bridges

According to the latest published data compiled by FHWA, as of December 2009, 149,647 of the nation's 603,245 public road bridges (approximately 25 percent) were classified as deficient, including 71,179 structurally deficient bridges and 78,468 functionally obsolete bridges.[1] According to a September 2008 GAO report on the HBP, the number of deficient bridges declined by nearly 12 percent from 1998 through 2007, even with the addition of more than 16,000 new bridges to the National Bridge Inventory.[2] However, over that same period, according to FHWA, the proportion of total bridge deck area that was deficient declined from 32.6 percent to 30.1 percent. The GAO report further noted that the decline in the overall number of deficient bridges over the past decade reflects a reduction in the number of structurally deficient bridges.[3]

The U.S. DOT's 2008 Conditions and Performance report (C&P Report) reported that $98.9 billion could be invested immediately in a cost-beneficial way to replace or otherwise address the nation's backlog of existing bridge deficiencies.

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[1] Deficient bridges are classified as either:

- ***Structurally deficient.*** A bridge is considered structurally deficient if significant load-carrying elements are found to be in poor or worse condition due to deterioration and/or damage. The bridge component conditional ratings (e.g., overall observed condition of the bridge deck, superstructure and substructure) are the primary considerations in classifying structural deficiencies; or
- ***Functionally obsolete.*** A bridge is considered functionally obsolete if existing geometric configurations are insufficient to meet current standards and demands.

[2] GAO, *Highway Bridge Program: Clearer Goals and Performance Measures Needed for a More Focused and Sustainable Program*, GAO-08-1043 (September 2008).

[3] According to GAO, the reduction of deficient bridges was "most notable in bridges owned by local agencies and on rural routes, which may be attributed, in part, to the Federal bridge program requirement that states spend a minimum amount of their apportionment on non-Federal-aid highway bridges." From 1998 through 2007 the number of deficient urban bridges increased by approximately 11 percent.

The majority of bridge traffic takes place on the 117,514 bridges on the National Highway System (NHS), which carry approximately 71 percent of average daily traffic. As of December 2009, 23,279 NHS bridges were classified as deficient, including 5,977 structurally deficient bridges and 17,302 functionally obsolete bridges.

The fact that a bridge is "deficient" does not necessarily mean that it is likely to collapse or that it is unsafe. With hands-on inspection, unsafe conditions may be identified and either mitigated or corrected. However, a "deficient" bridge open to traffic, especially a structurally deficient bridge, typically requires significant maintenance and repair to remain in service. In some cases, structurally deficient bridges must be posted to restrict traffic to vehicles that do not exceed a calculated maximum weight.

II. National Bridge Inventory and Bridge Inspections

The Federal-Aid Highway Act of 1968 (P.L. 90-495) established the NBIP, and directed U.S. DOT to work with the States to establish National Bridge Inspection Standards (NBIS) designed to locate and evaluate existing bridge deficiencies to ensure the safety of bridges on the Federal-aid highway system. The Act also required U.S. DOT to establish inspection criteria and procedures and inspector training and qualification requirements. The Surface Transportation Assistance Act of 1978 (P.L. 95-599) expanded the NBIS to include bridges on all public roads.

FHWA maintains the National Bridge Inventory (NBI), which is a database of the nation's public highway bridges. In accordance with the NBIS, States must perform periodic inspections and evaluations of bridges and report inspection and evaluation data to FHWA. FHWA evaluates State-submitted NBI data and provides States with a list of bridges that are eligible for rehabilitation or replacement (based on their deficiency levels). FHWA also utilizes NBI data to apportion funds under the Federal-aid HBP.

The minimum Federal requirements for routine bridge inspections entail "observations and measurements needed to determine the physical and functional condition of the bridge, to identify changes in 'initial' or previously recorded conditions, and to ensure that the structure continues to satisfy present service requirements."[4] Routine inspections are generally visual. States, however, often utilize additional technology or mechanical techniques to carry out more in-depth inspections depending on the condition and nature of the structure.

States must perform a routine inspection on each bridge once every 24 months, unless granted an FHWA extension to the inspection interval (not to exceed overall inspection intervals of 48 months). Inspections for underwater structures must occur once every 60 months, unless granted an FHWA extension to the inspection interval (not to exceed overall inspection intervals of 72 months). States must also conduct additional inspections of components that are critical to the safety of the structure, including "fracture critical" members (i.e., bridge structure elements for which failure would likely lead to a partial or total bridge collapse) and underwater structures. According to FHWA, 10 percent of bridges are inspected at least annually, 85 percent are inspected on a 24 month cycle, and five percent are inspected on a 48 month cycle.

[4]AASHTO, *Manual for Condition Evaluation of Bridges,* Second Edition.

In addition, all bridges must be "load rated". The load rating is an estimate of the weight-carrying capacity of a bridge and is performed separately from the bridge inspection. Properly calculating a bridge's load rating – and, if necessary, posting signs to prevent heavier vehicles from crossing it – serves to protect the bridge from stresses caused by loads exceeding its capacity.

Bridge inspections are performed by the State DOTs, with oversight by the appropriate State-based FHWA division office.[5] In addition to the NBIS, which govern the States' inspection process, each FHWA division office conducts an NBIS compliance review that consists of field reviews of several bridges, discussions with State DOT personnel, and a review of State-compiled NBI data. FHWA may require States not in compliance with NBIS to develop a corrective plan, and, ultimately FHWA has the authority to withhold project approvals if deficiencies are not corrected.

III. The Highway Bridge Program

FHWA distributed approximately $5.3 billion of HBP funds to States in fiscal year (FY) 2009. In general, HBP funds are eligible for use by States to replace deficient bridges and correct structural deficiencies or safety-related functional defects. Regardless of whether a bridge is considered deficient, States can use HBP funds for a variety of preventive and operational uses (e.g., bridge painting, seismic retrofitting, systematic preventive maintenance, application of anti-icing and de-icing compositions, and installing scour countermeasures). HBP funds are distributed through a formula based on each State's relative share of the total cost to repair or replace deficient highway bridges.

States are permitted funding transferability among most core Federal-aid highway programs. Currently, States may transfer up to 50 percent of HBP funds to their apportionments under the NHS program or the Surface Transportation Program (STP). Between 1992 and 2006, States transferred approximately $4.7 billion in HBP funds to NHS and STP.

The 2008 GAO report stated "some state officials explained that certain large-scale bridge projects – often the most traveled, urban bridges on interstate corridors – are too expensive to be implemented with HBP funds alone, especially costly 'mega' projects that have an estimated total cost greater than $500 million."[6] Furthermore, AASHTO argues that HBP funds represent only a portion of total expenditures on bridges. For example, in 2004 the predecessor to the HBP provided approximately $5.1 billion to States. According to AASHTO, in 2004, States spent a total of $6.6 billion in Federal-aid highway funding (drawn from not only the HBP, but also other formula programs) on bridge projects.[7] However, according to a January 2010 IG report, FHWA's

[5] Similarly, the Federal Railroad Administration (FRA) conducts oversight over rail bridges. On July 12, 2010, FRA issued a final rule that strengthens the Federal oversight of rail bridge maintenance programs. The FRA was required to issue the rule pursuant to Section 417 of the Railroad Safety Improvement Act of 2008. The final rule (49 CFR Parts 213 and 237) requires track owners to implement bridge management programs (including annual inspections) designed to ensure bridge safety.

[6] GAO, *Highway Bridge Program: Clearer Goals and Performance Measures Needed for a More Focused and Sustainable Program*, GAO-08-1043 (September 2008).

[7] Kirk, et al., *Highway Bridges: Conditions and the Federal/State Role*, Congressional Research Service (September 19, 2008) (citing AASHTO Journal, November 9, 2007).

accounting system is unable to link expenditures of HBP funds to improvements made to deficient bridges.[8]

In September 2008, GAO completed an evaluation of States' use of HBP funds and the impact of the HBP on bridge conditions. GAO found that although bridge conditions nominally improved over the period from 1998 to 2007, it was difficult to determine what role the HBP had on improving the nation's deficient bridges because: (1) Federal HBP funds are only a portion of total bridge improvement spending and FHWA does not have comprehensive data for State and local bridge spending; and (2) HBP funds can be used for a variety of bridge projects without regard to a bridge's deficiency status or sufficiency rating.

The GAO report made several recommendations, which in the aggregate, urged a more cohesive, Federal focus for national bridge spending and priorities, clear national goals, and utilization of performance management to measure and assess HBP spending against these national goals. GAO also concluded that the current HBP funding paradigm may be a disincentive for States to replace or reconstruct deficient bridges because funding is distributed on the basis of relative percentage of total bridge deck area comprising deficient bridges.[9]

IV. IG Reports on Oversight of Bridge Inspections and the Bridge Program

Since 2006, the IG has performed a series of evaluations of FHWA oversight of the NBIP and HBP. Overall, these evaluations have uncovered significant examples of States' failure to properly load rate, post, or close bridges as required by the NBIS. The IG also documented serious weaknesses in Federal oversight, including decentralized and inconsistent FHWA oversight and evaluation of state compliance with the NBIP, widespread deficiencies in the quality of NBI data. Furthermore, the IG noted FHWA's current inability to effectively identify and respond to national bridge safety priorities, track effectiveness of HBP funding, or strategically establish and evaluate progress against national bridge priorities.

2006 IG Report: FHWA Oversight of Bridge Posting and Load Ratings. In March 2006, the IG reported findings from its audit of FHWA's oversight of load ratings and postings on structurally-deficient bridges on the NHS.[10] The IG determined that there were frequent "errors in the calculation of load ratings or in the posting of maximum weight limits or other related errors." Overall, the IG concluded "FHWA can improve its oversight of the states to ensure that maximum weight limit calculations and postings are accurate." The audit calculated that state load rating data for an estimated 40.5 percent of all structurally deficient NHS bridges do not match the NBI. The IG also found that FHWA does not require its divisional offices to analyze bridge inspection data submitted by States to better identify and target structurally deficient bridges most in need of load limit recalculation and posting.

The IG recommended that FHWA:

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[8] U.S. DOT IG, *Assessment of FHWA Oversight of the Highway Bridge Program and the National Bridge Inspection Program*, MH-2010-039 (January 14, 2010).
[9] GAO, *Highway Bridge Program: Clearer Goals and Performance Measures Needed for a More Focused and Sustainable Program*, GAO-08-1043 (September 2008).
[10] U.S. DOT IG, *Audit of Oversight of Load Ratings and Postings on Structurally Deficient Bridges on the National Highway System*, MH-2006-043 (March 21, 2006).

- Revise its annual compliance reviews of state bridge programs to address the most serious deficiencies found during bridge inspections;
- Develop a risk-based, data-driven approach and metrics to ensure States maintain up-to-date maximum weight limit records and post accurate maximum weight limit signs in a timely manner;
- Improve the accuracy and completeness of the NBI and reporting to Congress; and
- Evaluate greater use of state computerized bridge management systems.

FHWA agreed with the IG's recommendations and, in 2006, formed an internal working group to develop planned responsive actions that FHWA expected to be fully implemented by the end of 2010. FHWA also implemented eight new NBI data reports and a risk assessment of load ratings and posting practices to assist FHWA division engineers in overseeing State NBIS compliance.

2009 IG Report: FHWA's Implementation of Data-Driven, Risk-Based Oversight. In January 2009, the IG reported on FHWA's progress in response to the 2006 audit findings and recommendations.[11] According to the IG, overall, FHWA had made only "limited progress" in implementing risk-based, data-driven oversight: FHWA division office bridge engineers did not uniformly or consistently utilize the new NBI data reports during annual NBIS compliance reviews and inconsistently performed risk assessments of state load ratings. As a consequence, FHWA division offices "missed opportunities to identify and remediate bridge safety risks in coordination with States," and "FHWA can not assess the nationwide risks of load ratings and postings." The IG also reported continued widespread instances of inaccurate, inconsistent, and incomplete NBI data.

The IG recommended, among other things, that FHWA:

- Develop minimum requirements for data-driven, risk-based bridge oversight during FHWA bridge engineers' conduct of annual NBIS compliance reviews; and
- Develop a comprehensive plan to ensure that Federal oversight activities are addressing the nation's most significant bridge safety risks.

FHWA generally agreed with the IG's recommendations and, in 2009, reported that it expected to develop appropriate corrective plans by March 31, 2009.

2010 IG Report: FHWA's Oversight of HBP and the NBIP. In January 2010, the IG reported on FHWA oversight of the HBP and NBIP.[12] According to the report, FHWA is unable to reliably evaluate the effectiveness of HBP funding in addressing the nation's backlog of deficient bridges. The FHWA accounting system only tracks expenditures at the project level. Thus, FHWA cannot track how States use HBP funds for specific project elements – such as those elements that may pertain to deficient bridges – within a larger project involving several bridges or components.

In addition, the IG found that FHWA lacks standard criteria for how FHWA divisional bridge engineers should assess States overall compliance with the NBIP, or clear and comprehensive

[11] U.S. DOT IG, *National Bridge Inspection Program: Assessment of FHWA's Implementation of Data-Driven, Risk-Based Oversight*, MH-2009-013 (January 12, 2009).
[12] U.S. DOT IG, *Assessment of FHWA Oversight of the Highway Bridge Program and the National Bridge Inspection Program*, MH-2010-039 (January 14, 2010).

guidance on what actions divisional engineers should take when States fail to substantially comply with the NBIP. For example, the report documented one instance in which a state failed to close 96 bridges as required by the NBIS, and two other instances in which States failed to properly post maximum weight limit signs on 200 and 500 bridges, respectively, in violation of the NBIS. In all three instances, the IG found that FHWA bridge engineers reported the states to be in compliance with the NBIS. According to the IG, FHWA has little assurance that States comply with bridge inspection standards or that FHWA is consistently addressing the highest priority bridge safety risks.

The IG recommended that FHWA:

- Improve its data collection and analysis of state utilization of HBP funds;
- Collaborate with States in setting quantifiable targets to measure progress in bridge condition and developing detailed criteria to help FHWA bridge engineers consistently determine whether States demonstrate overall compliance with the NBIS; and
- Develop a policy for providing clear, comprehensive, risk-based guidance for FHWA division offices to follow to enforce NBIS compliance.

FHWA again generally agreed with the IG recommendations, but also noted that anticipated surface reauthorization legislation might have significant impacts on FHWA data collection and evaluation. FHWA also indicated that improved NBIS oversight processes and procedures would be implemented during the 2011 annual NBIS compliance review cycle, with several FHWA division offices piloting the new compliance program in 2010.

The IG assessment of FHWA's response indicates that FHWA can and should be striving toward greater and more effective use of performance-based oversight of States' use of HBP funds in anticipation of reauthorization legislation.

V. Bridge Provisions in the Surface Transportation Authorization Act

H.R. ____, the "Surface Transportation Authorization Act of 2009" (STAA), which was approved by the Subcommittee on Highways and Transit on June 24, 2009, includes a variety of bridge-related provisions. STAA consolidates the existing HBP, NHS, and Interstate Maintenance programs into a new Critical Asset Investment (CAI) program designed to improve the condition of the nation's core highway and bridge network. The CAI program would provide States with formula funding for use on highway and bridge projects on the NHS, as well as bridge projects on other Federal-aid highways. In addition, STAA would require States to develop plans for using their CAI funding to meet performance targets in areas including bridge condition.

STAA also includes a variety of provisions to strengthen the NBIS, including the following:

- Establishing a risk-based priority for replacement and rehabilitation of deficient bridges;
- Requiring plans for inspection and rehabilitation of deficient bridges;
- Requiring FHWA to review the compliance of States and other Federal agencies with the NBIS and withhold project approvals for most highway programs for States that fail to comply; and
- Establishing procedures for reporting on critical findings from bridge inspections.

Finally, STAA would establish a National Tunnel Inspection Program modeled after the NBIS.

PREVIOUS OVERSIGHT AND LEGISLATIVE ACTION

On September 5, 2007, the Committee on Transportation and Infrastructure held a hearing on "Structurally Deficient Bridges in the United States."

On October 23, 2007, the Subcommittee on Highways and Transit held a hearing on "Highway Bridge Inspections."

On June 5, 2008, the Subcommittee on Highways and Transit held a hearing on "Maintaining Our Nation's Highway and Transit Infrastructure."

On October 31, 2007, the Committee on Transportation and Infrastructure met in open session to consider H.R. 3999. The Committee ordered H.R. 3999 reported favorably to the House by voice vote with a quorum present. H. Rept. 110-750. On July 24, 2008, the House passed H.R. 3999, the "National Highway Bridge Reconstruction and Inspection Act of 2008", by a vote of 367 to 55. On September 17, 2008, the Committee on Environment and Public Works met in open session to consider H.R. 3999. The Committee ordered H.R. 3999 reported favorably to the Senate by voice vote with a quorum present. S. Rept. 110-482. The Senate took no further action on H.R. 3999. H.R. 3999 included a variety of provisions to strengthen the NBIS and Federal oversight over bridge inspections – the majority of which were subsequently incorporated into STAA.

On June 24, 2009, the Subcommittee on Highways and Transit approved H.R. ____, the "Surface Transportation Authorization Act of 2009".

WITNESSES

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