

**OVERSIGHT OF THE HIGHWAY  
BRIDGE PROGRAM AND  
THE NATIONAL BRIDGE  
INSPECTION PROGRAM**

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(111-131)

**HEARING**  
BEFORE THE  
SUBCOMMITTEE ON  
HIGHWAYS AND TRANSIT  
OF THE  
COMMITTEE ON  
TRANSPORTATION AND  
INFRASTRUCTURE  
HOUSE OF REPRESENTATIVES  
ONE HUNDRED ELEVENTH CONGRESS  
SECOND SESSION

July 21, 2010

Printed for the use of the  
Committee on Transportation and Infrastructure



U.S. GOVERNMENT PRINTING OFFICE

57-562 PDF

WASHINGTON : 2010

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

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July 19, 2010

**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.<sup>1</sup> 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.<sup>2</sup> 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.<sup>3</sup>

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.

<sup>1</sup> 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.

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

<sup>3</sup> 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.”<sup>4</sup> 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.

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<sup>4</sup>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.<sup>5</sup> 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.”<sup>6</sup> 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.<sup>7</sup> However, according to a January 2010 IG report, FHWA’s

<sup>5</sup> 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.

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

<sup>7</sup> 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.<sup>8</sup>

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.<sup>9</sup>

#### **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.<sup>10</sup> 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:

<sup>8</sup> 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).

<sup>9</sup> GAO, *Highway Bridge Program: Clearer Goals and Performance Measures Needed for a More Focused and Sustainable Program*, GAO-08-1043 (September 2008).

<sup>10</sup> 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.<sup>11</sup> 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.<sup>12</sup> 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

<sup>11</sup> 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).

<sup>12</sup> 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 NBIS. 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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Associate Administrator for Infrastructure  
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**Mr. Malcolm T. Kerley**

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## OVERSIGHT OF THE HIGHWAY BRIDGE PROGRAM AND THE NATIONAL BRIDGE INSPECTION PROGRAM

Wednesday, July 21, 2010

HOUSE OF REPRESENTATIVES,  
SUBCOMMITTEE ON HIGHWAYS AND TRANSIT,  
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,  
*Washington, DC.*

The Subcommittee met, pursuant to call, at 10:00 a.m., in room 2167, Rayburn House Office Building, Hon. Peter A. DeFazio [Chairman of the Subcommittee] presiding.

Mr. DEFAZIO. The Highways and Transit Subcommittee will now come to order. We are holding a hearing today on oversight of the Highway Bridge Program and National Bridge Inspection Program.

I have read the testimony. I think there are some very serious issues and deficiencies here in terms of Federal oversight, but it is buried. You couldn't tell it from reading the IG's testimony or reading the GAO report. I am used to reading these things. The major issues were buried in there. There were a couple of oblique references to some problems with States that had a whole bunch of bridges that should have been weight limited or closed, and they weren't, but it was just sort of a passing reference. I believe it is a much more serious issue, and I would hope that the panel would be a little bit more forthright in their testimony in addressing these issues.

It is not acceptable to be putting a lot of Federal investment out there, sending it to States, to have tens of thousands of bridges in America that are either weight limited, unsafe, structurally unsound or functionally obsolete, and not know how the money is being applied or see that the money is being misapplied, and then to call a hearing because we think there are some serious concerns and then receive this very turgid so-called testimony, which kind of dances around this and obliquely refers to it. So I will give you a chance to rectify that either in questions or in your testimony. If you want to depart from your prepared remarks, which I have already read, the staff has read, and I assume the Minority has read, that would be great.

With that, I will turn to the Ranking Member.

Mr. DUNCAN. Well, thank you very much, Mr. Chairman, for calling this hearing on the oversight of the Highway Bridge Program and the National Bridge Inspection Program.

According to the GAO, the number of deficient bridges in the United States declined from 1998 through 2007, which is, of course,

good news, but additional work needs to be done. This is a very, very big program in this country, and there are a lot more bridges in this Nation than most people realize. For instance, there are almost 20,000 bridges in my home State of Tennessee alone.

While the decrease that I mentioned in the number of deficient bridges is good news, recent reports from the GAO and the Inspector General have brought to light a variety of issues within the Highway Bridge Program and the National Bridge Inspection Program that need to be addressed in order to continue the progress that we all want to see made. The 2008 GAO report that we will hear about today claims that the Highway Bridge Program's goals are not focused on clear Federal interests, therefore allowing States to use Federal funds on a wide variety, perhaps too wide a variety, of bridge projects.

The same GAO report shows no clear tie between the Highway Bridge Program funding and improvements to deficient bridges. The Highway Bridge Program formula is based on the needed repair to deficient bridges, but does not take into account the State's effectiveness in reducing the number of deficient bridges. And, of course, that is a key part of that, or certainly what we should look into.

Today we will also hear from the Inspector General's Office about a report that that office released earlier this year documenting cases where FHWA did not adequately oversee State compliance with bridge inspection standards under the National Bridge Inspection Program. According to the report, FHWA's lack of oversight of the bridge inspection standards led to Federal highway funds being distributed to States that did not comply with bridge safety regulations.

This hearing provides us an opportunity to discuss the issues raised in these reports so that we can address them in the next highway authorization bill. I look forward to hearing from the witnesses, and I thank you for calling this hearing.

Mr. DEFAZIO. I thank the Ranking Member.

We had had a request for a Member to sit in on this hearing, who I don't see, so I guess we will entertain that if he shows up.

With that, we would turn then to the panel. And first would be Mr. Joseph W. Come, Assistant Inspector General for Highway and Transit Audits.

Mr. Come.

**TESTIMONY OF JOSEPH W. COME, ASSISTANT INSPECTOR GENERAL FOR HIGHWAY AND TRANSIT AUDITS, OFFICE OF INSPECTOR GENERAL, U.S. DEPARTMENT OF TRANSPORTATION; KING W. GEE, ASSOCIATE ADMINISTRATOR FOR INFRASTRUCTURE, FEDERAL HIGHWAY ADMINISTRATION; PHILLIP R. HERR, DIRECTOR, PHYSICAL INFRASTRUCTURE ISSUES, GOVERNMENT ACCOUNTABILITY OFFICE; AND MALCOLM T. KERLEY, CHIEF ENGINEER, VIRGINIA DEPARTMENT OF TRANSPORTATION**

Mr. COME. Mr. Chairman, Ranking Member Duncan, and Members of the Subcommittee, thank you for inviting me here today to update you on our work on the Federal Highway Administration's oversight of these two critical bridge programs. Our work has iden-

tified significant oversight weaknesses in the programs, and while the agency has responded positively to our recommendations, further actions are needed to enhance oversight and maximize the return on bridge investment.

Let me talk three points that they need to do. First, Federal Highway needs to fully implement a data-driven, risk-based oversight approach to target high-priority bridge safety risks. That success hinges on providing clear direction to its division offices on how to address identified risks and ensuring States provide accurate bridge data.

Second, Federal Highway needs to ensure States comply with bridge inspection standards. Responding to our report, the agency has developed new criteria for determining overall compliance as well as procedures its division offices in the State should follow in enforcing compliance, but we want to see sustained management attention to be sure that this new guidance and criteria are rolled out nationwide before next year's inspection cycle.

Finally, FHWA needs to strengthen oversight of the States' use of billions in Federal bridge funding. To do so it must capture sufficient data to evaluate how funds are spent and ensure States conduct required value engineering studies for bridge projects. These actions can help stretch limited Federal resources.

Mr. Chairman, this concludes the summary of my statement. I am happy to answer any questions you or other Members of the Subcommittee may have.

Mr. DEFAZIO. OK. Thank you.

Mr. King W. Gee, Associate Administrator for Infrastructure.

Mr. Gee.

Mr. GEE. Chairman DeFazio, Ranking Member Duncan and Members of the Subcommittee, thank you for inviting me to discuss the Federal Highway Administration's Highway Bridge and National Bridge Inspection Programs.

FHWA has strong bridge programs that reinforce safety as the DOT's highest priority. We have made significant efforts to address recommendations made by the Inspector General and GAO to ensure the continued safety of our Nation's bridges. In response to recommendations from the 2009–2010 OIG audit on our oversight, we are developing detailed criteria to help our division bridge staff evaluate compliance with the National Bridge Inspection Standards on a more uniform basis.

We are revising policies and procedures for national oversight of the Bridge Inspection Program to be data-driven and risk-based. We are adding staff to enhance inspection program activities, including implementation of the new oversight approach in 2011. We are assessing and disseminating useful information on Bridge Management System implementation by the States. We are taking steps to improve the quality of data in the National Bridge Inventory. And we are enhancing the Financial Management Information System to allow improved tracking of bridge projects and obligations.

The GAO recommended that DOT work with Congress to identify specific program goals in the national interest, develop and implement performance measures, incorporate best tools and practices, and review the program's funding mechanisms. FHWA continues to

work with AASHTO and Congress on these recommendations, and throughout the process of the next reauthorization FHWA will be pleased to work with this Committee to further improve the condition and the performance of our Nation's bridges.

Mr. Chairman, this concludes the summary of my written statement. I would be happy to answer questions.

Mr. DEFAZIO. OK. Thank you, Mr. Gee.

Mr. Phillip R. Herr, the Director, Physical Infrastructure Issues, GAO.

Mr. Herr.

Mr. HERR. Thank you. Chairman DeFazio, Ranking Member Duncan and Members of the Subcommittee, thank you for inviting me to this hearing on the Highway Bridge Program. I will briefly discuss the current state of the Nation's bridges and the extent to which the program aligns with principles GAO developed to reexamine surface transportation programs.

National Bridge Inventory data indicate that one in four bridges are considered deficient. While the number of deficient bridges has declined from 1998 to 2009, it was not possible to determine the extent of the program's contribution to this decline because States can use bridge funds for a number of other purposes that do not necessarily reduce the number of deficient bridges.

Turning to principles GAO developed to reexamine surface transportation programs and how they can be applied to the bridge program. First, the bridge program's goals are not focused on clearly identified Federal interests and have expanded to include a variety of improvements, making nearly any bridge potentially eligible for Federal funding. Reconsidering the breadth of this program would lead to a better focus.

Second, the bridge program does not tie each State's funding level to performance improvements. Programs should tie together funding, performance and accountability to enhance outcomes.

Third, the bridge program lacks sufficient tools to determine the results of Federal investments. Currently States use tools such as bridge management systems to do this. We are encouraged that FHWA reports taking steps to address our recommendation to collect information on States' use of such systems.

Finally, fiscal sustainability remains a challenge in light of aging bridge infrastructure and estimated funding required to upgrade bridges built in the 1950's and 1960's.

Mr. Chairman, this concludes my oral statement. I am happy to answer questions.

Mr. DEFAZIO. OK. Thank you.

And finally for a prepared statement Mr. Malcolm T. Kerley, Chief Engineer of Virginia Department of Transportation.

Mr. KERLEY. Good morning, Mr. Chairman. My name is Malcolm Kerley, Chief Engineer for the Virginia Department of Transportation, and I chair the AASHTO Subcommittee on Bridges and Structures. On behalf of AASHTO, thank you for the opportunity to share our views on the Federal-State partnership in ensuring we have safe and well-maintained State and locally owned bridges across the country.

I would like to make three points. First, we are facing a perfect storm regarding our bridges. A large number, especially those on

the interstate system, were roughly built at the same time and are reaching the end of their useful life. Traffic and truck loadings are increasing, our purchase power is decreasing, material costs have increased drastically. Preserving the Nation's investment in our transportation infrastructure must continue to be a top priority for all levels of government, and funding is just not adequate.

Second, if we had all the funding we needed, States could immediately reconstruct or rehabilitate all structurally deficient bridges, fixing the worst first. If we don't, the States must take a more strategic approach, working to reduce the number of structurally deficient bridges, while simultaneously investing to prevent an even larger number of bridges from deteriorating just enough to push them over the edge to structural deficiency. We call these cusp bridges, those bridges which we can prevent from becoming structurally deficient and requiring major work if we just invest a lesser amount in maintenance or rehabilitation to extend their useful life.

Third, I want to respond to the reports that States are transferring funds from the Federal Bridge Program. States do transfer funds to enable them more flexibility in managing their transportation programs. However, States are investing substantially more in State dollars on bridges than is provided under the Federal Highway Bridge Program. Transfers between Federal highway programs are simply a management tool and do not reflect the actual spending level.

For example, in 2004, \$10.5 billion was invested in bridge rehabilitation by all levels of government, more than twice the \$5.1 billion appropriated through the Federal Highway Bridge Program.

Bridge safety is one of the highest priorities. We stand ready to work with you to deliver a safe and well-performing bridge program through the Federal-State partnership and programs that stretch our available dollars.

Thank you. I will be happy to answer any questions.

Mr. DEFAZIO. Thank you.

We will now proceed to questions. So the first question: the January 2010 Inspector General report, using data several years old, from 2007, documented one instance in which a State failed to close 96 bridges as required by the National Bridge Inventory system and two other instances in which States failed to properly post with maximum weight limit signs 200 and 500 bridges respectively. Now, what is really disturbing here is that in all three instances, Federal Highway Administration bridge engineers reported the States to be in compliance.

So I guess this question would go to Mr. Gee, but anyone else is welcome to comment. Was headquarters aware of these instances of noncompliance prior to the release of the IG report? What actions, if any, did you take to ensure that the States properly closed and posted the bridges? And what procedures will be in place during the 2011 National Bridge Inventory review cycle to ensure that these sorts of incidents don't happen again?

Mr. GEE. Thank you. In those instances where you cited—

Mr. DEFAZIO. Pull the microphone a little closer, please.

Mr. GEE. In instances where you cited the OIG's report, we went back to identify which States they were. And in the case of the 96 bridges, there were data inconsistencies, and the bridge engineer in

the division did verify what the information showed. In both cases those States were actually declared in substantial compliance rather than in full compliance. We have since gone back to follow up on the information that the IG has made available, where it was available, and worked with the States to rectify the matters.

Mr. DEFAZIO. So are you saying that there weren't 96 bridges; you are saying there is an inconsistency, there weren't 96 that should have been closed?

Mr. GEE. Correct. That number was not—

Mr. DEFAZIO. What was the number?

Mr. GEE. It was less than half of that.

Mr. DEFAZIO. OK. So we had about 50 bridges that should have been closed that weren't closed, and that puts them in substantial compliance. How many bridges—you know, I mean, I find that—you know, is that in the regulations? I mean, like you have got 40, 50 bridges that should be closed that are unsafe, and you haven't closed them, but you are substantially in compliance. Is that the way our system works? If it works like that then maybe we need some changes.

Mr. GEE. We do need some changes. What happens is the bridge engineer in our division office has to exercise engineering judgment in reviewing the information that is—

Mr. DEFAZIO. So these engineers use these bridges? I mean, it is their judgment that these bridges, which should be closed, according to engineering standards, aren't closed; and they want to drive over them with a semi in front of them and behind them?

Mr. GEE. In some cases it is a matter of reviewing the load rating to make sure that it is something that needs to be closed. In other cases the information in the database is not correct.

Going forward, you asked a third question, which was what are we going to do in 2011. First of all, according to the regulations, a safety issue is reason for a State to be in noncompliance. So we are tightening up the definition of that in the work that we have been doing since the OIG's report. And we have set up a new approach to compliance reviews, which is risk-based, data-driven, and based on the 23 compliance factors that are in the regulations. We are tightening the definitions. We are setting up a process where they have to go through in very narrowly defined tolerance ranges to determine what is compliant and what is not compliant. And we will be using those to be much more proactive from a national perspective in working with each individual State.

Mr. DEFAZIO. OK. And these will be implemented when, these changes?

Mr. GEE. Calendar year 2011.

Mr. DEFAZIO. OK.

Mr. GEE. We just piloted the process in 12 States because we want to make sure that the definitions are uniformly understood the same way; we want to make sure that the process is understood by the engineers that have to use it. So we are evaluating the pilot right now and will be making the final changes and getting it out and training our division bridge engineers. And we also are in the process of hiring additional staff to help with the training and the implementation of the new oversight process.

Mr. DEFAZIO. OK. Mr. Come, are you familiar with the pending changes, and do you think they will preclude a repeat of the problems you documented?

Mr. COME. We are familiar with the changes. Our 2010 report focused on the question of giving the engineers adequate guidance to determine whether a bridge was—a State was in substantial compliance. They themselves told us they didn't have good guidance. They could identify individual standard issues, but they had not good guidance on how to produce an overall conclusion. We used the information like—

Mr. DEFAZIO. Meaning where you get to the point of compliance, substantial compliance, whatever, the overall conclusion?

Mr. COME. Right. There are five general areas that they had to look at. So they could come to conclusions in individual standards like inspection frequency and issues like that. But they were on their own, more or less, when it came to making a conclusion about being in substantial compliance. And they told us that they would like to get better guidance.

We looked at NBIS compliance review data, which is where the 96 figure comes from, and used that to indicate areas where you would think there was a significant problem, but the State was still in substantial compliance.

Now, as to the proposal, we made the recommendation. They responded positively to it. It includes issues we have said should be in such a proposal. It establishes minimum standards. We had found in the past sometimes that FHWA might give tools to the division offices to use, but they weren't using them. So it includes—from what we hear, it will include minimum standards; it will include risk-based criteria, which is another area we have called for; and it will include clear guidance on how to go forward after you find a deficiency.

That was a variation we also found in division offices in regards to what to do to enforce a problem. In some States the State responded quickly; in others it took up to 2 years to fix a problem. But the States had different policies in place for how to fix these problems.

From what I have heard from Federal Highways, this proposal will address those issues. It has been piloted, and we will be monitoring it closely. As an auditor I am paid to be skeptical, so we won't be closing that recommendation until we see the documentation supporting the fact that it has been rolled out nationwide and these new criteria and guidance are fully implemented.

Mr. DEFAZIO. OK. Thank you.

I recognize that Mr. Graves has arrived. He is a Member of the Full Committee and has asked for unanimous consent to take part in today's hearing. And hearing no objection, he will be allowed to take part in the hearing. According to the custom of the Committee, he would get the last question, however, since he doesn't sit on the Subcommittee.

With that I turn to Mr. Duncan, and I will have a second round. Go ahead.

Mr. DUNCAN. All right. Well, thank you very much, Mr. Chairman.

Mr. Gee, I notice that in the Department of Transportation's conditions and performance reports, you estimate that \$98.9 billion could be effectively used immediately to bring all of our bridges up to snuff, so to speak. Have you studied that figure? How did you arrive at that figure, and do you think that is a realistic or conservative estimate? Is that a "completing a wish list" type of estimate?

Mr. GEE. It is not a wish list. It is a very analytical process, and it is a model. It is not an exhaustive inventory of all the needs out there; it is a model that projects what is needed on the 600,000 bridges that we have in the system. It is based on the structural need, but also improvements that may be needed or economically justified on bridges that are not structurally deficient. So it is all the improvements to bridges that can be made from an engineering standpoint and from an economic standpoint.

Mr. DUNCAN. We have got, according to the material we have been given, 603,000 public road bridges, and approximately 150,000 are deficient. But a little less than 20 percent of those bridges carry 71 percent of the traffic.

Do you think we are doing an adequate job concentrating this funding on where the money actually needs to go, on these more high-volume bridges?

Mr. GEE. Under the structure of our Highway Bridge Program, which is also true for all the rest of the Federal-Aid Highway Program, it is an eligibility-based program, and it is a program where the States are given the prerogative to choose which projects and, therefore, which bridges to spend the money on.

What we have in the Highway Bridge Program is eligibility criteria based on the structural deficiencies, the functional obsolescence and the sufficiency rating of a bridge. So in order to use bridge program dollars, the sufficiency rating has to be below a certain threshold for rehabilitation and below a further lower threshold for replacement and the bridge has to be in a deficient status. But the prerogative for choosing the projects is the State's.

Mr. DUNCAN. If we need \$98.9 billion, and you heard Mr. Kerley mention that we are targeting roughly \$5 billion in Federal funds and \$10.5 billion, I think he said, from the States, are you advocating within your Department a big increase in the Federal funding for this program, or where do the deficient bridges range in priority within the Department of Transportation?

Mr. GEE. Secretary LaHood just finished a round of townhall-like listening sessions. The last one was just held last week. The Department hasn't finished considering all the input yet, so I do not have a position to represent today.

Mr. DUNCAN. All right. Mr. Kerley, Mr. Come says in his testimony that, quote, "current practices do not ensure that States are using Highway Bridge Program funding effectively to improve the condition of deficient bridges". What do you say about that? And, secondly, when you mentioned overall funding, how much does the State of Virginia receive in Federal monies for this program, and how much does the State itself allocate to bridges?

Mr. KERLEY. To answer your second question first, sir, for fiscal year 2011, we are receiving \$111,700,000 and in State funds we have \$122,400,000, for a total of \$234.1 million- is what we have allocated to bridges for fiscal year 2011 in our program.

As it was said also by others up here, the number of deficient bridges has decreased over time, and that has been a pretty steady decrease, I believe. So to make the statement that they are not addressing deficient bridges, I don't know if that is completely correct, because the numbers are going down.

The age of bridges in the system nationwide is obviously increasing. We have a large number of bridges—you know, during the New Deal area, we have a large number of bridges during the interstate area that are getting old in Virginia. The average bridge age is 43 years. So you have to make a decision on balancing preventative maintenance, maintenance rehabilitation and replacement. So I think States with the funding that they have are trying to address a growing problem they have in the bridge program.

Mr. DUNCAN. You are here as a representative of all the State DOT officials across the country. Where do you think most State DOT officials would rank bridge deficiency as one of their problems? Would it be one of their top three problems, or what would you say about that?

Mr. KERLEY. Well, for—

Mr. DUNCAN. Are we making a mountain out of a molehill here?

Mr. KERLEY. From an official AASHTO viewpoint, I would have to get back with you on that, but just a top-of-the-head, I would say it is in their top five. I can tell you in the State of Virginia, for instance, our Commonwealth Transportation Board has highlighted deficient bridges, deficient pavements, but especially deficient bridges, in our 6-year program. But I would get back with you on an official thing from the AASHTO viewpoint, sir.

Mr. DUNCAN. Well, let me ask you one other question. I am told that the House Appropriations Committee marked up a transportation appropriations bill yesterday, and in that bill they transferred \$200 million away from the program such as the Highway Bridge Program to livability initiative funding that would include sidewalks and bike paths. Does the State of Virginia need more money being spent on bridge repairs or more money being spent on sidewalks and bike paths?

Mr. KERLEY. From my viewpoint, we would address the bridges first. We do support, obviously, enhancement to the quality of life for our citizens, but it is a matter of amount of money in the budget that we have. But we do emphasize deficient bridges and deficient pavements.

Mr. DUNCAN. All right. Thank you very much, Mr. Chairman.

Mr. DEFAZIO. I thank the Ranking Member.

Next we will go in the order of arrival. That would be Mr. Hall.

Mr. HALL. Thank you, Mr. Chairman, for holding this hearing.

Thank you, Ranking Member, as well, and to our panel for joining us today.

This is an extremely important issue in my district. In New York's Hudson Valley, in the 19th District, we have 13 bridges designated structurally deficient by the FHWA. These bridges, along with countless others, are under local and State control, including one that is closed right now on my dirt road in the town of Dover Plains, where the Dutchess County clerk and I happen to reside. I think the county is trying to make an example that we don't get

special favors by keeping our bridge fixed last. But that is OK, I go the long way to town.

Nonetheless, Mr. Come, in the Inspector General's January 2010 report on the Federal Highway Administration oversight of the Highway Bridge Program and the National Bridge Inspection Program, your office issued several recommendations on how the FHWA can improve oversight of these two programs. One recommendation was that the FHWA strive toward performance-based oversight of States' use of HBP funds in anticipation of reauthorization. In your view, have these extra steps been taken?

Mr. COME. No. Thank you for the question.

At this time we are not satisfied with the pace of the Federal Highway Administration's response on our recommendations related to tracking bridge funds. There were three main issues we wanted them to address. First, to try to acquire better data so they could connect the funding spent on structurally deficient bridges to those projects. We recognize that their system for tracking that information doesn't include that detail. But in response to our report, they had told us that by May they would provide us with an assessment of what changes they could make.

What we also wanted to be done with this information was that the information be used to evaluate the effectiveness of the program and perhaps to communicate those results to key stakeholders, such as the States and the Congress, in a—something like the performance and conditions report. At this time, as we were preparing for the hearing, we did hear from Federal Highway that they are now making a commitment to make some enhancements to the Fiscal Management Information System that they have that will better track the information. We welcome that information, will be getting additional information on the specifics of that going forward to see if that more fully addresses our recommendations.

Mr. HALL. Thank you.

And, Mr. Gee, the Inspector General in January of 2010 reported that the FHWA's accounting system does not have the capability to track Federal aid spending on structurally deficient bridges. Is this problem just a matter of legacy software or is it inherently difficult to track the spending of that level at detail? Are States able to track this information reliably? And what could we in Congress do to better help you track the impact of or the use of Federal aid funding on deficient bridges?

Mr. GEE. Thank you.

The answer is yes, that as the program has changed over time, the character of the program has changed. We do have a legacy system that was not designed to do that kind of tracking, but we are looking at a fix to the current system where, when a project is authorized, the bridge number will also be tagged to that authorization. The challenge, however, is that in many cases a single project has multiple funding streams and has multiple parts to it, one of which is a bridge, while others are paving and widening. So there continue to be challenges that we are looking at to see what we can do to really narrow down what is being spent on each element of a given project.

We are working on it. There is nothing that I can think of right now that we need from legislation.

Mr. HALL. Thank you.

And lastly I would ask, since I am running out of time here, the report found that there are 1,630 ineligible bridges which are on longer inspection schedules than the minimum 24 months required, including 633, quote, "fracture critical," unquote, bridges like the I-35 bridge, that were on a delayed inspection schedule.

Can you explain the process that FHWA uses to negotiate State use of delayed inspection schedules, and do States need written approval from FHWA to extend the period of inspection? What steps are intended to be taken to remediate the situation?

Mr. GEE. As you know, in general the rule is 24 months on fracture critical. We require hands-on inspection as well. But in terms of longer periods of inspection, there are a number of different factors, including the age and condition of the bridge. So our bridge engineer in a given State will evaluate what is being proposed by the State and determine if the justification for lengthening the inspection's frequency is acceptable. The State's proposal is then forwarded to our headquarters office for final review and approval.

Mr. HALL. Thank you, Mr. Chairman. I yield back.

Mr. DEFAZIO. Thank you.

Henry Brown will be next.

Mr. BROWN. Thank you, Mr. Chairman, and thank you, gentlemen, for coming and sharing.

I know in South Carolina transportation is a major item since we have such an influx of tourists. I know in our Myrtle Beach area, we have some 14 million visitors a year coming in, and so we appreciate your support in trying to meet some of those congestion needs.

But, Mr. Gee, my question, I guess, will be directed to you. If anybody else wants to join in to help with the answers, I certainly would appreciate it. The way the funds are generated or distributed among the States, is it based on some formula, or is it based on some need formula? Exactly how are those funds distributed?

Mr. GEE. The Highway Bridge Program funds are distributed by a needs formula that is based on the deck area of deficient bridges in a State. All of that is aggregated, and then the ratio of a particular State's deficient bridges and the cost to repair or replace them is factored in.

Mr. BROWN. So somebody makes a compilation of all of the deficient bridges in the United States, and then you would rank them by the seriousness of concern, and then you allocate some proportion of those funds to each State to meet those needs?

Mr. GEE. Correct. Except that the cost that is peculiar to each State's replacement of a bridge and rehabilitation of a bridge is factored in.

Mr. BROWN. And I know that there is some flexibility of how those funds are being spent. Tell me how that works. I know that if it is bridge money, I understand this program has developed over \$4 billion that has been actually used for other programs. Tell me how that works.

Mr. GEE. I am sorry, what was the last part of your question, \$4 billion?

Mr. BROWN. That is the information I have got here that said that since 1992, \$4.7 billion of the Highway Bridge Program has been used for other accounts.

Mr. GEE. I think Mr. Kerley answered part of that earlier. There are transfers out of the bridge program, and under the current legislation the States can transfer up to 50 percent out of a given program, the Highway Bridge Program being one of them, into any of the other programs. Some States do that because the Highway Bridge Program is the most restrictive in terms of how the funds are to be used. Oftentimes they will move some of the money into, say, the Surface Transportation Program but still use it on a bridge, but because the use of a combination of funds can be complicated, they can put a project together more efficiently using one funding source.

Now, other monies that are not spent on bridges are spent on management and preservation activities, and that is a recognition over time that we have a looming bridge problem, and it is not just a matter of rehabilitating and replacing, but it is a matter of managing and extending the service life so that we get the best return that we can on that investment.

Mr. BROWN. Mr. Kerley, along those same lines, what percent of the bridge replacement funds do you get coming into Virginia that you actually use on bridge replacement, and what percent do you use on other related items?

Mr. KERLEY. In the Commonwealth of Virginia, we are required by budget language from our general assembly to utilize bridge money in the bridge program. In the past we had transferred money, as I indicated before, but historically we spend almost twice as much money on bridges as the amount of Federal bridge money that we receive.

Mr. BROWN. Do you have the flexibility whether to replace the bridge or to repair the bridge? Who makes those determinations?

Mr. KERLEY. As King said, the States have different ways. We have a prioritization that we use which takes into account structurally deficient. Most States have a prioritization where they are trying to look and balance the money that they have between replacing bridges, rehabilitation of bridges, maintenance of bridges. So when we develop our 6-year plan, and when most States develop their plan that they are going to do, they take that into account to maximize the use of all Federal funds that they receive.

Mr. BROWN. Thank you.

Thank you, Mr. Chairman.

Mr. DEFAZIO. Thank you.

Mrs. Napolitano is next on the list.

Mrs. NAPOLITANO. Thank you, Mr. Chairman.

I am kind of listening to what you are saying in terms of the States being allowed to use transportation money for other bridge—not necessarily the bridge repair. My concern or my question would go to is any tracking being done to ensure that that bridge continues to be on the list of needed critical repair because the money is not being used where it was initially appropriated to? And are you tracking it? And does that bridge still continue to be on a listing, if you will? And then how do you track it? Do you have the software? Are you developing and implementing new processes

to be able to determine whether the new methodology is being utilized to do the repair? All those things go into the same things that I have concerns over.

Mr. GEE. The National Bridge Inventory has the information on all the structurally deficient bridges, so that doesn't go away whether they spend money elsewhere or not. We do track transfers out because they do have to request the action of transferring money out. And in the last year, six States transferred out a total of \$300 million. So that is not a lot compared to the total. But there is a penalty for transferring money out. In the year following a State's transfer of Highway Bridge Program funds to another program, the transferred amount is deducted from that State's cost to repair or replace deficient highway bridge—the factor used to distribute bridge funds among the States.

Mrs. NAPOLITANO. What about the software to be able to do that? That is updated, upgraded?

Mr. GEE. To track the structurally deficient bridges, yes, we have that.

Mrs. NAPOLITANO. And are you able to determine whether or not the new technologies being used for the repair that might be more efficient, less costly?

Mr. GEE. That is always a function of ours, to promote new technology. We have high-performance concrete and high-performance steel that we have been promoting for a number of years now. So we are always doing research and disseminating and deploying new technology to get the best-performing bridge that we can.

Mrs. NAPOLITANO. One of the other questions is the three IG reports presented significant and apparent and chronic questions about quality and uniformity of NBI data. Yet it is critical to many of the oversight decisions that the FHWA does. And testimony noted that—taking steps to ensure that the division office understand that NBI data filed and submitted with significant errors would be returned for immediate resolution. When was this done? What is the time frame? And have the local authorities been notified to be able to ensure that they are aware of the criticalness of this?

Mr. GEE. Data typically is submitted from the States on an annual basis. Even though bridges are inspected every 2 years, the cycles are overlapping, so we get data every year. And we have been sending data sets back to the States. Our divisions now have a tool with which to evaluate the data set that they receive from the State before they submit it to headquarters. So the divisions are doing the checking, but then we do a further check, and we have sent data sets back. There is one State right now for which we are waiting on the corrected submission.

Mrs. NAPOLITANO. Is there enough personnel to be able to do every 2 years all the bridges that apparently are in need of inspection?

Mr. GEE. On the States' part or on our part?

Mrs. NAPOLITANO. Well, do we rely on the States to tell you whether they have done it? And, of course, there have been some reports of the NBI data problems.

Mr. GEE. We have three States that are currently not compliant, and part of it is due to inspection frequency. And that is typically

because they don't have enough staff to do the inspections. They are being required to put together a corrective action plan. And in two States in the last half a year, we have actually threatened to withhold the approval of projects; not on bridge projects, because we don't want to be cutting off funding for bridges that we want them to improve. So we are looking at leveraging other categories of funds for which we will not approve funds in order to get compliance.

Mrs. NAPOLITANO. So there is a penalty?

Mr. GEE. I wouldn't call it a penalty. You can call it a penalty. It is temporary in a sense, because whatever we are withholding approvals on will eventually be spent.

Mrs. NAPOLITANO. And my time is running out, but there is a bridge in one of my district areas that burnt because a homeless man was building a fire to keep himself warm. Do the bridge construction inspectors consider susceptibility of the bridge to destruction due to human factor?

Mr. GEE. Human factors and other factors. For example, there are birds that put droppings on bridges that really are corrosive, so we look at all the environmental factors. When they look at a bridge inspection, they do document if there is an issue.

Mrs. NAPOLITANO. Thank you, Mr. Chairman.

Mr. DEFAZIO. I thank the gentlelady.

Mr. Graves.

Mr. GRAVES. Thank you, Mr. Chairman. I want to thank you and Ranking Member Duncan for the opportunity to participate in today's hearing. And my primary interest today is to address the Highway Bridge Program, and I have a statement, not a question per se. But all the Committee Members know that the HBP in SAFETEA-LU, it required that States expend 15 percent of their annual bridge funding on off-system bridges.

It is my understanding the Committee's current draft of the surface transportation reauthorization proposal consolidates the HBP and other programs into a critical asset investment program, which effectively eliminates the 15 percent annual dedicated funding. This funding is critically important to States like mine, and Missouri is home to more than 13,000 off-system bridges, and 2,500 of those are structurally deficient, and 1,700 of them are functionally obsolete. If Congress decides to eliminate the 15 percent set-aside, then the roughly 4,200 deficient or inefficient off-system bridges in Missouri are going to fall into disrepair.

I wanted to note that last year I introduced H.Res. 848, which is a bipartisan measure, which expresses support for the continuation of the off-system bridge program and a dedicated funding source, and I appreciate the Committee leadership's consideration of my request to include this resolution in a future markup, and I look forward to continue the dialogue on the possible reinstatement of dedicated funding for the off-system bridges in future transportation reauthorizations.

But I have a full statement and would ask unanimous consent to just submit it for the record. And again, Mr. Chairman, I thank you and Ranking Member Duncan and all the Members of this Subcommittee for allowing me to participate. I appreciate it.

Mr. DEFAZIO. OK. I note the gentleman's concern.

With that, Mr. Arcuri.

Mr. ARCURI. Thank you, Mr. Chairman, for recognizing me. I would like to thank you for calling this hearing.

Gentlemen, thank you very much for being here and for the work that you do.

I just want to start off by saying about 2 years ago I had an experience that one of my State DOT representatives suggested that I take a ride with him, and they rented a bucket, and I went up in the bucket under one of the bridges that, frankly, was one of the main bridges that I drive by every day, and my wife and the kids drive over every day. He said, take a hammer and tap on that concrete. And I did, and it was quite sobering to see chunks of that concrete fall. And this is one of the—you know, the bridges that I would never have known, I mean, basically that most of the traffic in my community drives back and forth on.

And the point of my question—maybe it is a comment, I am not sure—my concern is this: We continue to build more bridges every year because everyone wants to have more bridges, better bridges. And we continue—as we do that, we spend more money, and then we continue to need to repair the bridges, and that costs more money with each passing year to repair the old bridges. And much more, it seems, of our money goes to repairing bridges that already exist, that already have defects, building new bridges, and we are not—the States are not spending the money on the maintenance, you know, that needs to be done.

I am from upstate New York. We salt our roads. It has a devastating effect on our bridges. What it does, it eats away at the concrete, the rebar. I mean, it really has a devastating effect on that. And I guess, again, I am not sure if it is a comment or a question, and, Mr. Gee, I will pose it to you, is are we doing enough in terms of the preventative maintenance? I mean, are we spiraling out of control? Are we going to be able to have enough to appropriate enough money basically to meet the needs of building new bridges where they are needed, maintaining the bridges that already exist, and then doing the preventative maintenance to ensure that we don't have problems into the future saving money? Because I think the States don't have the money to do the preventative maintenance they need to do.

Mr. GEE. Thank you for the question.

Maintenance in general is the responsibility of a local or the State agency. But as was noted earlier, we are allowing systematic preventative maintenance and preservation activities to be paid for with Highway Bridge Program funds, and that is, again, trying to get the best return on the longer service life that we can out of our bridges.

Now, in the research program we have actually been working on design and material research to come up with a 100-year-life bridge. Right now we are shooting for 75 years as the design life. We have research under way for 100 years. But on the maintenance side there is a requirement on our overall program that the States maintain whatever Federal funds have been put into, whether it is a bridge or a roadway, and we actually require certification from the State to that effect, and we follow up.

Mr. ARCURI. Are we going to be able to continue to meet the needs of the bridges that we already have, do you think, into the future?

Mr. GEE. In the conditions and performance report that we submit every 2 years, there is a note that says if we continue funding at our current level, the deficiencies will go up.

Mr. ARCURI. Mr. Kerley, do you have a State perspective on that?

Mr. KERLEY. Well, one, I agree with King's comments that the States work very closely with the FHWA. The flexibility in the program to use money for maintenance and preventative maintenance has helped the States tremendously.

There is probably in the last 3 years a renewed interest, I will say, in preventative maintenance. The FHWA and the States have worked together to form regional groups working together to concentrate on preventative maintenance; the States and the FHWA in the last 5, 10 years emphasizing a more asset management approach to try to address those maintenance problems.

I assume where you were probably was under a leaky joint that maybe, had it been fixed at a time, you wouldn't have had concrete come off when you were under that bucket truck there.

So there is a renewed interest, and we have worked very closely with the FHWA to come up with new materials and new techniques hopefully to address the problems we have.

Mr. ARCURI. I am going to put you on the spot for 1 second, one question. Can we do more on the Federal side to help the States with the preventative maintenance?

Mr. KERLEY. Yes, sir.

Mr. ARCURI. Thank you very much.

Thank you, Mr. Chairman. I yield back.

Mr. DEFAZIO. Mr. Walz.

Mr. WALZ. Thank you, Mr. Chairman and Ranking Member, for this. And thank you all for the work that you do. It is incredibly important.

And I see the Chairman joined us, and I am sure he will eloquently remind us all numbers, inspections and all that, on that hot day in Minnesota, that was a father not getting home, that was a daughter that will never get home when that bridge collapsed. And I think that renewed sense of importance on this, it is unfortunate it took a tragedy like that to do it, but all of us feel it.

So I have just a few questions, and we see this playing out in the States, and Mr. Arcuri might be able to help me with this. We have got another bridge across the Mississippi in Winona, Minnesota, Highway 43, that was closed in the inspections that followed the I-35W bridge. It was a gusset plate issue, the same thing. It ended up being—I am glad we got the inspections done, but those types of situations, there was a 100-mile detour for folks that were put along. It is scheduled to be finished over the next 5 years for replacement. The State has no plan on how to be able to afford such a thing. There is an editorial, and I think rightfully so, out of the Winona daily paper taking all of us to task on this.

My question is how are we as a country prepared to handle this issue; structurally deficient, obsolete, all of these things? It is only a matter of time before it is another one in the river or something. And so my question is are we—and this is coming to you, and I

think Mr. Arcuri's question was good—are we doing enough to have an honest discussion with the American public about what it is going to cost to replace and repair and keep our bridges up to where they need to be for safety, to move commerce and all of that?

So I would ask each of you, if you could, and I know it is somewhat subjective, but I just want to know, are we going to get there? Because I have no faith right now, and the editors of the Winona paper have no faith, that we are working together to address this issue on that one bridge in one small town in one State. Couple that by thousands across the country. So if you want to just respond, I would certainly be wanting to hear.

Mr. COME. Thank you.

Our work has been focused not on how much should be spent or where the money should come from, but how to more effectively spend the money. So I would say in answer to your question that first and foremost we need to be able to effectively assess how well we are spending the money we have now. Doing that in the case of the Highway Bridge Program requires getting better information on funds directed towards structurally deficient bridges.

In our work we found that systems and tools weren't in place to do that. Management has told us that it will be hard to develop better tools. We recognize that these tools aren't easy to develop, but without better tools we won't be able to better utilize the funds we have now. And likewise, on the inspection side, no matter how much we are putting towards the bridges, we need to have good inspection programs.

And so consistent oversight of the State programs is important. So from our side it would be getting improvement in those tools that will enable us to stretch every dollar we have.

Mr. GEE. On larger bridges, oftentimes a State doesn't have enough money in the bridge program to do all of the big bridges that it has, so oftentimes we find a State will kind of bank the money until they get enough. And then in many cases, because of the size of the project, project financing has got to be part of the consideration. A number of States have used that and used Federal-aid dollars on GARVEE bonds to pay back, because you need a chunk at one time in order to do a bridge, and then you can pay it back over the life of that bridge with GARVEE bonds. Our concern is the level of debt service that a State DOT may be incurring in order to do that.

Now, to go back to the other part of the question, I think for the past 10 years or more, even before the Minnesota bridge, there have been articles about the state of infrastructure in this country. ASCE does a report card. So I think that there is a lot of information out there. The challenge that we have is that we actually don't have a crisis today, but if we go forward without addressing it, we will have a crisis in the future.

Mr. HERR. Mr. Walz, some of the work that we have done suggests a need to stand back and prioritize and look at the broader Federal interest. So in a case of a bridge like this, if something like that were in place, it would help a State have a sense of what some of those priorities are. And in the sense of a large project, say a megaproject like that that is more costly, that may be something that could rise up if an approach like that were to be taken. But

clearly there is certainly a difference between the funding levels that are available and the needs that have been identified as well.

Mr. KERLEY. The State bridges and the national bridges are getting older. As I indicated, in Virginia the average age of our bridges are 43 years. In my testimony we have over 1,700 structurally deficient bridges; we have over 4,000 that are getting ready to get into that area.

I agree with King's statement, we don't have a crisis right now, but I think you can look on the horizon and you can see that more funds are going to have to be put into maintenance, a shift, I believe, to asset management to try to maximize as much as possible. In the large bridges—that is why I think you see in some of the reports that in the large urban areas, maybe your urban area bridges, the number of deficiencies are going up because they are more expensive, there is more traffic. It is harder to do those, and so you are trying to extend those lives as much as possible.

Mr. KERLEY. The 2006 DOT's condition report said \$8.7 billion in capital investment annually is needed to maintain the bridge condition at the current level and \$12.4 billion was needed to actually improve the conditions to a level.

So I believe the States are trying to work closely with the Federal Highway Administration and to identify and take the appropriate action, whether to post a bridge or close a bridge, to ensure the safety for the traveling public.

Mr. WALZ. Well, I appreciate all your work. And, as I said, again, I think it is for us up here, realizing one of the attributes of leadership is vision. And let's hope we have the vision to not get to that crisis point, to have the courage to get it done before we get there.

I yield back.

Mr. DEFAZIO. I would recognize the full Chairman now.

Mr. OBERSTAR. I just want to intercede at this point, because Mr. Walz asked an important question, and I don't think he got the full range of answer that he should have received.

The Minnesota legislature overrode a Governor's veto of an increase in the gas tax by 5 cents. And the Minnesota DOT dedicated nearly half of the new revenue to bridge replacement. That is how States can do it. They can dedicate.

But that underscores another problem, Mr. Chairman, that we have dealt with in this Committee several times and we deal with in our new authorization bill. And that is, the current law gives States authority to transfer up to 50 percent of their bridge funds to other purposes. And they have done it. Then they turn around and complain that they don't have enough money for bridge replacement, when they have used their flex authority to flex money out of the bridge program to something else.

And then they complain—they, the State DOTs—complain to us when we try to tighten the noose on them and say, "You first tell us, first develop a 6-year bridge replacement program, bridge inspection and maintenance and replacement program, with annual benchmarks of achievement. And then you report back to the U.S. DOT and to this Committee and to our Senate Committee on your achievements and your accomplishments. And if you have accomplished your goal year by year of bridge inspection, maintenance, replacement, then you can flex the money to something else."

The bridges are the most costly structures in our Federal highway program. Those 545,000 bridges on the National Highway System, of which half now are structurally deficient or functionally obsolete, carry half of the bridge traffic of this country. And you can't shut them down, you can't blow them up and turn them into something else. Some of those are historical structures. That is a problem for the States to resolve.

But States have not accepted their responsibility, generally. There are some States that have excellent records, others that are just deplorable.

In 1987, I held hearings on bridge inspection and bridge safety on the 20th anniversary of the Silver Bridge collapse. And a professor of bridge engineering testified at that table, saying, bridge inspection, quote, "is in the Stone Age. We are dragging chains over bridges to listen to structural deficiencies."

Twenty years later, they are still dragging chains over bridges to detect structural deficiencies. Meanwhile, we have given tens of millions of dollars for studies, for evaluation. There are university research centers that are studying it. And we are still in the Stone Age. That is unacceptable.

I yield back.

Chairman DeFazio has taken leave. Let's see. Mr. Duncan, do you have—

Mr. DUNCAN. Well, I have already asked most of my questions, Mr. Chairman, but I will take just a moment to—Mr. Herr, you just heard the Chairman talk about how States can move up to 50 percent of their bridge funding.

Do you have an estimate as to what percentage, on average, most States are transferring of the bridge funding out of the bridge program?

Mr. HERR. When we did our work in 2008, I think the figure over a 7-year period was in the \$2 billion to \$3 billion range. What we noted in that report was that one of the States that made more use of that flexibility actually had its funding made up through the equity bonus program. But we—

Mr. DUNCAN. I am sorry. I didn't hear the last thing you said.

Mr. HERR. One of the States that had utilized that opportunity to do flex funding out of the bridge program, Pennsylvania actually made up that funding that it lost through the equity bonus program. We noted that in that report.

But if need be, if the other witnesses don't have that information, I could get updated information for you.

Mr. DUNCAN. All right.

Well, we have also seen in the testimony, your testimony and others, that you feel there is a lot of important data that is lacking, such as comprehensive State and local spending. Can you really adequately judge the impact of this program without that kind of data?

Mr. HERR. We think it would be very important to have that complementary data to have a full assessment of what the program is accomplishing.

Mr. DUNCAN. We heard earlier that, while the Federal funding was around \$5 billion and the States had provided \$10.5 billion—how much is being provided by local governments on bridge work?

Mr. HERR. I believe, but I will defer to Mr. Kerley, but I believe that that \$10 billion figure——

Mr. DUNCAN. The 10.5 was State and local?

Mr. KERLEY. That was the total for all levels of government, sir, the 10.5. That included the \$5.1 billion——

Mr. DUNCAN. Oh, that includes the Federal funding, too?

Mr. KERLEY. Yes, sir. Yes, sir.

Mr. DUNCAN. Oh, OK.

Mr. KERLEY. So it is about double the Federal funding.

Mr. DUNCAN. All right. Well, then how much of the \$5 billion, then, is coming from the States and how much from the local governments? Do you have that?

Mr. KERLEY. No, sir, but I can get that for you. We will get back to you on that.

Mr. DUNCAN. All right. Thank you very much.

Mr. DEFAZIO. We would turn now to Ms. Markey.

Ms. MARKEY. Yes, thank you, Mr. Chairman.

I have a district in northern and eastern Colorado. We have 36 bridges that have been deemed structurally deficient by our State DOT. And, actually, one bridge, a couple of years ago, in the small town of Ordway, there was a fire in southeast Colorado. Two firefighters were killed because the truck that they were in went over a bridge and it collapsed, and they never even got to the fire. So it is a critically important issue.

As I am reading this report, it says an astonishing number, \$98.9 billion, could be invested immediately into looking at our bridges. But I am intrigued by the title of this report, which says, "FHWA has taken actions but could do more to strengthen oversight of bridge safety." And I think one of you mentioned that you are doing quite a bit of oversight of State programs.

And so the question in my mind becomes, you know, we have a limited amount of dollars, and there is a lot of oversight being done. And Federal authorities are overseeing State programs that are overseeing the bridges.

Can you talk a little bit about how extensive is the oversight role, the Federal Government to the States? I mean, Mr. Oberstar said that the States are not always doing their job, and there is a Federal role. But, you know, I wonder, do you find much duplication of effort in an oversight role? How much money is going towards those kinds of things as opposed to actually, you know, putting in the new bridges?

And so I just worry about, when we talk about more oversight, what we really want to do is get the money to repair the bridges, instead of, to my mind, overseeing Federal programs that are supposed to be doing that already.

So can you talk just a little bit about the extent of your oversight role?

Mr. GEE. I think that we are actually a very, very small percentage, in terms of the administrative cost, of the oversight that we provide to the States. Principally, we have one bridge engineer in each of the 50 States and District of Columbia and Puerto Rico. We have a complement in headquarters of about 15 bridge engineers and another complement in our resource center, of about 10. So, administratively, it is not a large amount of money.

Ms. MARKEY. How much of your budget, would you say, is actually going towards helping States actually fund projects to replace or repair bridges?

Mr. GEE. I would say the vast majority of our administrative cost is for project delivery, working with the States. Those bridge engineers I referred to, their purpose is not solely on compliance. They actually have to review bridge plans and they have to look at the bridge program, not just compliance.

Ms. MARKEY. OK.

Thank you, Mr. Chairman. I yield back.

Mr. DEFAZIO. Ms. Richardson, I regret that we went out of order there. There was a slight clerical error. So, Ms. Richardson.

Ms. RICHARDSON. No problem, Mr. Chairman. I will just keep the chip in the bank.

OK, Mr. Gee, much has been talked about in terms of the States utilizing flexibility. Can you provide to this Committee a State-by-State list for the last 10 years of which States have taken bridge money and used them for other sources?

Mr. GEE. We can certainly do that, yes.

Ms. RICHARDSON. OK. Thank you, sir.

My second question is, in 2009 the FHWA distributed approximately \$5.3 billion. We have been talking about that today. However, the GAO report issued in September 2008 found that it's troubling and there is a flaw; in fact, because many of the bridges and the projects, really the deficiency status is not being sufficiently rated or used.

Can you talk a little bit about that?

And, in particular, what is of my concern: When I first came on board, before I was even sworn in, Chairman Oberstar was going through the Minnesota bridge situation. And in my district, we have the Gerald Desmond Bridge, which brings over 15 percent of the entire Nation's goods. And it has a diaper underneath it, and it is my understanding it has an F rating. And yet we can't seem to get funding to replace the bridge.

So if you could explain to me this whole thing about the ratings and why they are not being used or why you are not enforcing that they be used, in terms of priority of funding.

Mr. GEE. The ratings are used, but, as I said earlier, our programs are structured such that it is the States that prioritize their projects. We determine, when a State puts a project at the top of the list, whether, in fact, it is eligible for the given category of funds that it is being targeted for. So our role in terms of the delivery of projects is to make sure that they conform to the requirements within each program category.

In the Highway Bridge Program, the sufficiency rating and deficiency status are used to determine whether a bridge is eligible for replacement or for rehabilitation.

Ms. RICHARDSON. But if, your example, a State—and I will defer to you also, Mr. Come, as soon as I finish this next question, because it appeared you wanted to say something.

But you don't provide any oversight if a State decides to repair a bridge of a level D and bypasses a level F? You don't provide any oversight or correction to that?

Mr. GEE. Not on a bridge-by-bridge basis. We may look at an overall program and say it may seem a little out of balance. But after we talk about it, it is still the State's prerogative to choose.

Ms. RICHARDSON. And why is it the State's prerogative if you have an F-rated bridge that is getting ready to collapse?

Mr. GEE. Because in a section of the law, it is specifically spelled out that we do not override States' choice of projects.

Ms. RICHARDSON. OK.

Mr. Come, based upon your report, do you have any suggestions or areas that we could focus on here in this body to eliminate this problem that you noted in your report?

Mr. COME. I believe that was the GAO report you are referring to. But our work would point to the need to establish data-driven, risk-based approaches so that the highest-priority risk can be addressed.

Ms. RICHARDSON. OK. You were right, sir.

I am sorry, Mr. Herr. It was your report I was referencing.

Mr. HERR. Yes. One of the points that we have made in a number of different reports over the years is that standing back and focusing on what the Federal interest would be would help perhaps prioritize fixing a bridge like the one you just described. If mobility, for example, movement of goods, is a key criteria, that would help prioritize things and ensure that a Federal interest—in this case, one that might impact goods movement that affects many consumers in the country and businesses—could be given a certain amount of attention.

Ms. RICHARDSON. I yield back the balance of my time. Thank you, Mr. Chairman.

Mr. DEFAZIO. I thank the gentlelady.

With that, I would turn to the Chairman of the Full Committee, Mr. Oberstar, for his questions.

Mr. OBERSTAR. Thank you very much, Mr. Chairman. I am delighted you have called this hearing. And thank you and Mr. Duncan for participating and working together to put it together. But it is a little depressing to read this report and see we are where we were, in many cases, 25 years ago.

I am going to ask to call up on the screen the Sandstone Bridge. Now, unfortunately, you can't see it very well in this picture, but that is the underlying steel structure. This bridge was built in 1948. It is about 450 feet over a very lovely canoe and kayak river in the central part of my district. It is the subject of the Long-Term Bridge Performance pilot program that we included in the current SAFETEA legislation. It is one of four, I think ultimately six or seven, bridges.

What I wanted—I took this with my BlackBerry. And there are wires hanging down from the bridge deck above. And those wires are connected to the rebar—right in there—to the rebar in the bridge decking itself. The bridge was redone about 20 years ago.

If you would go to the next one, please.

There is a snooper crane underneath the bridge. And they are attaching probes and wires to the underside of the bridge, to the bridge structure itself, the steel structure that you see in front of you. And if you notice the graffiti on the lower right, just a little bit above the crane arm, also on the right of the screen, right

there—and there is more, there is much more graffiti—that steel is so corroded that one of the bridge engineers said, in a bit of humor, “Thank goodness for the graffiti. It is helping to hold the bridge together.” That shouldn’t be.

The serious part of it is that this bridge is subject to—and then underneath you see the very slow-moving river—is subject to severe freeze/thaw cycles, heat/cold expansion/contraction. And it is a perfect subject for the kind of analysis that bridge engineers need to do, want to do, to better understand bridges.

What I don’t have, unfortunately, is on the bridge deck itself a picture of the ground-penetrating radar machine that I actually powered over a good portion of, to see for myself the wavelengths of the radar and the anomalies when it strikes corroded rebar or water that has accumulated within the bridge itself around rebar that then sends this anomaly.

So now they can cover the entire length of the bridge, find corrosion, drill a hole to the corroded rebar, attach a probe to it, bring the probe to the edge of the bridge, and then study the structure to get a better understanding of what is happening internally in the bridge.

Now, the George Washington Parkway on the Virginia side of the Potomac, under the direction of the Park Service, has four bridge overpasses that were done about 20 years ago, I think now, 18 or so. Using new technology, using plastic, pinhead-sized particles in the concrete that would collapse with the heat of the concrete setting—there we are. There is the ground-penetrating radar machine. Now, that is the technician pushing it. They had untrained technician Oberstar pushing it a little bit later. But those little dots on the road surface are the points where rebar has been detected, and now the screen is showing the anomalies.

Before they began this part of the test, Mr. Chairman, the engineers and inspectors actually dragged chains over the bridge, put their ear down and listened to it to see, “What is happening in that bridge?” So, now they know where it is. Then they can drill holes, attach probes to the corroded rebar, and see what is happening to it and see the progression of deterioration.

But going back to the GW Parkway bridge, those little plastic globules then heated with the setting of the concrete, collapsed, and provided a very tight concrete surface. But they also included probes attached to the rebar, powered by solar panels alongside those four overpasses, that provide cathodic protection to the rebar. I drive that at least four times a week, and I—no, eight times, once in the morning, once in the evening—I have not noticed a crack in that bridge.

And I can tell you, I get a pretty good look at it because traffic is so slow on that bridge. You are standing there for 5 or 10 minutes at a time, and you get a chance, at least I do, to look out the window and see what is happening to the bridge surface. I realize that is not a normal practice for commuters, but then I am a transportation guy and that is what I do.

Now, having those probes, having the ability to track—oh, yeah, there is another—there is the ground-penetrating radar machine up close.

So this is the Rutgers Center for Advanced Infrastructure and Transportation, Long-Term Pavement Performance Program. They are doing the inspecting, instrumenting, testing, and monitoring of the bridge, and doing it in at least now six, I think, other locations. This is the kind of work that we need to have on all of our bridges across the country.

And the replacement I-35W bridge has all these sensors embedded in the bridge to detect expansion, contraction, freeze/thaw cycle, penetration of moisture into the concrete structure itself, cathodic protection for the rebar in the bridge. They have sensors that can detect wind pressure on the bridge.

Now, if airplanes have technology onboard the aircraft to tell you the tire pressure onboard that aircraft, so before it comes down, if there is a problem, you know what you have, we ought to be able to do that on the ground on a structure that doesn't move. We ought to be able to apply the lessons from other modes of transportation from one to the other.

Now, if, as we well know, the reality is that deck life averages 25 years and you have corrosion delamination, you have expansion/contraction, corrosion of rebar, then there are practices that can be put in place to protect that huge investment we make in these bridges, like cover thickness, epoxy coating on the rebars, carbon fiber or aramid fiber protection before you put on the final seal coat of the bridge.

In the European Union, I met 2 years ago with the ministers of transportation for the EU at their annual session. And they discussed membrane layers that are applied before the final seal coat is applied that have resulted in substantially extending bridge deck life.

So I want you to tell me what new things you are doing, what new ideas you have encountered, and what you are recommending for the future of bridge integrity and strengthening and inspection and lengthening the deck life and structural life of bridges.

Mr. Kerley? You look like you are ready to talk.

Mr. KERLEY. First of all, sir, I appreciate you pointing out the Long-Term Bridge Performance Program that the FHWA has and the support you have given to that. It is an excellent program, and AASHTO supports it and have worked very closely with the FHWA on that.

I think we are doing the same things that you see the European people are doing. As Mr. Gee mentioned earlier, high-performance concrete, high-performance steel, non-corrosive reinforcing steel, the next generation, maybe after epoxy coating, those are things that we are looking at.

The different things that were put on the I-35 bridge are all things that are available to States to do. The question is which bridges to put it on, how do you use it, what do you do with the data, how do you do all those type of things.

But Turner-Fairbank and the Federal Highway Bridge Program have worked very closely with the States. Since the I-35 bridge collapse, we have looked at various different things that can be done. I know the FHWA is looking at different inspection techniques to be used.

But one of the things, to be honest with you, it comes down to some funding concerns—you know, which bridges do you put it on? What is the initial cost? What do you do with the data? Those things you are looking at.

But the States are open to any new technologies we can use. One aspect of the AASHTO bridge committee's strategic plan is looking at new materials and new methods to extend the life of the bridge structures that we have.

Mr. OBERSTAR. And that is what this project is aimed at.

Mr. KERLEY. Yes, sir.

Mr. OBERSTAR. It is not just the Sandstone Bridge in Minnesota, which I said was built in 1948. Structural steel is in better shape, although it is rusting and the graffiti is covering up some of the rust. The bridge decking itself has a 20-year lifespan, or a 25-year.

And what they are attempting to do in this experiment is to see whether cathodic protection, which has been successful in the pipeline program and which has been successful in the GW Parkway's bridge structures, can work in bridges already in place and extend the life of that deck surface.

Mr. KERLEY. We have used cathodic protection before on bridge decks. And also, on the James River Bridge in Virginia on 95, there is cathodic protection in the pier caps in there. When we renovated that bridge about—

Mr. OBERSTAR. Was that done on the Wilson Bridge, as well?

Mr. KERLEY. I do not believe cathodic protection was used on the Wilson Bridge, that I am aware of, no.

But so, all the different things that you have mentioned are things that States are working on and working very closely with the FHWA and their Turner-Fairbank.

And we have the opportunity to go to Europe a little bit and talk with our counterparts over there. And we try to borrow, steal anything we can to make what we do better, sir.

Mr. OBERSTAR. Well, thank you. Glad you are on top of it.

Mr. Herr, Mr. Gee, whoever else wants to comment?

Mr. GEE. I think from the very earliest days of Federal Highways, back 100 years ago, one of our missions has been to promote new technology. We have a very active program of promoting and disseminating information and best practices that we learn. In our research program, we are pushing out new technology.

And we find technology, as Mr. Kerley said earlier, from overseas, and we bring it back to this country, and we disseminate it and we implement it. But we also look for private sector innovations. Under the Highways for LIFE program, we have an active program with some private companies to accelerate the commercialization—

Mr. OBERSTAR. Yes, I think Parsons Brinckerhoff was part of this—

Mr. GEE. Right.

Mr. OBERSTAR. —consortium. They are participating.

Mr. GEE. Right.

Mr. OBERSTAR. And I am sure there are many other engineering companies who have worldwide presence who are also contributing their broad experience to this Long-Term Bridge Performance Program.

Mr. Come?

Mr. COME. Thank you, Mr. Chairman.

Over on the Inspector General's side, we have been looking at improvements to business processes. One thing we have called for is improvements in the corporate risk-assessment process in FHWA, looking at similar programs set up in other agencies that have to deal with either thousands of motor carriers or several hundred large airlines. So we are looking for them to use, at the corporate level, information they have to identify high-priority bridge safety risks.

Another business process we looked at was the attempts to encourage more bridge management system use among the States. These are computerized processes that can improve asset management. FHWA doesn't mandate that these systems be used, but we recommended that they gain information on how the different States are using these systems, so that they could then target their educational and training efforts at the States that could more fully utilize these computerized systems. And they have agreed with those recommendations and are implementing them at this time.

Mr. OBERSTAR. Yes, Mr. Herr?

Mr. HERR. Yes, Mr. Oberstar, we highlighted a similar point, and Mr. Come mentioned, and we also had talked about in our report, the element-level inspections that are being done to assess the structural integrity of bridges. So, the other side of the question that you raised is to make sure that States are state-of-the-art in that area, and the Federal Government, as well.

Mr. OBERSTAR. Well, let me then pick up on that point and move to another issue, and that is calculating bridge load ratings and also understanding better how to conduct bridge inspections.

One of the salient factors cited by the NTSB in the I-35W bridge collapse was that the gusset plate that failed was incorrectly designed. Bridge inspection, up to that point, had assumed the design and engineering integrity of the bridge itself. So we will start from whatever was built, that it was designed properly, it was built properly—no more, no longer.

It is stunning to go to the NTSB offices over at L'Enfant Plaza and see this replica of the gusset plate, a huge eight-foot by six-foot—it is not the steel; it is a replica of it—and see how big this piece of steel should have been. And that it should have been an inch thick, not a half-inch thick.

So now bridge engineering has to include—and I would hope that that would be part of the IG report—in conducting bridge inspections, to actually go back to review the design and engineering plans for the bridge itself and determine whether they were proper, whether they were done according to proper engineering practice.

If it wasn't designed and built properly, how can you proceed to the next stage and determine load ratings on that bridge? If you are counting on a one-inch-thick gusset plate, of which there are eight I think, or were, on that bridge, and if any one of them fails, the whole bridge fails, then you can't calculate a proper load rating in the real-world application, correct?

Mr. Kerley, you are a practitioner.

Mr. KERLEY. Yes, sir, I agree with you. Since one of the recommendations that came out from the NTSB report was to look at

the quality control, quality assurance of designs when they are initially done, we are working very closely with the Federal Highway Administration. They have come up with a draft that we are reviewing right now to ensure that what is designed is appropriate for the design at that time based on the design code.

So, hopefully, we will be able up front to ensure that the design is correct. And then you take from the design to ensure that the fabrication is correct. Once it gets out in the field, when the bridge inspector is looking at that, he is looking at the properly designed, properly constructed bridge for that location.

Mr. OBERSTAR. And then against that backdrop, if the IG report says that 40 percent of load ratings do not match the information submitted by States, then we are in a dangerous zone, if you will, of bridge use.

Mr. Gee?

Mr. GEE. After the NTSB reports were issued and recommendations were made, we did issue a number of technical advisories, one of which provided guidance on how to consider and analyze gusset plates. That is providing a tighter control of how inspections are done.

I think the risk-based approach to compliance reviews will include a tighter definition of how States conduct load ratings and how all of that procedural work is going to be tightened up.

Mr. OBERSTAR. I am a little troubled by use of the term "risk-based inspection practices," because it tends to have too much reliance on paper rather than on hands-on experience, evaluation. Risk-based safety practice in aviation and rail and in maritime are common practices, as they are in highway. But, as one FAA maintenance inspector said, "You have to end the paperwork and be on the shop floor. You have to put your hands on the engine, you have to put your hands on the airframe to understand what is really happening with that aircraft." And the same thing goes with bridges; you have to have hands-on at a certain point.

Mr. GEE. That is why, in 2005, when we revised the regulations, we included a requirement for fracture-critical bridges. Previously, it was an administrative policy, and we added it in the regulation to strengthen the requirement for hands-on inspection of fracture-critical bridges.

When we talk about risk-based, we are not talking about substituting paper for the hands-on inspection. The inspection still has to be hands-on. What we are talking about is looking at the frequency. Given that there are issues of adequate staffing for inspections, the question has come up about how frequently a bridge should be inspected. In Europe, they have a sliding scale for timing of the inspections, and we are considering that, but we are considering it carefully.

Mr. OBERSTAR. All of this is very important for the future of transportation as we shape the bill that I had intended to have passed through the House by now but for other impediments from other sources, the Administration included.

We have to get this thing right. We have to have a sound program for adequate numbers of Federal and State inspectors for the bridge program, adequate design and engineering standards, adequate evaluation of existing bridge structures, and employing all

the non-destructive testing technologies that are available, such as those displayed just a moment ago on the screen, and protect this massive portfolio of bridge structure in this country.

A \$98 billion backlog of costs for repair, replacement, reconditioning of bridges—it is immense. Greater than that is the cost of not doing it, as we saw with I-35W. The diversion of traffic around that bridge, the diversion of people, goods, and movement daily, that is a huge cost to the economy. Far better to make that investment in the bridge and do it right to begin with.

Mr. GEE. We agree with that, Mr. Chairman. And one of the issues that I have raised internally with our bridge staff is: An emergency shutdown of a bridge is failure. Even though it doesn't fall down, if we close a bridge unscheduled, in an unscheduled manner, that is failure.

So we have an initiative on the way, working with the States right now, to look at the management processes and how the States look at the NBI data and then the element-level data to come up with a process to anticipate problems before they reach a critical stage.

Mr. OBERSTAR. One last question: Has the Federal Highway Administration and have States followed up on I-35W? There are 460 other bridges that were designed at that same time, the mid-1960's, and built, with fracture-critical bridge structure, meaning that if one major piece fails, the bridge fails.

I understand or recall that an advisory was sent out from Federal Highway to all States. Have all States completed inspections of those bridges? And what information have they reported back?

Mr. GEE. We believe that all of the States have complied with that technical advisory. There were only a handful of bridges that were found to be of concern, and those have been followed up on.

I think the findings from the NTSB report we have also disseminated, so that the best information is available to all the States, and we are working with them.

Mr. OBERSTAR. Mr. Kerley?

Mr. KERLEY. I agree with that. I believe all those bridges have been addressed. And as King was saying, we are also doing research on the gusset plates. The initial information the FHWA and guidance they put out on how we should properly look at these things are being followed.

And then, working with the FHWA, AASHTO, and the FHWA, through NCHRP, is doing a detailed analysis and research at their Turner-Fairbank on the gusset plate so we can clearly define for people exactly what they need do in that regard.

Mr. OBERSTAR. Thank you.

Thank you very much, all of the panel. This is going to be a continuing inquiry of the Committee. I apologize to my colleagues for proceeding at such length, but, as you can see, this is a matter of great passion and concern for me.

Mrs. NAPOLITANO. [presiding.] Thank you, Mr. Chair. And any time that you have questions, I would more than be happy to allow for that line of questioning simply because of your background and expertise. So thank you, sir.

Mr. Duncan?

Mr. DUNCAN. Well, thank you, Madam Chair.

And, Mr. Gee, you started to get into something that I wanted to go into—just a couple of other questions. And one was, you earlier said that you don't have the authority to override a State's decision on where they spend their money.

But, in your oversight role, if one of your inspectors came to you and told you that a bridge was very unsafe or very dangerous, what would you do in response to that? A moment ago, you said there are only a handful of bridges that you feel are of concern and they have been followed up, or something to that effect. What happens?

Mr. GEE. That was in response to the Chairman's question about the I-35W type of bridges.

Mr. DUNCAN. Right. Oh, just that type of bridges.

Mr. GEE. Right.

Mr. OBERSTAR. If the gentleman would yield, that was in response to my question about that relatively discrete category of 461 or so bridges built at the same time, mid-1960's, with this design and engineering. He was not speaking generally.

Mr. DUNCAN. OK. All right.

Mr. GEE. But to answer your questions about what oversight we exercise if we are aware of an unsafe bridge, we will go to the State and, first, make sure we have the most recent inspection report. And if, indeed, it does need to be shut down and the State hasn't shut it down, we will basically force the State to shut it down.

There was a bridge in Puerto Rico most recently that we have been going around with the Commonwealth on. In that case, the city kept reopening it. The Commonwealth was shutting it down, the city kept reopening it. So I think we finally got to a situation where it is protecting the safety of the motorists.

Mr. DUNCAN. All right. And then earlier I mentioned that, you know, there are 603,000 public road bridges, but there were only—less than 20 percent, or 115,000, carries 71 percent of the traffic. So I said, well, we need to maybe make sure we concentrate the funding on those more high-volume bridges.

But what I am wondering about is, how many inspectors at the Federal and State level are there devoted to bridge inspections? I know they have to be inspected once every 24 months, unless given a waiver to go longer. How many Federal bridge inspectors and State bridge inspectors are there? Do you know?

Mr. GEE. The Federal Highway Administration doesn't own any bridges, and so the responsibility of inspecting the bridges is on the owners. And the vast majority of the bridges are owned by the States and locals, and they are the ones that have to have the inspectors.

Now, the Federal Highway Administration does have a core group of inspectors to do inspection on federally-owned bridges, like the National Park Service and bridges like that.

I do not have a count of how many State bridge inspectors there are.

Mr. DUNCAN. How many do you have, Mr. Kerley? Or do you know nationwide how many—

Mr. KERLEY. Nationwide, I don't know. But for Virginia, I can tell you we do about 10,000 bridge safety inspections a year. We have 100 people that are bridge inspectors. And about 20 percent

of our inventory we use consultants to supplement our people. And we spend about \$22 million a year on bridge safety inspections.

Mr. DUNCAN. All right. Thank you very much.

Mrs. NAPOLITANO. Thank you, Mr. Duncan.

And one of the things, Mr. Gee, you did mention was that you have looked at some of the new technology in Europe and other areas, and are also looking at the outside, the public sector. What about UTC, the University Transportation Centers, are they being part of trying to find the solutions for some of the issues?

Mr. GEE. We very much work with the University Transportation Centers. Oftentimes, they have the funding for different areas of work that they have identified, so we try to align what their interests are with what we consider to be the national needs. We work very closely with the individual centers to see what they will come up with.

We also use the individual university centers for training and getting information back out to the local governments.

Mrs. NAPOLITANO. Does the Department fund the universities?

Mr. GEE. Yes, they do.

Mrs. NAPOLITANO. And you wait for them to tell you what they are going to look at?

Mr. GEE. Often, they will identify the area of concentration that the consortium is putting forward. Part of the RITA, the Research and Innovative Technology Administration, passes on which UTCs get funded.

Mrs. NAPOLITANO. But if there is specific technology that you are looking for, do you not suggest to them that they need to start looking at what can be used, what is being used in Europe, and then apply that?

Mr. GEE. As part of the international scanning program that we have, there is an implementation plan that has to be part of the effort so that we don't just find something and it languishes. They have to individually identify which are the best mechanisms to advance that technology, and sometimes it may involve a UTC.

Mrs. NAPOLITANO. Well, maybe they can begin to work and look at European methods and test—or at least provide you with some information as to the validity.

Director Herr, none of the State DOTs you visited in preparing your 2008 report were able to provide comprehensive data on total State and local investments in bridges. In the GAO's work since that report, have you found any evidence that States are now better able to track and report State and local bridge spending?

And I would also like for Mr. Kerley to comment on that.

Mr. HERR. I am not aware of any change that has occurred since 2008 when we issued the report.

Mr. KERLEY. We set our budget, so we know what is set in the budget. But, as I think Mr. Gee mentioned earlier, we do use multiple funding on some projects, and we don't have a system now where we actually go in and pull out to report what is in bridges and what is in those different categories.

So we will probably spend more than what we actually have budgeted in the bridge program that are in other programs included in other projects.

Mrs. NAPOLITANO. Is there a standardized tracking system that is used in the industry to be able to input information and be able to keep track of the status and the funding?

Mr. KERLEY. Not that I am aware of. And I think that is what showed up in one of the reports here that came out. We just don't track it from that viewpoint. If we are not using bridge funds, it may fall in in a different category. And there may be bridges on there that may not get picked up. It doesn't automatically pull it out when you want to—for instance, you would query the system on all expenditures on bridges. It may have been included in a segment of a road construction, and you wouldn't have pulled it out in that regard.

Mrs. NAPOLITANO. Well, with the advancement of technology and innovative software, you would think there would be something to be able to provide the States the ability to do some of that tracking.

And, also to Mr. Herr, you have testified on GAO's previous finding that, since the mid-1990's, increases in Federal highway funding have been accompanied by decreases in State highway spending and have recommended Congress consider a maintenance-of-effort requirement on States that receive Federal highway funding.

Mr. Kerley has stated in his written testimony that an MOE provision would reduce funding in an already-strained time. Wouldn't an MOE increase, rather than reduce, highway spending?

And based on your experience, would you have reason to believe the States would reduce their State-level spending if it required them to leave Federal funds on the table?

And, in this regard, isn't an MOE requirement fundamentally similar to the required non-Federal share, which is a long-established requirement for most Federal aid highway programs?

And Mr. Kerley again or anybody else who would like to comment.

Mr. HERR. Yes, one of things that we have noted over the years based on some prior work the GAO has done is that there has been some reduction in State spending. The key concept behind maintenance of effort is that States maintain their level of expenditure.

And, in fact, with the Recovery Act, with the maintenance-of-effort requirement that is included there, there is an interesting opportunity, although during a time of a lot of fiscal difficulty for States, to take a look at how that has been operating. And, in fact, we have an open recommendation to DOT that they produce a report by this fall that talks about the maintenance-of-effort experience at the State level, provide some lessons learned, how that has worked, and whether or not States, in fact, have left some money on the table.

I think, given the identified needs that we have discussed today, especially with the bridge program, it would be somewhat surprising if States did leave funds on the table.

Mrs. NAPOLITANO. Thank you.

Mr. Kerley, any comment?

Mr. KERLEY. States are spending more money on their bridges than they receive from the Federal Government for the bridge program. Even though they transfer funding to other categories, they could still use them on a segment of a road that have bridges in it; they are just not reporting it in that way. So—

Mrs. NAPOLITANO. Isn't that to their detriment, though?

Mr. KERLEY. It would appear to me, yes, depending on how you are going to look at it, yes, ma'am.

If the reporting requirement was there, the States would report it that particular way. They try to manage their funds to maximize the use of all Federal funds they receive, and that is the bridge program and all the other programs that come from Federal Government.

So if they shift bridge funding around, they are probably supplementing that with State funding. For the total of what they are spending per year, it would be greater than what they receive from the Federal Government.

Mrs. NAPOLITANO. Well, you just stated you can't track what the State spends on bridge projects and bridge repair, or at least, you know, that goes in and out. If so, what was the basis for the numbers you are citing on how much the States spend on bridges?

Mr. KERLEY. I will get back with you directly on that, other than the amount of State money that is being spent, plus the amount of local money, plus the amount of Federal money. So you may have shifted some Federal money to other programs that maybe you are not tracking, but you supplemented that with the local or State money.

But I would be happy to get back with you exactly on that.

Mrs. NAPOLITANO. If you would, please. I am sure the Subcommittee would like to be enlightened on that.

Mr. KERLEY. Yes, ma'am.

Mrs. NAPOLITANO. Thank you.

Mr. OBERSTAR, any further questions or comments?

Mr. OBERSTAR. Thank you, Madam Chair. One follow-up to the question Mr. Duncan raised.

Mr. Gee, what tools has the Federal Highway Administration used to enforce compliance? Has Federal Highway, for example, ever withheld State funding for noncompliance?

Mr. GEE. It is not a matter of withholding funding as much as withholding approval on projects. We have threatened on a number of occasions, but those particular States have taken steps to address our concerns. So, in my memory, we have not actually withheld any approvals.

Mr. OBERSTAR. You have not withheld approvals.

Mr. GEE. Right.

Mr. OBERSTAR. But that is a tool available.

Mr. GEE. It is. And we have threatened it at least twice in the past 6 months.

Mr. OBERSTAR. Well, the threat is good; carrying it out is more important. Mr. Kerley probably doesn't like to hear that, as a practitioner on the front line of highways.

I am going to give Mr. Kerley, Mr. Gee, Mr. Come, an opportunity to give us your priorities for the future of bridge construction, inspection, maintenance, and oversight for the next 6 years of the surface transportation program.

Don't all speak at once.

Mr. COME. I will be glad to start first.

First of all, we think Federal Highways needs to roll out their improved national bridge inspection program, their improved over-

sight of the States' annual program. It has to be data-driven. It has to have minimum standards. It has to identify key problems and then be able to present whether a State is in substantial compliance or not, using consistent guidelines. And then they need consistent guidelines for enforcing those actions. I think those would be beneficial for the health of the program, and they will also provide the States with consistency, as well.

Secondly, we want them to fully implement efforts to address high-priority, nationwide bridge safety risks. They have developed a corporate risk program that identifies risk, but on top of that you need to link those risks with action plans at the division level. So we are calling for more clarity on what direction the division offices have in order to address those high-priority risks.

And, third, the last point that was touched on, this whole problem with collecting and analyzing sufficient expenditure information. Because you can't, right now, tell how much a State is spending on structurally deficient bridges, particularly important ones on the National Highway System that carry the bulk of the traffic.

Acquiring the information to do that is going to be hard, but if we don't start now to improve our current tools, we won't meet our goal.

So those would be the three major things we would like to see done, Mr. Chairman.

Mr. OBERSTAR. Very good. Very good. Very, very doable. Very much in line with what we were already thinking in our surface transportation bill.

Mr. Gee.

Mr. GEE. I think the first priority is to make sure that we know what we have out there not just in terms of how many bridges that we have, but the way they stand not just in terms of structural deficiency or functional obsolescence, but in terms of how much remaining service life we have on individual bridges so that we know what the size of the problem is that is coming at us and that we can manage it.

So obviously preservation is a huge part, asset management is a huge part of that, to make sure that we manage what we have so that we can deal with the challenge in a very comprehensive, systematic and a logical manner.

Oversight is an issue. We very much appreciate the GAO and the Inspector General's audits. As you know, it was Secretary Peters who asked the Inspector General to review us. The reality is that in the 1970's, we had our own auditors, but then we ceded all the auditors to the IG through a reorganization, so we don't have that function to be able to audit ourselves in a sense. But we have since created a program management improvement team that will continue to help us to improve on our own management of the program.

The other thing that happened was through some reorganizations more than 10 years ago, we lost some consistency from State to State to State. And with these new oversight processes we are planning to implement in 2011, we will have a strong assurance that we will be able to regain that consistency. And that process actually will augment our risk assessments. That tightened over-

sight process will actually help us identify risk areas throughout the country.

Mr. OBERSTAR. That is a very important contribution, very important statement. Thank you for that.

Mr. GEE. And the last point is performance management. As I noted in my testimony, the program is very much an eligibility program from our perspective. We have been monitoring bridge performance for over 20 years, but it has been a process of monitoring and encouraging the States to address the trend. So we have aspirational goals for the performance, but we do not have the legal mandate to engage in an oversight role on the performance side.

Mr. OBERSTAR. You need a legal—you need more legal authority for that practice?

Mr. GEE. I am not prepared to say that yet. But we have been working very closely with AASHTO through their Standing Committee on Performance Management to identify performance metrics and to begin to talk about what appropriate targets may be.

Mr. OBERSTAR. Thank you. That is very helpful.

Mr. Herr.

Mr. HERR. One thing that we think would be useful in setting a broader framework or vision for this would be to define goals, have a better understanding of what the national interest is. With that there could be a shared vision in terms of where the program would be going, and developing metrics that would permit assessing success or the lack thereof. So with regard to bridges, for example, you may have metrics to measure change in condition, but those could be tied back to expenditures.

Some of the questions today that we have been wrestling with are how much is being spent, and what are we getting for that? So with that kind of framework in place, that would hopefully put all of us in a better position in a few years when we come back to look at this issue again.

Mr. OBERSTAR. Thank you.

Mr. KERLEY. As an owner of bridges, I would probably say funding, funding, funding for the top three, sir, but I will give you some other thoughts also.

One, I think that we need to emphasize asset management; we need to address those deficient bridges; we need to think about all those cusp bridges that are getting ready to fall in that category; how can we maximize the money that we have, and the most cost-effective thing we can do. We need to emphasize preventative maintenance in that particular area.

And third, we need to go state-of-the-art, both in the inspection program and design program, the type of materials that we are using for long-term performance supporting, since this is a long-term bridge performance that you mentioned. Those are the things that we need to concentrate on now: asset management, preventative maintenance, and use of the state-of-the-art things for the future.

Mr. OBERSTAR. On that score, and those are very well thought out, very pragmatic recommendations that you have made, but go back to a point I raised earlier, that we in our future of transportation require State DOTs to develop 6-year strategic investment

plans. In exchange for compressing the 108 categories of Federal-aid highway programs that exist today into four formula programs with more flexibility within those four formulas—in exchange, States are required to develop 6-year strategic investment plans with annual benchmarks of performance and annual reporting so there is accountability, transparency and clarity about what States are planning to do with the Federal increase—substantially increased Federal funding we will provide in this bill; that within that structure, as I just described it, to require States to—this is what we have proposed to do—require States to certify they have addressed the bridge needs or the surface transportation state-of-good-repair needs—this would be in our first category—and have fully addressed all of the needs they have set forth in their plan, and then have flexibility to address such things as capacity out of that state-of-good-repair category of funding.

What is your reaction to that?

Mr. KERLEY. I guess my first reaction would be the devil is in the details, sir. The States are not opposed to performance plans, et cetera. I would imagine it would be interesting to see at what levels or what performance targets people are setting out there, and is there sufficient funding based on where the system is right now to meet that goal. So I think as any new program, getting it up and running, getting the kinks out, consistency across the country, the implementation of that would probably be a concern that we would have initially.

Mr. OBERSTAR. What we have today is essentially a revenue-sharing program. The Federal Government collects the taxes, by formula redistributes or distributes those dollars to the States. The State DOTs have in the past said, all right, fine, give us the money, we will do the job. Now we are saying, we will give you the money, but give us a plan first of all; show us how you are going to use the money, be accountable to your public and to the national public, and through the Council on Intermodalism, which we establish in this bill, to establish a national program.

Now, that doesn't mean that Virginia roads are built to the same standards as Minnesota roads or to New Mexico roads where the temperatures go to 114, 115 degrees, or to ours where they go to 80 below zero once in a while, but certainly 50 below zero with some frequency in the winter, and the snow and the salt loadings or the melt material. There are all these variations in climate, geography, geology and travel use that we have to account for. But nonetheless, there should be a national program, not just a revenue-sharing distribution program. And where we give States flexibility, as we have seen with the bridge program, they shift the dollars out of the bridge program and then complain to the public and to the Congress that, well, we need more money for bridges, when they have transferred up to half of the money out of the bridge program to use it on other purposes. That doesn't resonate well here.

So, yes, there are a lot of details in this. And we have them all available, and we will send you by e-mail the provisions of our restructuring of the surface transportation program, and love to have your comments on it.

All right. Madam Chair, thank you very much for—and to all of the Members of the panel for your responses, for your contribution

today. We will continue this inquiry over the coming weeks and months.

Mrs. NAPOLITANO. Thank you, Mr. Chairman, for your great clarity on some of these issues that are very, very key to us. And I am submitting a question for the record in regard to Alameda Corridor, Alameda Corridor East, in a race to the train route that goes to delivery of goods to the rest of the Nation, and any of those bridges that will be utilized on the train route, whether or not they are in need of critical repair, because the Chairman brought up that issue, and I think it is important to start dialoguing on that.

And with that, Mr. Chairman, I believe this adjourns today's meeting. And we thank the witnesses for their eloquent testimony and for being with us today. This meeting is now adjourned.

[Whereupon, at 12:10 p.m., the Subcommittee was adjourned.]



**STATEMENT OF THE HONORABLE PETER A. DEFazio  
CHAIRMAN  
SUBCOMMITTEE ON HIGHWAYS AND TRANSIT  
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE**

**HEARING ON  
OVERSIGHT OF THE HIGHWAY BRIDGE PROGRAM  
AND THE NATIONAL BRIDGE INSPECTION PROGRAM**

July 21, 2010

- It has been nearly three years since the tragic collapse of the I-35W Bridge in Minneapolis opened the Nation's eyes to the decrepit state of our infrastructure.
- That bridge collapse gave us a concrete example of the negative consequences of our lack of infrastructure investment.
- It also brought to light problems with the accuracy and quality of information that the Federal government possesses regarding the condition of our bridges and how States are investing Highway Bridge Program (HBP) funds.
- There have been several reports from the Inspector General (IG) and the Government Accountability Office (GAO) that have raised serious questions about the Federal Highway Administration (FHWA)'s management and oversight of State bridge programs.
  - A 2006 IG report found that one out of ten structurally deficient bridges on the National Highway System (NHS) had inaccurate load rating calculations. Furthermore, signs were not posted on nearly eight percent of bridges that were required to have maximum safe weight signs posted.
  - In 2008, the GAO found that it was difficult to determine what role Federal funding and the HBP had on improving the Nation's deficient bridges.
  - A January 2010 IG report found that FHWA is unable to reliably evaluate the effectiveness of HBP funding in addressing the Nation's backlog of deficient bridges. Additionally, FHWA has little assurance that States comply with bridge inspection standards or that FHWA is consistently addressing the highest priority bridge safety risks.
  - The 2010 IG report also found several cases where bridge engineers reported substantial compliance with the HBP in spite of deficiencies that could pose serious risks to public safety, including one case where a FHWA bridge engineer judged a state to be substantially compliant with HBP requirements despite reporting that the State failed to close 96 bridges, as required by the most recent bridge inspection.

- These reports are very troubling. They point to a real lack of oversight of the State bridge programs and bring into question the quality and number of bridge inspections and the quality of data submitted into the National Bridge Inventory (NBI).
- It's startling to me that we invest \$5 billion annually in Federal funding to inspect, improve, and replace deficient bridges, and yet we don't know if those funds are actually making bridges safer or on what specifically the funds are even spent.
- American motorists might not know exactly who is setting highway bridge performance targets or what those targets are – but they have a right to know that the bridges they cross every day are safe.
- Drivers shouldn't have to worry that their State might have failed to post a sign letting them know the bridge they cross daily is weight-limited.
- They shouldn't have to worry that their daily commute might involve crossing a bridge that should be closed to traffic but isn't because of a lack of oversight.
- And they should be able to trust that their gas tax dollars are being invested wisely and efficiently to improve bad bridges and to prevent good bridges from falling into disrepair.
- This hearing will help inform our continued work to complete the Surface Transportation Authorization Act, and I look forward to hearing from our witnesses today.
- Thank you.



Sam Graves  
MO-6

**Congressman Sam Graves**  
**Opening Statement**  
**Subcommittee on Highways and Transit**  
**“Oversight of the Highway Bridge Program and the National Bridge**  
**Inspection Program”**  
**July 21, 2010**

[WHEN RECOGNIZED]

I would like to thank Chairman DeFazio and Ranking Member Duncan for allowing me the opportunity to participate at this hearing today. My primary interest in attending is to address the Highway Bridge Program (HBP), a program of significant importance to my constituents.

As members of this committee know, the HBP in SAFETEA-LU requires states to expend “Not less than 15% of the

amount apportioned to each State...for projects to replace, rehabilitate and perform systematic preventive maintenance...to highway bridges located on public roads, other than those on a Federal-aid highway.” It is my understanding the committee’s current draft surface transportation reauthorization proposal consolidates the HBP and other programs into a Critical Asset Investment Program, effectively eliminating the 15% annual dedicated funding for off-system bridges. These funds are critically important to states such as mine. Missouri is home to

more than 13,000 off-system bridges, of which more than 2,500 are structurally deficient and 1,700 are functionally obsolete.

The off-system bridge requirement in the HBP has provided Missouri and every State in our country with critical dedicated funding to rehabilitate, repair or construct new off-system bridges to provide safe, and often times sole, transportation routes for school buses, emergency responders, farmers, veterans, senior citizens and small businesses. If Congress decides to eliminate the 15%

set aside, the roughly 4,200 deficient or inefficient off-system bridges in Missouri would fall further into disrepair.

The off-system bridge program is unique in that it is one of the most efficient highway programs created to repair and maintain structurally deficient and functionally obsolete bridges. A GAO report on the HBP released in September 2008 states, “Improvements were most notable in bridges owned by local agencies on rural routes, which may be attributable to the Federal bridge

program requirement – under HBP and some of its predecessor programs – that states spend a minimum amount of their apportionment on non-Federal-aid highway bridges.”

Last year I introduced H. Res. 848, a bipartisan measure which expresses support for the continuation of the off-system bridge program and a dedicated funding source. I appreciate the committee leadership’s consideration of my request to include this resolution at a future markup and look forward to continuing our dialogue on the possible

reinstatement of a dedicated funding source for off-system bridges in a future surface transportation reauthorization draft.

Again, I want to thank Chairman DeFazio and Ranking Member Duncan and all members of this subcommittee for allowing me to participate in this hearing.

I yield back.



Statement of Rep. Harry Mitchell  
House Transportation and Infrastructure Committee  
Subcommittee on Highways and Transit  
7/21/10

Thank you, Mr. Chairman.

Today we will discuss oversight by the Federal Highway Administration (FHWA) of the Federal Highway Bridge Program (HBP) and the National Bridge Inspection Program (NBIP).

As the tragic collapse of the I-35W highway bridge in Minneapolis demonstrated in 2007, it is critical to ensure that our bridges are safe.

According to the Bureau of Transportation Statistics, 70,954 of the nation's 601,126 bridges, or 11.8 percent, are structurally deficient.

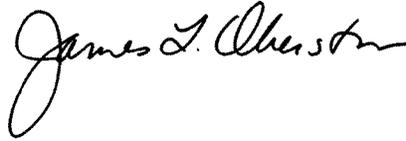
When it comes to structurally deficient bridges, Arizona is a relatively lucky state. We are a growing state, and a good deal of our infrastructure is new. We are also an arid state, and as a result, our bridges are subject to less decay-causing moisture.

Still, we need to ensure that what we build is well maintained.

According to the Bureau of Transportation Statistics, as of 2009, out of Arizona's 7,494 bridges, 210, or 2.8 percent, are considered structurally deficient.

But when it comes to safety, it doesn't really matter if it is 2.8 percent or 20.8 percent, we need to ensure that all our bridges are well maintained.

I look forward to hearing more from our witnesses today about how to ensure that our nation's bridges are safe.



STATEMENT OF  
THE HONORABLE JAMES L. OBERSTAR  
HEARING ON  
“OVERSIGHT OF THE HIGHWAY BRIDGE PROGRAM AND THE NATIONAL BRIDGE  
INSPECTION PROGRAM”  
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,  
SUBCOMMITTEE ON HIGHWAYS AND TRANSIT  
JULY 21, 2010

- I want to thank Chairman DeFazio and Ranking Member Duncan for holding this hearing today. As you know, I am passionate about improving the condition of our Nation’s bridges, and, while we have seen some improvement in recent years, we still have much to accomplish.
  
- After the September 2007 collapse of the I-35W highway bridge in Minneapolis, Minnesota, the Inspector General (IG), at the request of the Secretary of Transportation, conducted two evaluations of the Federal Highway Administration’s (FHWA) management of bridge safety and oversight of the Federal Highway Bridge Program (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. Furthermore, in 2008, a Government

Accountability Office (GAO) investigation of the HBP concluded that the program requires clearer goals and performance measures.

- The purpose of today's hearing is to examine the issues raised by the IG and GAO reports, and to discuss the steps that can be taken to reinvigorate FHWA's oversight of the Federal bridge program and State bridge inspections.
  
- Of the 603,245 bridges in the National Bridge Inventory (NBI), 149,647 bridges (24.8 percent)—nearly one in four—are structurally deficient or functionally obsolete.
  
- The National Highway System, which carries approximately 71 percent of average daily bridge traffic in the United States, currently has 5,977 structurally deficient bridges and 117,302 functionally obsolete bridges.
  
- From 1998 through 2007 the Federal-aid highway program provided over \$45 billion in HBP funding. Yet, over that ten year period the proportion of the Nation's total bridge deck area that was deficient declined only slightly, from 32.6 percent to 30.1 percent.

- And we continue to face a tremendous and growing bridge backlog: according to the U.S. Department of Transportation (DOT), more than \$98 billion could be invested immediately in a cost-beneficial way to replace or otherwise address existing bridge deficiencies.
  
- With over one-half of our bridges built before 1964, it is increasingly important that we have reliable information on the safety of these structures. It is imperative that we accurately identify structural flaws and recognize when the appropriate time comes to load-limit, repair, or reconstruct a bridge.
  
- In 2007, the Committee on Transportation and Infrastructure and the Subcommittee on Highways and Transit conducted in-depth hearings into the Highway Bridge Program and the National Bridge Inspection Program (NBIP).
  
- Based on these hearings, in July 2008 the House passed H.R. 3999, the “National Highway Bridge Reconstruction and Inspection Act of 2008”, which included a variety of provisions to strengthen the NBIP and Federal oversight over bridge inspections.

- The bill passed the House by a vote of 367 to 55. Unfortunately, the Senate did not follow our lead, and the bill was never enacted into law.
  
- Since 2006 the IG has conducted three separate evaluations of FHWA's oversight of the HBP and NBIP. Based on the results of those investigations, it is clear that FHWA and the individual States can do much more to better safeguard and improve our Nation's bridges.
  
- In 2006 the IG reported on a number of deficiencies in States' load-rating of bridges and failure to post bridge weight limit signs. According to the IG:
  - States frequently made errors in calculating bridge load ratings, and one in ten structurally deficient bridges on the National Highway System were incorrectly load-rated;
  - More than 40 percent of State-level load ratings posted on NHS bridges did not match the information the State submitted to the NBI; and
  - Nearly eight percent of structurally deficient bridges in the NHS were required to have maximum safe weight signs posted on them, but were not posted, allowing overweight vehicles to cross them.
  
- These disturbing inconsistencies must be corrected.

- In 2009, the IG issued a follow-up report on FHWA progress in response to the 2006 audit. In this report the IG noted FHWA's implementation of corrective actions to improve the consistency and accuracy of its evaluations of state compliance with the NBIS. However, the IG also reported that FHWA divisional engineers often failed to utilize the corrective measures.
  
- Furthermore, according to the IG, FHWA divisional offices also missed opportunities to identify and remediate significant bridge safety risks.
  
- In 2010, the IG issued a report on FHWA oversight of the HBP and the NBIP. This report found that FHWA was unable to track the effectiveness of HBP funding in actually mitigating bridge deficiencies.
  
- The IG also identified serious anomalies and inconsistencies in FHWA's assessment of overall state compliance with the NBIP. In one instance, a State failed to close 96 bridges as required by the NBIS, yet the FHWA divisional engineer nonetheless reported the State to be in compliance. In two other instances, States failed to properly post required weigh limitations for, respectively, 200 and 500 bridges. Yet, again the respective FHWA divisional engineers nonetheless reported the States to be in compliance with the NBIS.

- This is unacceptable. Bridges, and bridge sufficiency, are critical to ensuring the safety of the traveling public. The IG reports expose serious deficiencies in FHWA's oversight of State bridge programs, and demonstrate that lack of serious oversight and accountability in the current highway program.
  
- On June 24, 2009, this Subcommittee approved the Surface Transportation Authorization Act of 2009 – a six-year bill to transform the Federal surface transportation program.
  
- That bill includes a variety of provisions to strengthen the NBIS and Federal oversight over bridge inspections – including many provisions taken from the National Highway Bridge Reconstruction and Inspection Act of 2008.
  
- These bridge-related provisions are among the many reasons that Congress must delay no longer in passing a comprehensive surface transportation authorization bill. However, even in the absence of an authorization bill, the issues raised by the Inspector General and GAO remain important, and deserve our full attention.
  
- I look forward to hearing the witnesses' testimony today.

**Before the Committee on Transportation and Infrastructure  
United States House of Representatives  
Subcommittee on Highways and Transit**

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For Release on Delivery  
Expected at  
10:00 a.m.  
Wednesday  
July 21, 2010  
CC-2010-066

## **FHWA Has Taken Actions But Could Do More to Strengthen Oversight of Bridge Safety and States' Use of Federal Bridge Funding**

**Statement of Joseph W. Comé  
Assistant Inspector General for  
Highway and Transit Audits  
U.S. Department of Transportation**



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Mr. Chairman, Ranking Member Duncan, and Members of the Subcommittee:

Thank you for inviting me here today to discuss the Federal Highway Administration's (FHWA) oversight of the Highway Bridge Program and the National Bridge Inspection Program. Maximizing Federal surface transportation investments to improve bridge conditions is an important and major challenge. According to FHWA, about one-quarter of the Nation's more than 600,000<sup>1</sup> bridges have major deterioration, cracks in their structural components, or other deficiencies. FHWA has estimated that approximately \$100 billion would be needed to address current bridge deficiencies and make other improvements.<sup>2</sup> The collapse of the Interstate 35W Bridge in Minneapolis, Minnesota, on August 1, 2007, focused attention on the need to maximize bridge investments and the importance of having strong bridge safety programs.

Over the last 4 years, we have issued three reports on FHWA's bridge oversight,<sup>3</sup> and while FHWA has responded positively to our recommendations, further actions are needed to enhance oversight of bridge safety and related funding. My testimony today focuses on FHWA's efforts to (1) implement a data-driven, risk-based approach to overseeing the Nation's bridges, (2) ensure that states comply with bridge inspection standards, and (3) strengthen its oversight of states' use of Federal bridge funding.

## IN SUMMARY

FHWA has taken action to implement risk-based oversight in the bridge program and to enforce more consistently the National Bridge Inspection Standards (NBIS). For example, FHWA has developed a risk assessment program to identify high-priority bridge safety risks. FHWA also launched an initiative, which it is currently piloting, to determine states' overall compliance with the NBIS by using specific risk-based metrics that are linked to the standards, such as those for inspection frequency. Despite these actions, sustained management attention is needed to ensure that identified safety risks are addressed, and that planned improvements in the inspection oversight program are implemented in

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<sup>1</sup> This estimate is based on 2009 data.

<sup>2</sup> This is the most recent estimate, according to FHWA's 2008 Conditions and Performance report. The report is based primarily on 2006 data in constant 2006 dollars.

<sup>3</sup> OIG Report Number MH-2006-043, "Audit of Oversight of Load Ratings and Postings on Structurally Deficient Bridges on the National Highway System," March 21, 2006. OIG Report Number MH-2009-013, "National Bridge Inspection Program: Assessment of FHWA's Implementation of Data-Driven, Risk-Based Oversight," January 12, 2009. OIG Report Number MH-2010-039, "Assessment of FHWA Oversight of the Highway Bridge Program and the National Bridge Inspection Program," January 14, 2010. OIG reports and testimonies are available on our website: [www.oig.dot.gov](http://www.oig.dot.gov).

time for FHWA's next inspection of states' compliance with Federal bridge standards.

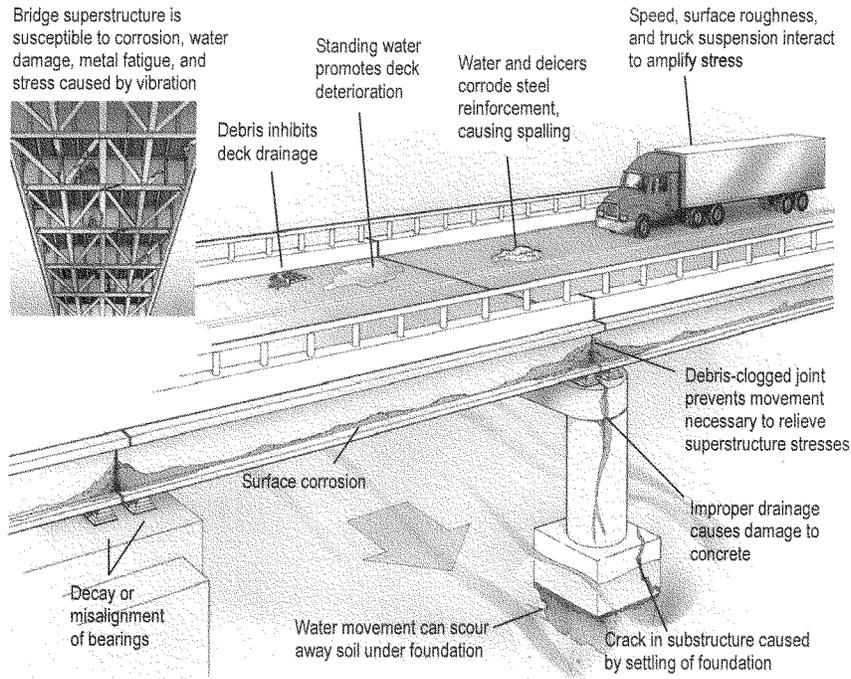
Less progress has been made in acquiring data to evaluate states' use of Highway Bridge Program (HBP) funding. Current practices do not ensure that states are using this funding effectively to improve the condition of deficient bridges. We also identified concerns related to the effective use of bridge funds provided through the American Recovery and Reinvestment Act (ARRA). FHWA has expressed concern about taking action to acquire better data on bridge funding because its efforts could be affected by changes to the Federal-aid program and the HBP resulting from the next highway authorization bill. However, taking action now to develop improved tools for assessing the effectiveness of current bridge funding could put FHWA in a better position to quickly respond to new statutory requirements.

## **BACKGROUND**

In the late 1960s, following the collapse of the Silver Bridge over the Ohio River, Congress determined, through a series of hearings, that addressing serious bridge safety concerns should be a national priority. In 1971, FHWA issued standards for identifying, inspecting, evaluating, and acting on bridge deficiencies to ensure that bridges are safe. Despite these standards, however, major bridge collapses occurred over the next several decades that investigations showed were caused at least in part by structural deficiencies created by climate and other environmental conditions.

While states are responsible for ensuring that bridges within their jurisdictions are safe, FHWA is responsible for overseeing states' efforts and providing technical expertise and guidance in the execution of bridge inspection, repair and maintenance, and remediation activities. As of December 2009, approximately 6,000 of the more than 117,000 bridges in the National Highway System inventory were classified as "structurally deficient" due to major deterioration, cracks, or other deficiencies in their structural components (see fig. 1). In some cases, structurally deficient bridges require repair or closure. However, most bridges classified as structurally deficient can carry traffic safely if they are properly inspected, maximum load ratings are properly calculated, and maximum weight limits are posted, when necessary.

**Figure 1: How a Bridge Can Become Structurally Deficient**



Source: Illustration by Jana Brenning. Copyright Jana Brenning. Reprinted with permission. Illustration first appeared in *Scientific American*, March 1993.

### **FULL IMPLEMENTATION OF PLANNED ACTIONS IS NEEDED TO TARGET HIGH-PRIORITY BRIDGE RISKS**

A data-driven, risk-based approach to overseeing the Nation's bridges is critical to ensuring that Federal oversight activities target the most significant bridge safety risks. While FHWA has made progress in developing a risk-based oversight approach, its success hinges on the full implementation of initiatives with clear direction for Division Offices on how to address identified risks, and actions to ensure that new requirements are followed across the states.

In January 2009, we reported that FHWA had made limited progress in implementing a risk-based approach.<sup>4</sup> For example, only one-third of the bridge engineers at the 10 Division Offices we reviewed used FHWA's recommended guidance and tools, including National Bridge Inventory (NBI) data<sup>5</sup> reports. By not using the data reports, bridge engineers missed opportunities to coordinate with states to identify and remediate bridge safety risks. In addition, FHWA did not routinely exercise systematic data-driven oversight to comprehensively identify nationwide bridge safety risks, prioritize them, and target those higher priority risks for remediation in coordination with states.

To better ensure that higher-priority bridge deficiencies and safety risks are targeted, we recommended that FHWA develop a comprehensive plan to routinely conduct systematic, data-driven analysis to identify nationwide bridge safety risks, prioritize them, and target those higher priority risks for remediation in coordination with states. We also called for action to ensure prompt correction of inaccurate bridge data reported to FHWA.

Our preliminary review of actions taken to date indicates that FHWA has identified high-priority bridge safety risks nationwide, with input provided by its Office of Bridge Technology, which manages the National Bridge Inspection Program. FHWA also issued a February 2009 memorandum to Federal Lands Highway Division Engineers and Division Administrators notifying them that NBI data files submitted with significant errors would be returned to them for immediate resolution. Based on these actions, we closed the recommendation on developing a requirement for states to promptly correct inaccurate data submitted to FHWA for the NBI.

To fully implement its data-driven risk based approach and ensure that Federal oversight activities address the Nation's most significant safety risks, FHWA will need to carry out its commitment, made in response to our 2009 report, to direct Division Offices to work with states to mitigate high-priority bridge safety risks identified in past reviews of state bridge programs. Although we had not previously received a response on this matter, as we were finalizing our statement for this hearing, FHWA provided us with information that it states addresses this commitment. However, we will need to fully review this information to ensure that the recommendation is being carried out. Further, since data quality is critical to this approach, FHWA needs to ensure that its new policy on correcting data inaccuracies is followed.

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<sup>4</sup> OIG Report Number MH-2009-013.

<sup>5</sup> The National Bridge Inventory is a database maintained by FHWA using data states submit annually on the Nation's public highway bridges.

### **FHWA INITIATIVES TO ENSURE STATES COMPLY WITH BRIDGE INSPECTION STANDARDS MUST BE COMPLETED BY YEAR'S END TO INFORM THE NEXT INSPECTION CYCLE**

Previously, we reported that FHWA Division Offices lacked sufficient guidance on conducting consistent reviews of states' compliance with the NBIS. FHWA has initiatives underway to address our prior recommendations to provide bridge engineers with criteria that would allow them to determine, with greater consistency, whether states demonstrate overall compliance with NBIS. FHWA is also developing risk-based guidance that defines the procedures that Division Offices should follow in enforcing compliance. However, to ensure the improved criteria and guidance are used during the next NBIS compliance inspection cycle, scheduled for 2011, these initiatives will need to be completed by the end of 2010.

FHWA bridge engineers,<sup>6</sup> in conjunction with other Division Office officials, are responsible for determining whether states comply with NBIS bridge safety requirements, including the frequency of inspections, inspection personnel qualifications, and the data that states are required to report. Annual NBIS compliance reviews include bridge field reviews, interviews with state bridge staff, and reviews of state bridge inspection data. To enforce NBIS requirements, FHWA may require a non-compliant state to develop a plan to correct a deficiency. FHWA can ultimately suspend Federal-aid highway funds if a deficiency is not corrected.

In January 2010, we reported that the ability of FHWA bridge engineers to determine states' overall compliance was hindered by a lack of clear and comprehensive guidance from FHWA.<sup>7</sup> For example, of the 11 bridge engineers we surveyed, 7 responded that FHWA's guidance did not adequately define when to suspend funds. Consequently, Federal-aid highway funds were provided to states with serious incidents of noncompliance. In one case, a bridge engineer reported to FHWA that a state was substantially compliant, despite the state's failure to close 96 bridges, as required by bridge inspection standards.

To strengthen enforcement of bridge inspection standards, we recommended that FHWA develop detailed criteria to help bridge engineers determine with greater consistency whether states demonstrate overall compliance with NBIS. We also recommended that FHWA develop a policy providing clear, comprehensive, risk-based guidance that defines the procedures that Division Offices should follow to enforce compliance with the NBIS. FHWA's enforcement actions, such as the

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<sup>6</sup> Typically, one bridge engineer is located in each Division Office. The person responsible for conducting the annual review could have a job title other than bridge engineer, such as structures engineer. Division Offices are located in each state, the District of Columbia, and Puerto Rico.

<sup>7</sup> OIG Report Number MH-2010-039.

amount of time states are given to remediate deficiencies and whether to suspend Federal-aid highway funds, should reflect the results of a data-driven assessment of each risk's significance and its possible effect on bridge safety. Stronger enforcement actions would be necessary for cases in which higher priority safety risks are identified.

According to FHWA officials, the agency is developing a uniform definition of NBIS compliance and data-driven, risk-based metrics for assessing state compliance, and focusing on identifying opportunities to improve current practices, establish minimum expectations, and increase uniformity in oversight practices. They also reported starting a pilot initiative in 12 Division Offices using the new metrics, and a prototype database for recording results and generating reports. According to FHWA, it plans to have a new process in place for conducting the 2011 annual compliance reviews of the states.

While FHWA's planned actions are consistent with our recommendations, their success will depend on the results of the ongoing pilot project using the new metrics, and FHWA's ability to evaluate results and translate them into specific lessons learned in a timely manner. We will continue to monitor FHWA's progress in meeting the December 31, 2010 target date for the nationwide roll-out of this program and ensuring consistent enforcement of bridge safety standards.

### **STRENGTHENED OVERSIGHT OF STATES' USE OF FEDERAL BRIDGE FUNDING IS NEEDED TO MAXIMIZE THE RETURN ON INVESTMENT**

FHWA lacks sufficient data to evaluate whether the billions of dollars apportioned to states through the HBP,<sup>8</sup> and billions more in ARRA dollars, have been used to improve the condition of the Nation's most deficient bridges. In addition, FHWA regulations on value engineering studies—which states are required to conduct on high-cost highway and bridge projects—are out of date. Greater use of value engineering could help states stretch limited Federal dollars and put them to better use on other bridge projects.

#### **FHWA Lacks Sufficient Data to Evaluate States' Use of HBP Funds**

FHWA is responsible under Federal law for monitoring the efficient and effective use of Federal-aid highway funds.<sup>9</sup> However, FHWA lacks sufficient data to evaluate whether states are effectively using the billions of Federal dollars apportioned to them through HBP, which in fiscal year 2009 provided \$5.2 billion

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<sup>8</sup> HBP is the primary Federal program that funds the replacement and rehabilitation of bridges nationwide.

<sup>9</sup> 23 U.S.C. §106 (2006).

to states. To apportion funding to states for bridge remediation, HBP uses a needs based formula based on data collected by state and local governments during inspections of public highway bridges. States that demonstrate greater need receive more funding.

Despite assurances from the former FHWA Administrator that the agency could obtain data on how much HBP funding has been spent on structurally deficient bridges,<sup>10</sup> FHWA's accounting system, the Fiscal Management Information System (FMIS), lacks the details needed to link expenditures to bridge improvements. Specifically, the system tracks expenditures at the project level.<sup>11</sup> However, this tracking provides insufficient information for determining how states use HBP funds on individual project components, including non-deficient bridges, tunnels, and roads. For example, in a prior report, we pointed out that Michigan used almost \$3 million in HBP funds on a single Federal-aid project that involved preventive maintenance on three bridges that were not classified as deficient, as well as four that were. FMIS lacked the capability to determine how much Federal aid goes toward improving the condition of the project's deficient bridges.

Understanding how bridge funds are spent is critical to targeting those structurally deficient bridges that carry the majority of the Nation's bridge traffic. According to the NBI, the total number of structurally deficient bridges decreased about 15 percent from 2001 through 2009 (see table 1). However, the deck area of structurally deficient National Highway System bridges, which carry a majority of bridge traffic, increased by 8 percent over the same period.

**Table 1. Structurally Deficient Bridges in 2001 and 2009**

	All Highway Systems			National Highway System		
	2001	2009	Change	2001	2009	Change
Bridges	83,630	71,179	(14.9)%	6,643	5,977	(10.0)%
Deck Area (meters <sup>2</sup> )	31,505,907	31,199,863	(1.0)%	12,455,463	13,499,718	8.4%

Source: OIG analysis using NBI data, as of December 2009.

<sup>10</sup> Hearing on Structurally Deficient Bridges held September 5, 2007, before the U.S. House of Representatives Committee on Transportation and Infrastructure.

<sup>11</sup> A project is defined as an undertaking by a state for highway construction, including preliminary engineering, rights-of-way acquisition, and actual construction; for planning and research; or for any other work or activity to carry out laws for the administration of Federal highway aid (23 C.F.R. §1.2 (2008)).

To strengthen its oversight of Federal-aid funds, we recommended that FHWA:

- Collect and analyze HBP expenditure data on a regular basis to identify states' efforts to improve the condition of the Nation's deficient bridges, such as replacement and rehabilitation.
- Report regularly to internal and external stakeholders on the effectiveness of states' efforts to improve deficient bridges based on the analysis of HBP expenditure data and an evaluation of progress made in achieving performance targets.
- Collaborate with states in setting quantifiable performance targets to measure progress in the improvement of deficient bridges.

While FHWA concurred with our recommendations, it has shown little progress in addressing them to date. In its response to our January 2010 report, FHWA targeted May 1, 2010 to fully respond to the first two recommendations, and stated that its planned actions included evaluating the integration of current stand-alone systems to improve bridge project information and collecting more detailed project information. FHWA noted in its formal comments on our January 2010 report that it seeks to strike a balance between what is achievable in the near term with existing resources, systems, and data, and what may be achievable in the future. Specifically, FHWA stated that its efforts to obtain information on states' use of Federal funding for deficient bridges and the resulting improvements could be significantly affected by changes to the Federal-aid program and the HBP as a result of the next highway authorization bill. During our preparations for this hearing, FHWA informed us that more detailed information on bridge projects would be included in FMIS by fiscal year 2012. We will need to obtain and assess additional details on this reported action, including a specific implementation schedule, before closing our recommendation.

We recognize that possible reauthorization modifications to HBP and other changes could impact requirements for specific information gathered on states' use of bridge funding, but we maintain that taking action now could lead to near term improvement and make it easier to carry out potential mandates. New requirements might include monitoring state use of Federal funding, setting performance targets for states to reduce the deck area of bridges classified as structurally deficient, and directing states to report on their use of Federal funding and progress made towards meeting performance targets. Given the challenges posed by such requirements, implementation of feasible near term enhancements could produce immediate results while better preparing FHWA to implement new mandates.

### **DOT Has Not Assessed the Impact of ARRA-Funded Highway and Bridge Projects**

Of the \$48 billion in ARRA funding designated to the Department of Transportation (DOT), \$27.5 billion, or 57 percent, went to FHWA for highway and bridge infrastructure projects. Despite this large investment, DOT is not evaluating the impact of ARRA funds on the U.S. transportation system, including the billions that states have spent on bridge-related projects, according to a recent Government Accountability Office (GAO) report.<sup>12</sup> DOT data on obligations by project type indicate that ARRA highway obligations, as of July 2, 2010, included \$1.4 billion in bridge replacements, \$1.2 billion in bridge improvements, and \$581 million in new bridge construction. Yet, similar to HBP funding, decision makers cannot determine how much, if any, of this funding was actually spent on the Nation's most deficient bridges because FHWA uses the same accounting system, FMIS, to track ARRA. DOT has reported that it is considering ways to improve its measurement and understanding of ARRA impacts.

### **Some States Did Not Conduct Federally Required Value Engineering Studies**

In June 2010, we issued an ARRA Advisory<sup>13</sup> after our ongoing audits of FHWA's oversight of highway infrastructure investments funded through ARRA revealed that some states did not conduct federally required value engineering (VE) studies on selected projects. While benefits gained from VE studies on specific projects may vary, VE can improve performance, reliability, quality, and safety, and reduce life-cycle costs. We determined that: FHWA's VE policy was out-of-date; changes to VE requirements were not included in the Code of Federal Regulations (C.F.R.); and VE was not discussed in most of the states' Stewardship and Oversight Agreements with FHWA.

Recommendations from a VE study conducted prior to a project's construction can result in reductions in project cost estimates, allowing funds to be released and re-programmed to other Federal-aid highway and bridge projects. Federal law requires all federal-aid highway and bridge projects with estimated total costs equal to or exceeding \$25 million and \$20 million, respectively, to undergo VE studies during project concept and design. These cost thresholds also apply to the \$27.5 billion in FHWA highway infrastructure projects funded through ARRA.

Our ARRA Advisory urged FHWA to take timely action before the September 30, 2010 deadline for obligating ARRA funds. Specifically, we advised that FHWA

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<sup>12</sup> GAO Report Number GAO-10-604, "Recovery Act: States' and Localities' Uses of Funds and Actions Needed to Address Implementation Challenges and Bolster Accountability," May 26, 2010.

<sup>13</sup> OIG Advisory AA-2010-001, "ARRA Advisory on FHWA's Oversight of the Use of Value Engineering Studies on ARRA Highway and Bridge Projects," June 28, 2010.

needs to (1) update 23 C.F.R. § 627, Value Engineering, to include 2005 VE legislative changes;<sup>14</sup> (2) ensure that FHWA, state, and local staff are fully informed regarding VE legislative requirements and FHWA's revised VE policy; and (3) require states, the District of Columbia, and Puerto Rico to include VE requirements in their Stewardship and Oversight Agreements with FHWA.

According to FHWA, its revised VE policy, issued in May 2010, addresses the timeliness of VE studies and provides effective guidance while regulatory updates proceed. Further, while not directly requiring states to include VE in their Stewardship and Oversight Agreements, FHWA contends that its new performance measures provide integration of VE into FHWA and state practices. As part of our ongoing ARRA audits, we plan to review FHWA's implementation of its policy and performance measures and to further assess VE issues and FHWA's actions.

## **CONCLUSION**

We recognize FHWA's progress in implementing a data-driven, risk-based approach to bridge oversight and support its efforts to address our related recommendations. Given the volume of needs of the Nation's nearly 600,000 bridges, and the limited funding available to repair and replace bridges, FHWA must target its oversight efforts at higher priority bridge safety risks and strengthen its oversight of states' use of federal bridge funding. In particular, more needs to be done to enable FHWA to evaluate the impact of the billions in Federal bridge money that have been allocated to states in recent years for improving the condition of deficient bridges. Accordingly, we will continue our monitoring activities until FHWA demonstrates that it has been fully responsive to all our recommendations. Although no work is scheduled in this area, we will initiate future audit work on FHWA's bridge oversight, as appropriate.

Mr. Chairman, that concludes my remarks. I would be happy to answer any questions that you or other members of the subcommittee may have.

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<sup>14</sup> Pub. L. No. 109-59, Sec. 1904 (2005), the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), required that all bridge projects with an estimated total cost of \$20 million or more undergo a VE study.

**Questions for the Record  
From Peter A. DeFazio  
Chairman, Subcommittee on Highways and Transit**

**Addressed to  
United States Department of Transportation  
Office of Inspector General  
Regarding  
July 21, 2010, Hearing on  
Oversight of the Highway Bridge Program and  
the National Bridge Inspection Program  
before the  
Subcommittee on Highways and Transit  
Committee on Transportation and Infrastructure  
United States House of Representatives**

*1. Did your findings suggest anything about the appropriate level of Federal oversight under other Federal highway programs?*

While our findings do not specifically address the appropriate level of Federal oversight under other Federal-aid highway programs, they do suggest potential oversight issues for other programs. For example, our findings regarding the Federal Highway Administration's (FHWA) bridge program illustrate the need to effectively assess and enforce compliance when setting standards to address recognized concerns, such as the effectiveness of states' bridge inspection programs. Additionally, our preliminary findings on FHWA's oversight of high dollar American Recovery and Reinvestment Act (ARRA) highway projects show the importance of updating regulations and policies to ensure that potential cost saving actions, such as conducting "value engineering" studies, are carried out as required.<sup>1</sup> Accordingly, we will be cognizant of such issues as we assess FHWA's oversight in our current and future work.

*2. Do you believe these challenges (inability to track impact of spending, etc.) are limited to the HBP, or might they apply under other programs as well?*

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<sup>1</sup> OIG Advisory AA-2010-001, "ARRA Advisory on FHWA's Oversight of the Use of Value Engineering Studies on ARRA Highway and Bridge Projects," June 28, 2010. The advisory, which was based on preliminary audit results, indicated that the state and local agencies' failure to comply with value engineering requirements resulted from out-of-date regulations and FHWA's policy on conducting value engineering studies. These studies aim to objectively review reasonable design alternatives on highway and bridge projects with an estimated total cost equal to or exceeding \$25 million and \$20 million, respectively.

Based on our experience, these challenges may apply to other programs as well. In reviewing the Highway Bridge Program (HBP), we found that FHWA's Fiscal Management Information System (FMIS) generally lacks sufficient data to evaluate states' use of Federal funds. Thus, decision makers would also likely face difficulties in determining states' use of Federal funds provided through other Federal-aid highway programs. Our testimony also noted a limitation regarding the tracking of ARRA funding reported by the Government Accountability Office (GAO). According to GAO, DOT is not assessing the impact of the billions spent on bridge-related projects.<sup>2</sup> Of the \$48 billion in ARRA funding designated for the Department of Transportation (DOT), \$27.5 billion, or 57 percent, went to FHWA for highway and bridge infrastructure projects. GAO has reported that it is considering ways to improve its measurement and understanding of ARRA impacts.

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<sup>2</sup> GAO Report Number GAO-10-604, "Recovery Act: States' and Localities' Uses of Funds and Actions Needed to Address Implementation Challenges and Bolster Accountability," May 26, 2010.

**STATEMENT OF  
KING W. GEE  
ASSOCIATE ADMINISTRATOR FOR INFRASTRUCTURE  
FEDERAL HIGHWAY ADMINISTRATION  
U.S. DEPARTMENT OF TRANSPORTATION**

**BEFORE THE**

**COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE  
SUBCOMMITTEE ON HIGHWAYS AND TRANSIT  
UNITED STATES HOUSE OF REPRESENTATIVES**

JULY 21, 2010

Chairman DeFazio, Ranking Member Duncan, and Members of the Subcommittee, thank you for the opportunity to appear before you today to discuss oversight of the Federal Highway Administration's (FHWA) Highway Bridge Program (HBP) and the National Bridge Inspection Program (NBIP).

It has been nearly three years since we lost 13 lives in the tragic collapse of the I-35W bridge in Minneapolis. This tragedy sparked a necessary national conversation concerning the state of the Nation's bridges and highways. While we do not have a broad transportation infrastructure safety crisis, the condition of our infrastructure continues to receive our on-going attention. The FHWA has a robust HBP that reinforces safety as the Department of Transportation's (DOT) highest priority, and we have worked expeditiously to address the recommendations made by the Government Accountability Office (GAO) and the DOT Office of Inspector General (OIG) to ensure the continued safety of our Nation's bridges.

**OVERVIEW OF FHWA'S HIGHWAY BRIDGE AND NATIONAL BRIDGE INSPECTION PROGRAMS**

The HBP has expanded since its inception more than 30 years ago. The purpose of the program was initially limited to the replacement of deficient bridges on Federal-aid highways, but Congress has expanded the scope of the program to include rehabilitation, seismic retrofit, scour countermeasures, and systematic preventive maintenance on virtually any highway bridge. This expansion demonstrates Congress' recognition of the importance of addressing bridge vulnerabilities and preserving existing bridges.

FHWA recognizes that the bridge population is aging, with the average age of Interstate bridges approaching 40 years. Owing in part to the HBP, the condition of bridges has been improving, even as the total number of bridges in the Nation's inventory rises. Through the leadership of FHWA, advances in methodologies and technologies in the areas of design, inspection, construction, asset management, and preservation have been integrated into common practice.

Bridge Condition. The HBP has been successful in reducing bridge deficiencies. Since 1994, the percentage of the Nation's bridges that are classified as "structurally deficient" has declined from 19.4 percent to 12.0 percent. The term "structurally deficient" is one of the technical terms used to classify bridges according to condition, serviceability and essentiality for public use. Bridges are considered "structurally deficient" if significant load-carrying elements are found to be experiencing advanced deterioration or are in a damaged condition, or the adequacy of the waterway opening provided by the bridge is determined to be extremely insufficient to the point of causing intolerable traffic interruptions due to overtopping flow caused by a flood. The fact that a bridge is classified as "structurally deficient" does not mean that it is unsafe for use by the public. Classification as "structurally deficient" may mean that the bridge is not capable of safely carrying its originally designed load, but is safe to remain in public use with a lower load capacity restriction. If a bridge is unsafe, it is closed to public use.

As of December 2009, bridges on the National Highway System (NHS) totaled 117,419, or about one-fifth of the 603,000 bridges inventoried nationwide. Of those NHS bridges, 6,151, or 5.2 percent, were considered structurally deficient. That represents a reduction of 1.3 percent from 1999, when 8,473 out of 130,199, or 6.5 percent, of NHS bridges inventoried were structurally deficient.

While bridge conditions are improving, it is important to monitor current activities aimed at maintaining a safe inventory of structures. We have quality control systems that provide surveillance over the design and construction of bridges. We have quality control systems that oversee the operations and use of our bridges. And, we have quality control over inspections of bridges to keep track of the attention that a bridge will require to stay in safe operation. These systems have been developed over the course of many decades and are the products of the best professional judgment of many experts.

Bridge Inspections. With an aging infrastructure and limited resources, it is vitally important to monitor continuously the condition of the Nation's bridges and frequently assess the load-carrying capacity of those bridges that are showing signs of deterioration. FHWA strives to ensure that the quality of the NBIP is maintained at the highest level. We rely on thousands of well-trained bridge inspectors at the State and local levels who work every day to monitor bridge conditions and ensure that critical safety issues are identified and remedied to protect the traveling public.

The NBIP was created in response to the 1967 collapse of the Silver Bridge over the Ohio River between West Virginia and Ohio, which killed 46 people. At the time of that collapse, the exact number of highway bridges in the United States was unknown, and there was no systematic bridge inspection program to monitor the condition of existing bridges. In the Federal-aid Highway Act of 1968, Congress directed the Secretary of Transportation, in cooperation with State highway officials, to establish: (1) National Bridge Inspection Standards (NBIS) for the proper safety inspection of bridges, and (2) a program to train employees involved in bridge inspection to carry out the program. As a result, FHWA published the NBIS regulation (23 CFR Part 650, Subpart C), prepared a

bridge inspector's training manual, and developed a comprehensive training course, based on the manual, to provide specialized training.

The NBIS require routine safety inspections at least once every 24 months for highway bridges that exceed 20 feet in total length located on public roads. Many bridges are inspected more frequently. However, with the express approval by FHWA of State-specific policies and criteria, some bridges can be inspected at intervals greater than 24 months, but no longer than 48 months. New or newly reconstructed bridges, for example, may qualify for less frequent routine inspections. Approximately 85 percent of bridges are inspected once every 24 months, 10 percent are inspected annually, and 5 percent are inspected on a 48-month cycle.

The flexibility of inspecting bridges on differing cycles is important to ensure optimal use of inspection resources. New bridges built to modern standards with better materials and improved construction practices generally need less frequent inspections, while older deficient bridges might require more frequent inspections. Age is not the only consideration in adjusting inspection frequency. Other factors such as the type and performance of a structure and environmental setting also need to be considered. Quite often, after some natural event such as an earthquake, hurricane, or flood, structures that may have been affected are re-inspected to make sure there is not damage. Flexibility in managing resources and setting an appropriate inspection frequency for a bridge is an important part the program.

State departments of transportation (State DOTs) must inspect or cause to be inspected all highway bridges on public roads that are fully or partially located within the States' boundaries, except for bridges owned by Federal agencies. States may use their HBP funds for bridge inspection activities. Federal agencies perform inspections of the bridges they own through other processes beyond those performed by the State DOTs. The NBIS do not apply to privately-owned bridges, including commercial railroad bridges and some international crossings; however, many private bridges on public roads are inspected in accordance with the NBIS.

Bridge inspection techniques and technologies have been evolving continuously since the NBIS were established over 30 years ago. Bridge owners have been taking advantage of the latest and proven inspection techniques and technologies to improve the detection of potential defects in the bridges. The NBIS regulation has been updated several times to reflect lessons learned. FHWA substantially revised the NBIS in January 2005. Most recently, FHWA revised the NBIS in December 2009 to incorporate by reference the new AASHTO Manual for Bridge Evaluation, First Edition 2008.

With the help of the NBIS and the National Bridge Inventory (NBI), America has experienced few catastrophic bridge failures from undetected structural flaws or defects. Most failures today occur because of natural events such as flooding or earthquakes or from vehicles that exceed the load capacity of the bridge. The international bridge community looks to the United States as leaders in the bridge inspection field and seeks our assistance and guidance. Nonetheless, we have scanned the state-of-the-practice in

bridge inspections by other countries and are evaluating concepts that may lead to further improvements in our current domestic practices.

Training/Qualification Requirements for Bridge Inspectors. The NBIS establish minimum qualifications for bridge inspection Program Managers, Team Leaders, individuals responsible for load ratings, and underwater inspectors. These qualification requirements are based on a combination of education, training and experience. As part of the 2005 NBIS update, training requirements were enhanced for all Team Leaders and Program Managers. Through our National Highway Institute (NHI), FHWA has developed an array of bridge inspection training courses, and States may use Federal-aid Highway Program funds to pay for NHI course fees.

Stewardship and Oversight of the National Bridge Inspection Program. FHWA Division Offices conduct comprehensive annual reviews of all areas of the NBIS, which are supplemented with periodic in-depth reviews of specific parts of a State's program, including fracture critical, underwater, and scour inspections; inspection documentation; quality assurance and quality control; follow-up on critical findings and recommendations; and special feature inspections, such as steel fatigue cracking or post-tensioning corrosion. The annual reviews typically consist of the following:

- A field review of bridges to compare inspection reports for quality and accuracy;
- Interviews with inspectors and managers to document NBIS procedures;
- An office review of various reports of inventory data to assess compliance with frequencies, posting, and data accuracy; and
- Preparation of a summary report.

The FHWA Resource Center (RC) provides expert technical assistance to FHWA Division Offices and their partners; assists Headquarters program offices in the development and deployment of new policies, technologies, and techniques; and takes the lead in deploying leading edge market ready technologies. The RC also assists in coordinating and conducting bridge inspection peer reviews and program exchanges, as well as in delivering and updating training.

At Headquarters, FHWA issues bridge inspection policies and guidance; maintains the NBI; monitors and updates bridge inspection training courses; collects, reviews, and summarizes the Division Office annual reports; and monitors overall NBIS compliance.

Bridge Research and Technology (R&T). The current FHWA bridge research program is focused on three areas: (1) developing the "Bridge of the Future," a bridge that can last for 100 years or more and require minimal maintenance and repair, while being adaptable to changing conditions such as increasing loads or traffic volumes; (2) ensuring effective stewardship and management of the existing bridge infrastructure in the United States; and (3) assuring a high level of safety, security, and reliability for both new and existing highway bridges and other highway structures and protecting them from all man-made and natural extreme events. We also work with our stakeholders and partners, including State DOTs, industry, other Federal agencies, and academia, to coordinate a national

research program for agenda-setting, to carry out research, and to deploy new innovations to improve the safety, performance, and durability of highway bridges.

A key measure of success of any highway technology depends on its acceptance by stakeholders on a national scale. FHWA's responsibilities for research and technology include not only managing and conducting research, but also sharing the results of completed research projects, and supporting and facilitating technology and innovation deployment. A number of barriers, including a lack of information about new technologies and long-standing familiarity with existing technologies, may explain the relatively slow adoption of cost-effective highway technologies by State and local highway agencies and their contractors. Through NHI, FHWA provides education and training programs to transcend these types of barriers. Stakeholders also may have difficulty envisioning the long-term benefits of a new technology relative to initial investment costs.

As we continue to build upon these research and technology efforts with our partners, we need to strive for the greatest gains in return for our investments. Key to achieving that goal is granting the maximum flexibility to make the most effective use of our research and technology resources and address the highest priority needs of our stakeholders and partners.

**Bridge Investments and Needs.** The FHWA maintains the NBI, which contains an assessment of bridge conditions. For bridges subject to NBIS requirements, information is collected on bridge composition and conditions and reported to FHWA, where the data is maintained in the NBI database. The information in the NBI database is "frozen" at a given point in time. This information forms the basis of, and provides the mechanism for, the determination of the formula factor used to apportion Highway Bridge Program funds to the States. A sufficiency rating (SR) is calculated based on the NBI data items on structural condition, functional obsolescence, and essentiality for public use. The SR is then used programmatically to determine eligibility for rehabilitation or replacement of the structure using HBP funds. Ratings of bridge components such as the deck, superstructure, and substructure assist States in prioritizing their bridge investments.

FHWA uses the NBI data to prepare the biennial report to Congress, "Status of the Nation's Highways, Bridges and Transit: Conditions and Performance" (C&P Report). The C&P Report assesses trends in bridge conditions over time and investment requirements to either maintain or improve future conditions and performance. The last C&P Report estimated that that \$11.1 billion (in 2006 dollars) would need to be spent annually by all levels of government combined to maintain the overall condition of the Nation's bridges at current levels. All levels of government combined spent \$10.1 billion on bridge rehabilitation and replacement in 2006. The report identified a backlog of potential cost-beneficial bridge repair and replacement investments of \$98.9 billion in 2006. Addressing this backlog and keeping bridges in a state of good repair over the next 20 years would cost an estimated \$17.9 billion (in 2006 dollars) per year.

Bridge Management Systems (BMSs). As an increasing number of States have implemented an asset management approach to managing transportation infrastructure, the use of BMSs is playing a key role in collecting and managing bridge data and managing bridge assets. Forty-one States and five municipalities are now using the Pontis<sup>®</sup> Bridge Management System, a comprehensive software tool initially developed by FHWA and now available from the American Association of State Highway and Transportation Officials (AASHTO) as an AASHTOWare<sup>®</sup> product. Pontis<sup>®</sup> can be used to store bridge inventory and inspection data; formulate network-wide preservation and improvement policies; and make recommendations for projects to be included in an agency's capital improvement program, so as to achieve the maximum benefit from limited funds. Most notably, it provides a systematic procedure for the allocation of resources to the preservation and improvement of the bridges in a network by considering both the costs and benefits of maintenance policies versus investments in improvements or replacement. Many States do not yet use all of the asset management features in Pontis<sup>®</sup> and, as noted, not all States use Pontis<sup>®</sup>. All States, however, have some form of bridge management software, at least for keeping inventories of bridges and bridge conditions.

Looking toward the future, Congress authorized the Long-Term Bridge Performance (LTBP) program in SAFETEA-LU. The LTBP program is intended to be at least a 20-year research effort to achieve a deeper understanding of bridge performance through quality data collection and analysis. The program will develop methods to measure bridge reliability and is likely to lead to the development of "next generation" bridge and highway asset management systems.

#### **RECOVERY ACT INVESTMENT**

In addition to the funds regularly provided for bridges under the HBP, States received a large infusion of transportation infrastructure funds last year with the passage of the American Recovery and Reinvestment Act of 2009 (Recovery Act). The Recovery Act provided \$48.1 billion for transportation programs to be used for improvements to our Nation's highways and bridges, transit systems, airports, railways, and shipyards. The single largest investment of Transportation Recovery Act dollars—\$27.5 billion—was targeted at improving highways and bridges. FHWA has committed more than \$26 billion from the Recovery Act to over 12,700 highway projects. Approximately 12 percent of the FHWA Recovery Act funds—and 10 percent of these highway projects—are being invested in bridge improvement, bridge replacement, or new bridge construction.

We have six times more Recovery projects underway this summer than we did last. We are going to improve more than 30,000 miles of highway this summer—three times as many miles as we improved last summer and enough to make 10 trips across the country.

We are going to make travel safer and easier for millions of people, and we are going to create jobs. Overall, the Recovery Act is already responsible for an estimated 2.5 million jobs, with tens of thousands of those in the transportation sector.

Across the Nation—from Hawaii to Maine—States are using Recovery Act dollars for important bridge projects. For example, in Hawaii, the \$15.3 million South Punaluu Stream Bridge project is providing a new structure to carry the Kamehameha Highway to Oahu's northwest shore. By replacing a structure that has been in service for 85 years, the new concrete bridge will meet current vehicle load, safety, and seismic standards. The new bridge will include eight-foot shoulders and a separated pedestrian path.

Work continues in Pittsburgh on one of Pennsylvania's largest Recovery Act projects. At \$26.2 million, the I-279 Fort Duquesne Bridge project is entirely funded by the Recovery Act and is a vital transportation link for the region. The Recovery dollars will pay for preservation that will ensure the bridge stays in good condition for the 80,000 drivers that use it each day. The project includes improvements on 16 bridge and ramp structures and steel, concrete and deck repairs.

In May, FHWA Administrator Victor Mendez helped break ground on a \$22 million bridge replacement project on Baltimore's beltway, I-695. This bridge replacement project will provide a bridge that is 38 feet wider than the 1961 original it replaces, adding 34 percent to its current capacity. The contract for the bridge replacement came in a full 40 percent lower than anticipated, freeing up funds for additional projects that will create additional jobs and improve additional infrastructure.

Drivers in downtown Atlanta are much closer to having a newer and safer bridge thanks to Recovery Act funds being used to replace an outdated bridge currently closed to traffic. The Georgia Department of Transportation is using \$8.8 million in Recovery Act dollars to build a completely new bridge, replacing the current Mitchell Street Bridge that was closed to traffic in March 2008. The bridge, which crosses over the Norfolk Southern Railroad, served as a vital link to downtown Atlanta and was used by heavy trucks, transit buses, and daily commuters. The Mitchell Street Bridge, originally built in 1924 and reconstructed in 1940, carries over 6,800 vehicles daily and is in need of replacement because of its deteriorating condition. The new bridge will re-connect portions of downtown Atlanta and improve traffic options in the vicinity of the Atlanta Federal Center, Georgia Dome, CNN Center, and other downtown attractions.

With \$35.5 million in Recovery Act dollars, Maine rehabilitated almost 24 miles of Interstate highway between Gardiner and Topsham, rehabilitated six bridges, and replaced 60,000 feet of guardrail. The I-295 northbound project was the State's top highway priority and the largest single project proposed by the Maine Department of Transportation for Recovery Act funds. With an estimated 60 to 70 percent of Maine's gross domestic product traveling on I-295, the Interstate serves as a major thoroughfare for moving goods in and out of Maine and is a significant route for the State's important tourism industry.

These are just a few examples of how Recovery Act dollars are providing needed investments for our people and infrastructure throughout the United States. The Recovery Act projects will save lives on our Nation's highways, while strengthening the economy by helping our highway and bridge system move people and goods more efficiently and effectively.

### **OVERSIGHT OF HIGHWAY BRIDGE PROGRAM**

A GAO report in 2008 and OIG reports in 2006, 2009, and 2010 provided a number of recommendations for improving the HBP and the NBIP, and FHWA has made significant efforts to address these recommendations. Over the last four years, we have also communicated regularly with the OIG to ensure that we are responding appropriately to their recommendations.

GAO Report 2008. The GAO report entitled "Highway Bridge Program: Clearer Goals and Performance Measures Needed for a More Focused and Sustainable Program" indicated that bridge conditions improved from 1998 through 2007 but noted that the impact of the HBP on that improvement is difficult to determine because (1) the program provides only a share of what States spend on bridges (no comprehensive data for State and local 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 determined that the HBP program lacks focus, performance measures, and sustainability. Further, GAO reported that statutory goals are not focused on a clearly identified federal or national interest, but rather have expanded from improving deficient bridges to supporting seismic retrofitting, preventive maintenance, and many other projects, thus expanding the Federal interest to include potentially any bridge in the country. According to GAO, the program lacks measures linking funding to performance and is not sustainable, given the anticipated deterioration of the Nation's bridges and the declining purchasing power of available funding. Once the Federal interest in bridges is clearly defined, GAO reported that policymakers can clarify the goals for Federal involvement and align the program to achieve those goals. GAO indicated that sustainability may also be improved by identifying and developing performance measures and re-examining funding mechanisms.

GAO recommended that DOT work with Congress to identify specific program goals in the national interest, develop and implement performance measures, incorporate best tools and practices, and review the program's funding mechanisms. In December 2008, DOT agreed to work with Congress to incorporate the ideas into future legislation but disagreed with the need for a stand-alone program for bridges. In November 2009, FHWA advised GAO that there are no near-term plans to conduct any further action to address the recommendations and asked GAO to close the audit. Throughout the process of the next authorization, FHWA will be pleased to work with this Committee and others to craft legislation that addresses bridge needs going forward.

OIG Report 2006. In March 2006, the OIG issued a report on "Oversight of Load Ratings and Postings on Structurally Deficient Bridges on the National Highway

System.” The OIG recommended that FHWA revise its annual compliance reviews of State bridge programs to address the most serious deficiencies found during bridge inspections and develop a risk-based, data-driven approach and metrics. The OIG additionally recommended that FHWA evaluate greater use of computerized BMSs to improve States’ bridge inspection programs and enhance the accuracy of bridge load ratings.

FHWA concurred with these recommendations and responded with several actions, including developing a new NHI course on Load and Resistance Factor Rating methodology; developing several new standard NBI data reports aimed at identifying load rating issues of concern or data quality problems; initiating a three-year program of risk assessments and in-depth reviews of load rating and posting practices, an assessment of which will be prepared in 2011; and continuing BMS assistance activities (e.g., training, case studies, exchanges).

OIG Report 2009. In January 2009, OIG issued a report on the “National Bridge Inspection Program: Assessment of FHWA’s Implementation of Data-Driven, Risk-Based Oversight.” The OIG recommended that FHWA develop and implement minimum requirements for data-driven, risk-based bridge oversight during bridge engineers’ annual NBIS compliance reviews; develop a comprehensive plan to routinely conduct systematic, data-driven analysis to identify nationwide bridge safety risks, prioritize them, and target those higher priority risks for remediation in coordination with States; develop a requirement for States to correct promptly data inaccuracies found by FHWA’s NBI data validation program; increase FHWA’s use of element-level data; and initiate a program to collect data regularly on States’ use of BMS, evaluate the data to identify those States most in need of assistance in implementing effective BMS, and target them for technical assistance and training resources.

FHWA concurred with these recommendations and took several actions in response. For example, FHWA initiated the development of a data-driven, risk-based approach to the oversight of the NBIP as well as a pilot evaluation of the process. We are currently reviewing the results of this pilot, which ended in May, and plan to implement this approach in 2011. FHWA also implemented new data error-check procedures and developed standard data reports to address inconsistent coding items and errors. In addition, FHWA worked with AASHTO to update the standards for element level data. A new AASHTO guide was approved by the bridge subcommittee in May, and FHWA will work with AASHTO on an implementation plan. FHWA collected information on state-of-the-practice in BMS implementation and is now evaluating the results in order to develop a focused plan of targeted assistance.

OIG Report 2010. In January of this year, OIG issued a report entitled, “Assessment of FHWA Oversight of the Highway Bridge Program and the National Bridge Inspection Program.” The report highlighted several recommendations, including that the FHWA regularly collect and analyze HBP expenditure data to identify State activities to improve the condition of the Nation’s deficient bridges; collaborate with States in setting quantifiable performance targets; report regularly to stakeholders on States’ efforts to

improve the condition of the Nation's deficient bridges; develop detailed criteria to help bridge engineers determine with greater consistency whether States demonstrate overall compliance with the NBIS; develop a policy providing risk-based guidance that defines Division Office procedures to enforce compliance with the NBIS; and conduct a workforce assessment to identify strategic needs and target limited funding to higher priority staffing and training needs.

FHWA concurred with the OIG's recommendations. Our work in response to the OIG's January 2009 recommendations will address several of the 2010 recommendations. In addition, FHWA is working on an enhancement to the Financial Management Information System (FMIS) to allow improved tracking of bridge projects and obligations. We anticipate implementation in fiscal year 2011. We also are evaluating possible performance measures and targets for not only bridges but for the entire Federal-aid Highway Program. In addition, FHWA is evaluating the use of the C&P Report to enhance reporting on the effectiveness of States' efforts to improve the condition of the Nation's bridges.

#### **EVERY DAY COUNTS INITIATIVE**

Administrator Mendez recently launched a major innovation initiative at FHWA called Every Day Counts (EDC). EDC has two primary goals—to speed up the delivery of major bridge and highway projects; and to deploy proven, effective, market-ready technologies as quickly as possible. FHWA solicited ideas related to these goals. Through this initiative, FHWA sought input from stakeholders including AASHTO, the Associated General Contractors of America, and the American Road & Transportation Builders Association to develop a set of clearly-defined strategies that will advance FHWA's mission. We wanted to get ideas that cover the whole spectrum, from planning through actual construction.

In order to shorten project delivery, on the pre-construction side, we have proposals for preparing environmental and other planning documents without duplicating a lot of work that has already been done. We are also looking at areas where Federal laws and regulations allow some flexibility that can be used to speed up the process. The underlying goal is to take these ideas and help State and local governments apply them time after time, project after project. We also examined the construction part of project delivery, looking for new forms of innovative contracting, including bringing the contractor to the table sooner. The ongoing engagement of designers and contractors offers a better handle on costs, risks, possible problems and potential solutions.

The other pillar of EDC is getting new technologies deployed in the field faster. There are a lot of proven, effective, market-ready technologies that could be saving lives or relieving congestion or protecting our environment. After reviewing hundreds of technologies, we currently are focusing on five, including two that apply to bridges. One of the technologies pertaining to bridges is geo-synthetic reinforced soil (GRS). FHWA is advancing GRS technology for its application on bridge abutments. We are recommending this technology for small, single span bridges. Because this technology is

so easy to use, it cuts labor time and costs. Another technology we are considering in EDC is pre-fabricated bridge elements. This technology allows many parts of the bridge to be built concurrently off-site, then shipped in for assembly. This approach results in a major time and cost saver over the traditional approach, where everything is completed sequentially in the work zone.

We believe this initiative can make a real difference in how we build our infrastructure in the future. Taken together, the technologies we are focusing on with EDC will help us meet some of the basic goals of the DOT—enhancing safety, sustaining the environment, promoting livable communities. These principles—along with keeping assets in a state of good repair and keeping our economy competitive—are also the principles that are guiding us as we work with Congress to write the next surface transportation bill.

### **CONCLUSION**

As we consider reauthorization of our surface transportation programs, we will continue to maintain the safety and integrity of bridges while improving system performance and reliability. We look forward to continued work with this Committee, the States, the OIG and GAO, and our partners in the transportation community to improve the condition and performance of our Nation's bridges and the effectiveness of the Federal Highway Bridge and National Bridge Inspection Program.

Thank you for the opportunity to appear before you today. I would be happy to answer questions.

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**Questions for Mr. King W. Gee  
Associate Administrator for Infrastructure  
Federal Highway Administration  
Highways and Transit Subcommittee Hearing  
July 21, 2010**

Questions from Chairman DeFazio

1. In 2008 MSNBC ran a series of stories that raised serious concerns regarding FHWA's oversight of the National Bridge Inspection Program. In its investigation, MSNBC found that 633 fracture-critical bridges were on longer inspection schedules than the maximum of 24 months required under the National Bridge Inspection Standards.

- a. What steps has FHWA taken to ensure that each of these 633 bridges is now being inspected within the required 24 month interval?

RESPONSE: The current annual reviews that are conducted by FHWA Division Offices for each State include an assessment to determine the compliance of State fracture critical member inspection policies and procedures with the National Bridge Inspection Standards (NBIS). Additionally, FHWA's Office of Bridge Technology (Bridge Office) continually works with our Division Offices to address errors in the National Bridge Inventory (NBI). Various error checks of submitted bridge data are completed as part of the annual upload process into the NBI. One of these error checks identifies bridges in which the reported frequency for fracture critical member inspections exceeds the maximum frequency of 24 months. Those bridges are then reported to the appropriate Division Offices and State DOTs with details of the error. Based on NBI data collected in 2010, 49 structures were reported as having a fracture critical member inspection frequency greater than 24 months. Currently, the Bridge Office is working with FHWA Division Offices to resolve these errors and has confirmed that 5 thus far are data recording errors rather than past due inspections. Investigations of the remaining bridges are ongoing and FHWA is working with the States toward prompt resolutions.

- b. As FHWA rolls out its 2011 revisions to its bridge inspection compliance review process, what steps will it take to ensure that every fracture-critical bridge is inspected within the required 24 month interval?

RESPONSE: The updated bridge inspection compliance review process has 2 components which will aid in the assessment of possible concerns related to fracture critical member inspections. One component focuses on an examination of the States' procedures. States are required to develop procedures in accordance with the NBIS which require fracture critical members of a bridge to be inspected at intervals not to exceed 24 months. Those procedures are to also include the identification of the fracture critical bridge members within the bridge files and the methods to inspect those members. The second component, a standard report, focuses on the frequency of inspection of fracture critical members. This report has been developed to identify all bridges in which a fracture critical member inspection has

exceeded either the maximum frequency of 24 months or an owner-determined frequency that is less than the maximum. These 2 components of the revised compliance review process will provide Division Offices data that may be evaluated and assessed as they work with their State partners to ensure that all bridges are inspected in accordance with the NBIS.

2. The MSNBC report also found that some States “redefined the definition of lateness.” Instead of inspecting bridges once every 24 months – as required by law – some states considered a bridge as being on-time if it was inspected during the same calendar year as its due date. This allowed some states to extend inspection schedules to almost three years. Will there be procedures in place within the revised 2011 compliance review process to prohibit States from “redefining lateness” in this fashion?

RESPONSE: The current NBIS prohibit States from “redefining lateness.” The NBIS were updated in 2005 to further clarify inspection frequency by using the measurement of time in months rather than years, stating, “inspect each bridge at regular intervals not to exceed twenty-four months.” As part of the revised compliance review process, a standard NBI data report has been developed that identifies all bridges in which a routine inspection appears to have exceeded either the frequency of 24 months, an owner-determined frequency that may be less than 24 months, or with FHWA approval, a maximum frequency of 48 months. This report will provide Division Offices data that may be evaluated and assessed as they work with their State partners to ensure that all bridges are inspected in accordance with the NBIS.

3. AASHTO has suggested that States transfer funding between Federal-aid highway programs primarily – if not entirely – as a management tool, and that transferring funding out of the HBP does not reduce the amount of funding States spend on bridges.
  - a. In your experience, is this the only reason that States transfer HBP funding to other programs?

RESPONSE: Yes. The States’ ability to transfer funds between different Federal-aid programs is provided under various sections of 23 U.S.C. 104 and 126. Section 126(a) specifically provides the States the ability to transfer up to 50 percent of their apportioned Highway Bridge Program (HBP) funds. The ability to transfer various federal funds allows States more flexibility in administering the Federal-aid program. States are able to program projects in a more holistic manner. Rather than focusing on only one aspect of their transportation system through prescribed programs, such as the HBP, States are able to maximize their Federal funds in addressing the prioritized needs of the system as a whole, e.g. highways and bridges, to better ensure the safety of the traveling public.

- b. [If not] Why else do they typically transfer their HBP funds?

RESPONSE: Not applicable.

- c. Are you aware of any instances in which States have transferred HBP funding to other programs and used them on projects unrelated to bridge deficiency (or to bridges more generally)?

RESPONSE: No. Within our current financial system, once a transfer is completed, transferred funds are no longer identified as HBP funds; therefore, the transferred HBP funds cannot be differentiated from the apportioned funds within the other program. Tracking of the specific transferred HBP funds is not possible.

4. You testified to the fact that a State that transfers Highway Bridge Program (HBP) funding to another program suffers a related deduction from its HBP apportionment for the following year. My understanding is that the amount transferred is not subtracted directly from the State's next year HBP apportionment, but is rather subtracted from the State's share of the total national cost of rehabilitating or replacing deficient bridges – and hence, that the next year penalty is not necessarily equal to the amount transferred out of the HBP program. Furthermore, rate-of-return calculations within the Equity Bonus (EB) Program may also act to counterbalance any such penalty.
- Please provide the Committee with a list, for each State, over each fiscal year from FY04 to today, of:
- the amount that the State has transferred from the HBP to other programs;
  - the related reduction in the State's HBP apportionment for the following year; and
  - the amount of additional EB funding that the State received due to any such reduction.

RESPONSE:

The table attached (Attachment #1) shows transfers from the HBP to other programs for FY 2004 through FY 2008 and the related changes in HBP apportionments and Equity Bonus funding for FY 2005 through FY 2009. The table compares actual HBP apportionments and Equity Bonus funding made available to the States for those fiscal years with the HBP apportionments and Equity Bonus funding that would have resulted if there had been no transfers from the HBP to other programs.

The second column shows the amount of the transfers from the HBP to other programs for each State. Since apportionment factors must be certified in August prior to the start of each fiscal year, the transfer amounts cover the prior 12 calendar months. For example, the amount labeled in the table as FY 2008 transfers from the HBP actually covers transfers from the last two months of FY 2007 and the first ten months of FY 2008.

The third column shows the changes in HBP apportionments related to the transfers from the HBP. HBP funds are apportioned based on the States' relative shares of the cost to repair or replace deficient highway bridges, with a State's cost of repair or replace reduced by the amount of transfers from the HBP. There is a minimum apportionment of 0.25 percent of the total amount apportioned for the HBP and a maximum apportionment of 10 percent of the total amount apportioned for the HBP. Transfers from the HBP generally resulted in a reduction to a State's HBP apportionment; however, since HBP apportionments are based on relative shares and there is a minimum apportionment, in some cases, a State that transferred funds from the HBP had no reduction in its HBP apportionment or even had its HBP apportionment increase if other States had also transferred relatively larger amounts of HBP funds.

The fourth column shows the changes to Equity Bonus funding related to the transfers from the HBP. The Equity Bonus calculations determine a total program level for each State such that all States meet the three Equity Bonus elements: 1) a minimum rate of return on a State's share of contributions to the Highway Account of the Highway Trust Fund; 2) a minimum increase relative to a State's average annual apportionments and High Priority Projects under TEA-21; and 3) for States with certain characteristics (e.g., low population density, high Interstate fatality rate), a guarantee of at least the same share of apportionments and High Priority Projects as the State averaged under TEA-21. The Equity Bonus funding for each State is the amount needed to bring a State up to its total program level.

Changes to the HBP apportionments resulting from the transfers of HBP funds can affect not only the amount of Equity Bonus funding needed to bring a State up to its total program level but can also affect the total program levels themselves as determined under the three Equity Bonus elements. Therefore, while changes to the HBP apportionments were partially or fully counterbalanced by Equity Bonus funding in some instances, in a number of cases, the Equity Bonus funding increase was even greater than the reduction in the HBP apportionment.

Question from Rep. Richardson

1. Please provide a State-by-State list for the last 10 years of which States have transferred money from the bridge program to other programs and how much was transferred. When possible, please detail where the money was transferred to.

RESPONSE:

Please see the attached document (Attachment #2).

## Attachment #1

Federal Highway Administration (FHWA)  
Transfers from Highway Bridge Program (HBP), HBP Apportionments, and Equity Bonus Funding

<u>State</u>	<u>FY 2004 Transfers from HBP</u>	<u>FY 2005 Change in HBP Apportionment due to HBP Transfers</u>	<u>FY 2005 Change in Equity Bonus due to HBP Transfers</u>
Pennsylvania	191,800,000	-14,600,763	14,600,763
Rhode Island	10,000,000	-509,380	509,380
Virginia	35,234,226	-2,618,768	2,672,827

<u>State</u>	<u>FY 2005 Transfers from HBP</u>	<u>FY 2006 Change in HBP Apportionment due to HBP Transfers</u>	<u>FY 2006 Change in Equity Bonus due to HBP Transfers</u>
Pennsylvania	134,990,000	-10,202,336	10,211,446

<u>State</u>	<u>FY 2006 Transfers from HBP</u>	<u>FY 2007 Change in HBP Apportionment due to HBP Transfers</u>	<u>FY 2007 Change in Equity Bonus due to HBP Transfers</u>
Alaska	1,301,353	82,125	74,733
California	305,586,671	-20,385,702	21,558,128
Hawaii	2,000,000	78,835	-78,845
Maryland	35,520,170	-1,945,071	2,164,847
Minnesota	33,288,150	-2,257,352	2,478,466
Nevada	1,044,384	0	101,128
Ohio	10,000,000	847,084	-360,283
Oregon	8,000,000	408,790	-245,743
Pennsylvania	235,000,000	-8,666,323	8,667,480

<u>State</u>	<u>FY 2007 Transfers from HBP</u>	<u>FY 2008 Change in HBP Apportionment due to HBP Transfers</u>	<u>FY 2008 Change in Equity Bonus due to HBP Transfers</u>
Alaska	1,000,001	47,943	-175,123
Kansas	30,000,000	-1,673,116	1,676,679
Minnesota	35,191,873	-2,190,268	2,012,489
Nevada	827,041	0	-85,569
Ohio	76,686,875	-4,075,989	3,693,857
Pennsylvania	260,000,000	-14,505,537	14,536,426
Rhode Island	40,000,000	-2,201,418	0
Vermont	2,700,000	83,227	-132,178

<u>State</u>	<u>FY 2008 Transfers from HBP</u>	<u>FY 2009 Change in HBP Apportionment due to HBP Transfers</u>	<u>FY 2009 Change in Equity Bonus due to HBP Transfers</u>
Arizona	2,484,470	-136,776	148,660
Hawaii	1,000,000	-33,809	33,880
Oregon	44,000,000	-2,694,907	2,707,853

## Attachment #2

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 TRANSFERS OF HIGHWAY BRIDGE PROGRAM FUNDS  
 FISCAL YEARS 2001 THROUGH AUGUST 15, 2010

STATE	FY 2010 thru 08/15	FY 2009	FY 2008	FY 2007	FY 2006	FY 2005	FY 2004	FY 2003	FY 2002	FY 2001
ALABAMA	-	-	-	-	-	-	-	-	-	-
ALASKA	-	-	-	-	-	-	58,275,000	-	-	-
ARIZONA	-	36,948,565	-	2,484,471	2,301,354	-	-	-	-	-
CALIFORNIA	-	-	-	-	365,586,671	-	-	-	-	150,675,640
HAWAII	-	-	-	1,000,000	-	2,000,000	-	-	-	-
INDIANA	-	60,000,000	-	-	-	-	-	-	-	-
IOWA	-	-	-	-	-	-	-	30,000,000	-	-
KANSAS	-	-	-	-	30,000,000	-	-	-	-	-
LOUISIANA	50,000,000	-	-	-	-	-	-	-	-	-
MARYLAND	-	-	-	-	32,520,170	-	-	-	-	34,155,134
MASSACHUSETTS	-	-	-	-	-	-	-	-	56,044,772	58,209,934
MINNESOTA	-	-	-	-	41,615,023	8,965,000	-	-	-	-
MISSOURI	-	15,000,000	27,930,797	-	-	-	-	-	-	-
MONTANA	-	-	-	-	-	-	-	-	-	-
NEVADA	7,416,642	5,363,181	-	-	1,871,425	-	-	-	-	-
OHIO	-	158,426,573	-	76,686,876	10,000,000	-	-	-	-	-
OKLAHOMA	-	-	-	-	-	-	-	-	-	-
OREGON	-	37,000,000	44,000,000	-	8,000,000	-	-	-	-	-
PENNSYLVANIA	-	-	-	236,000,000	185,000,000	184,990,000	191,800,000	150,000,000	110,000,000	125,000,000
RHODE ISLAND	-	-	-	25,000,000	15,000,000	-	10,000,000	-	-	-
UTAH	-	-	-	-	-	-	-	9,990,075	-	-
VERMONT	-	-	-	-	2,700,000	-	-	-	-	-
VIRGINIA	-	-	-	-	-	-	35,234,226	-	-	110,000,000
<b>TOTALS FOR FY:</b>	<b>57,416,642</b>	<b>312,739,318</b>	<b>71,930,797</b>	<b>341,171,346</b>	<b>634,594,643</b>	<b>195,945,000</b>	<b>295,309,226</b>	<b>189,990,075</b>	<b>166,044,772</b>	<b>478,039,708</b>

\* This report shows funds which were transferred from the Highway Bridge Program (HBP) to other Federal-aid Highway Programs. Transfers into HBP are not listed. Source: FHWA-FMIS L11A as of August 15, 2010

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 TRANSFERS OF HIGHWAY BRIDGE PROGRAM FUNDS  
 FISCAL YEAR 2010 (THROUGH AUGUST 15)

STATE	FROM FUND	TO FUND	TRANSFER AMOUNT
LOUISIANA	BRIDGE 85% ON/OFF S-LU EXT	SURFACE TRANS FLEX S-LU EXT	50,000,000
NEVADA	BRIDGE REPL-20% OFF/ON SYS	INTERSTATE MAINT S-LU EXT	131,538
NEVADA	BRIDGE 85% ON/OFF S-LU EXT	SURFACE TRANS FLEX S-LU EXT	4,626,453
NEVADA	BRIDGE 85% ON/OFF S-LU EXT	INTERSTATE MAINT S-LU EXT	545,004
NEVADA	BRIDGE 85% ON/OFF S-LU EXT	SURFACE TRANS FLEX S-LU EXT	2,033,646
NEVADA	BRIDGE 85% ON/OFF S-LU EXT	CONGESTION MITIGATION S-LU EXT	80,000
		TOTAL FOR FISCAL YEAR:	57,416,642

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U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 TRANSFERS OF HIGHWAY BRIDGE PROGRAM FUNDS  
 FISCAL YEAR 2009

STATE	FROM FUND	TO FUND	TRANSFER AMOUNT
ARIZONA	BRIDGE PROGRAM - 85% ON/OFF	SURFACE TRANSPORTATION FLEX	11,679,335
ARIZONA	BRIDGE PROGRAM - 85% ON/OFF	SURFACE TRANSPORTATION FLEX	9,904,788
ARIZONA	BRIDGE PROGRAM - 85% ON/OFF	SURFACE TRANSPORTATION FLEX	8,942,632
ARIZONA	BRIDGE PROGRAM - 85% ON/OFF	SURFACE TRANSPORTATION FLEX	6,422,811
INDIANA	BRIDGE PROGRAM - 85% ON/OFF	SURFACE TRANSPORTATION FLEX	30,000,000
INDIANA	BRIDGE PROGRAM - 85% ON/OFF	SURFACE TRANSPORTATION FLEX	30,000,000
MISSOURI	BRIDGE PROGRAM - 85% ON/OFF	SURFACE TRANSPORTATION FLEX	15,000,000
NEVADA	BRIDGE PROGRAM - 85% ON/OFF	SURFACE TRANSPORTATION FLEX	5,363,181
OHIO	BRIDGE PROGRAM - 85% ON/OFF	SURFACE TRANSPORTATION FLEX	76,504,898
OHIO	BRIDGE PROGRAM - 85% ON/OFF	SURFACE TRANSPORTATION FLEX	81,921,675
OREGON	BRIDGE PROGRAM - 85% ON/OFF	SURFACE TRANSPORTATION FLEX	30,000,000
OREGON	BRIDGE PROGRAM - 85% ON/OFF	INTERSTATE MAINTENANCE	7,000,000
		TOTAL FOR FISCAL YEAR:	312,739,318

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U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 TRANSFERS OF HIGHWAY BRIDGE PROGRAM FUNDS  
 FISCAL YEAR 2008

STATE	FROM FUND	TO FUND	TRANSFER AMOUNT
MISSOURI	BRIDGE PROGRAM - 85% ON/OFF	SURFACE TRANSPORTATION FLEX	10,695,396
MISSOURI	BRIDGE PROGRAM - 85% ON/OFF	SURFACE TRANSPORTATION FLEX	17,235,401
OREGON	BR REPL - 65% ON SYS - STEA03	SURFACE TRANSPORTATION FLEX	10,000,000
OREGON	BR REPL - 65% ON SYS - STEA03	NHS- NATL HIGHWAY SYS	4,000,000
OREGON	BRIDGE PROGRAM - 85% ON/OFF	NHS- NATL HIGHWAY SYS	30,000,000
		TOTAL FOR FISCAL YEAR:	71,930,797

\* This report shows funds which were transferred from the Highway Bridge Program (HBP) to other Federal-aid Highway Programs. Transfers into HBP are not listed. Source: FHWA-FMIS L11A as of August 15, 2010

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 TRANSFERS OF HIGHWAY BRIDGE PROGRAM FUNDS  
 FISCAL YEAR 2007

STATE	FROM FUND	TO FUND	TRANSFER AMOUNT
ARIZONA	BR REPL - 65% ON SYS - STEA03	SURFACE TRANSPORTATION FLEX	2,484,471
HAWAII	BR REPL - 65% ON SYS - STEA03	NATL HIGHWAY SYS - STEA03	1,000,000
OHIO	BR REPL - 65% ON SYS - STEA03	STP - STATE FLEXIBLE - STEA03	20,821,378
OHIO	BR REPL - 65% ON SYS - STEA03	STP - STATE FLEXIBLE - STEA03	17,407,318
OHIO	BR REP & REH 20% ON/OFF-STEAO3	STP - STATE FLEXIBLE - STEA03	12,757,652
OHIO	BR REP & REH 20% ON/OFF-STEAO3	STP - STATE FLEXIBLE - STEA03	15,700,629
OHIO	HWY BR PROG 85% ON/OFF	STP - STATE FLEXIBLE - STEA03	10,000,000
PENNSYLVANIA	BRIDGE PROGRAM - 85% ON/OFF	SURFACE TRANSPORTATION FLEX	236,000,000
RHODE ISLAND	BRIDGE PROGRAM - 85% ON/OFF	SURFACE TRANSPORTATION FLEX	15,000,000
RHODE ISLAND	BRIDGE PROGRAM - 85% ON/OFF	SURFACE TRANSPORTATION FLEX	10,000,000
		TOTAL FOR FISCAL YEAR:	341,171,346

\* This report shows funds which were transferred from the Highway Bridge Program (HBP) to other Federal-aid Highway Programs. Transfers into HBP are not listed. Source: FHWA-FMIS L11A as of August 15, 2010

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 TRANSFERS OF HIGHWAY BRIDGE PROGRAM FUNDS  
 FISCAL YEAR 2006

STATE	FROM FUND	TO FUND	TRANSFER AMOUNT
ALASKA	BR REPL - 65% ON SYS - STEA03	STP - STATE FLEXIBLE - STEA03	420,565
ALASKA	BR REP & REH 20% ON/OFF-STEAO3	STP - STATE FLEXIBLE - STEA03	215,886
ALASKA	HWY BR PROG 85% ON/OFF	STP - STATE FLEXIBLE - STEA03	1,664,903
CALIFORNIA	BR REPL - 65% ON SYS - STEA03	STP - STATE FLEXIBLE - STEA03	104,522,273
CALIFORNIA	BR REP & REH 20% ON/OFF-STEAO3	STP - STATE FLEXIBLE - STEA03	39,544,695
CALIFORNIA	BRIDGE PROGRAM - 85% ON/OFF	SURFACE TRANSPORTATION FLEX	161,519,703
KANSAS	BR REP & REH 20% ON/OFF-STEAO3	STP - STATE FLEXIBLE - STEA03	6,541,954
KANSAS	BR REP & REH 20% ON/OFF-STEAO3	STP - STATE FLEXIBLE - STEA03	5,305,847
KANSAS	BR REP & REH 20% ON/OFF-STEAO3	NATL HIGHWAY SYS - STEA03	1
KANSAS	BR REP & REH 20% ON/OFF-STEAO3	STP - STATE FLEXIBLE - STEA03	1
KANSAS	BRIDGE PROGRAM - 85% ON/OFF	SURFACE TRANSPORTATION FLEX	18,152,198
MARYLAND	BRIDGE PROGRAM - 85% ON/OFF	SURFACE TRANSPORTATION FLEX	32,520,170
MINNESOTA	BR REPL - 65% ON SYS - STEA03	STP - STATE FLEXIBLE - STEA03	9,089,113
MINNESOTA	BR REPL - 65% ON SYS - STEA03	NATL HIGHWAY SYS - STEA03	8,813,602
MINNESOTA	BR REP & REH 20% ON/OFF-STEAO3	STP - STATE FLEXIBLE - STEA03	3,626,500
MINNESOTA	BR REP & REH 20% ON/OFF-STEAO3	STP - STATE FLEXIBLE - STEA03	2,796,651
MINNESOTA	BRIDGE PROGRAM - 85% ON/OFF	NHS- NATL HIGHWAY SYS	17,289,158
NEVADA	BR REP & REH 20% ON/OFF-STEAO3	STP - STATE FLEXIBLE - STEA03	1,044,384
NEVADA	BR REPL - 15% OFF SYS - TEA21	STP - STATE FLEXIBLE - STEA03	827,041
OHIO	BR REPL - 65% ON SYS - STEA03	STP - STATE FLEXIBLE - STEA03	10,000,000
OREGON	BR REPL - 65% ON SYS - STEA03	STP - STATE FLEXIBLE - STEA03	8,000,000
PENNSYLVANIA	BRIDGE PROGRAM - 85% ON/OFF	SURFACE TRANSPORTATION FLEX	185,000,000
RHODE ISLAND	BR REP & REH 20% ON/OFF-TEA21	SURFACE TRANSPORTATION FLEX	5,023,127
RHODE ISLAND	BR REP & REH 20% ON/OFF-TEA21	SURFACE TRANSPORTATION FLEX	5,220,472
RHODE ISLAND	BR REP & REH 20% ON/OFF-TEA21	SURFACE TRANSPORTATION FLEX	4,756,401
VERMONT	BR REPL - 65% ON SYS - STEA03	STP - STATE FLEXIBLE - STEA03	2,700,000
TOTAL FOR FISCAL YEAR:			634,594,643

\* This report shows funds which were transferred from the Highway Bridge Program (HBP) to other Federal-aid Highway Programs. Transfers into HBP are not listed. Source: FHWA-FMIS L11A as of August 15, 2010

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 TRANSFERS OF HIGHWAY BRIDGE PROGRAM FUNDS  
 FISCAL YEAR 2005

STATE	FROM FUND	TO FUND	TRANSFER AMOUNT
HAWAII	BRIDGE REPL-65% ON SYSTEM	NATL HIGHWAY SYS - STEA03	2,000,000
MINNESOTA	BR REPL - 65% ON SYS - TEA21	NATL HIGHWAY SYS - TEA21	8,955,000
PENNSYLVANIA	BR REPL - 65% ON SYS - STEA03	STP - STATE FLEXIBLE - STEA03	103,828,248
PENNSYLVANIA	BR REPL - 65% ON SYS - STEA03	STP - STATE FLEXIBLE - STEA03	25,000,000
PENNSYLVANIA	BR REP & REH 20% ON/OFF-STEAO3	STP - STATE FLEXIBLE - STEA03	31,161,752
PENNSYLVANIA	BR REP & REH 20% ON/OFF-STEAO3	STP - STATE FLEXIBLE - STEA03	8,000,000
PENNSYLVANIA	HWY BR PROG 85% ON/OFF	STP - STATE FLEXIBLE - STEA03	17,000,000
		TOTAL FOR FISCAL YEAR:	195,945,000

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U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 TRANSFERS OF HIGHWAY BRIDGE PROGRAM FUNDS  
 FISCAL YEAR 2004

STATE	FROM FUND	TO FUND	TRANSFER AMOUNT
ALABAMA	BRIDGE REPL-15% OFF SYS-MAND	STP - STATE FLEXIBLE - STEA03	723,543
ALABAMA	BRIDGE REPL-65% ON SYSTEM	STP - STATE FLEXIBLE - STEA03	1,463,489
ALABAMA	BR REPL - 65% ON SYS - STEA03	STP - STATE FLEXIBLE - STEA03	16,236,741
ALABAMA	BR REPL - 65% ON SYS - STEA03	STP - STATE FLEXIBLE - STEA03	4,317,862
ALABAMA	BR REPL - 15% OFF SYS - TEA21	STP - STATE FLEXIBLE - STEA03	11,599,770
ALABAMA	BR REPL - 15% OFF SYS - TEA21	STP - STATE FLEXIBLE - STEA03	11,517,629
ALABAMA	BR REPL - 15% OFF SYS - TEA21	STP - STATE FLEXIBLE - STEA03	169,546
ALABAMA	BR REP & REH 20% ON/OFF-TEA21	STP - STATE FLEXIBLE - STEA03	12,246,421
PENNSYLVANIA	BR REPL - 65% ON SYS - STEA03	STP - STATE FLEXIBLE - STEA03	64,000,000
PENNSYLVANIA	BR REPL - 65% ON SYS - STEA03	STP - STATE FLEXIBLE - STEA03	50,000,000
PENNSYLVANIA	BR REPL - 65% ON SYS - STEA03	STP - STATE FLEXIBLE - STEA03	34,800,000
PENNSYLVANIA	BR REP & REH 20% ON/OFF-STEAO3	STP - STATE FLEXIBLE - STEA03	19,800,000
PENNSYLVANIA	BR REP & REH 20% ON/OFF-STEAO3	STP - STATE FLEXIBLE - STEA03	15,000,000
PENNSYLVANIA	BR REP & REH 20% ON/OFF-STEAO3	STP - STATE FLEXIBLE - STEA03	8,200,000
RHODE ISLAND	BR REPL - 65% ON SYS - STEA03	STP - STATE FLEXIBLE - STEA03	10,000,000
VIRGINIA	BR REPL - 65% ON SYS - STEA03	STP - STATE FLEXIBLE - STEA03	5,011,576
VIRGINIA	BR REP & REH 20% ON/OFF-STEAO3	STP - STATE FLEXIBLE - STEA03	8,784,048
VIRGINIA	BR REPL - 65% ON SYS - TEA21	STP - STATE FLEXIBLE - STEA03	4,181,343
VIRGINIA	BR REP & REH 20% ON/OFF-TEA21	STP - STATE FLEXIBLE - STEA03	8,972,324
VIRGINIA	BR REP & REH 20% ON/OFF-TEA21	STP - STATE FLEXIBLE - STEA03	8,284,935
		TOTAL FOR FISCAL YEAR:	295,309,226

\* This report shows funds which were transferred from the Highway Bridge Program (HBP) to other Federal-aid Highway Programs. Transfers into HBP are not listed. Source: FHWA-FMIS L11A as of August 15, 2010

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 TRANSFERS OF HIGHWAY BRIDGE PROGRAM FUNDS  
 FISCAL YEAR 2003

STATE	FROM FUND	TO FUND	TRANSFER AMOUNT
IOWA	BR REPL - 65% ON SYS - TEA21	NATL HIGHWAY SYS - TEA21	20,159,264
IOWA	BR REPL - 65% ON SYS - TEA21	NATL HIGHWAY SYS - TEA21	9,840,736
PENNSYLVANIA	BR REPL - 65% ON SYS - TEA21	STP - STATE FLEXIBLE - TEA21	75,000,000
PENNSYLVANIA	BR REPL - 65% ON SYS - TEA21	STP - STATE FLEXIBLE - TEA21	75,000,000
UTAH	BR REPL - 65% ON SYS - TEA21	STP - STATE FLEXIBLE - TEA21	7,639,469
UTAH	BR REP & REH 20% ON/OFF-TEA21	STP - STATE FLEXIBLE - TEA21	2,350,606
TOTAL FOR FISCAL YEAR:			189,990,075

\* This report shows funds which were transferred from the Highway Bridge Program (HBP) to other Federal-aid Highway Programs. Transfers into HBP are not listed. Source: FHWA-FMIS L11A as of August 15, 2010

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 TRANSFERS OF HIGHWAY BRIDGE PROGRAM FUNDS  
 FISCAL YEAR 2002

STATE	FROM FUND	TO FUND	TRANSFER AMOUNT
MASSACHUSETTS	BR REPL - 65% ON SYS - TEA21	STP - STATE FLEXIBLE - TEA21	50,000,000
MASSACHUSETTS	BR REP & REH 20% ON/OFF-TEA21	STP - STATE FLEXIBLE - TEA21	6,044,772
PENNSYLVANIA	BR REPL - 65% ON SYS - TEA21	STP - STATE FLEXIBLE - TEA21	110,000,000
		TOTAL FOR FISCAL YEAR:	166,044,772

\* This report shows funds which were transferred from the Highway Bridge Program (HBP) to other Federal-aid Highway Programs. Transfers into HBP are not listed. Source: FHWA-FMIS L11A as of August 15, 2010

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 TRANSFERS OF HIGHWAY BRIDGE PROGRAM FUNDS  
 FISCAL YEAR 2001

STATE	FROM FUND	TO FUND	TRANSFER AMOUNT
CALIFORNIA	BR REPL - 65% ON SYS - TEA21	STP - STATE FLEXIBLE - TEA21	49,000,000
CALIFORNIA	BR REPL - 65% ON SYS - TEA21	STP - STATE FLEXIBLE - TEA21	49,000,000
CALIFORNIA	BR REP & REH 20% ON/OFF-TEA21	STP - STATE FLEXIBLE - TEA21	26,337,820
CALIFORNIA	BR REP & REH 20% ON/OFF-TEA21	STP - STATE FLEXIBLE - TEA21	26,337,820
MARYLAND	BR REPL - 65% ON SYS - TEA21	STP - STATE FLEXIBLE - TEA21	34,155,134
MASSACHUSETTS	BR REPL - 65% ON SYS - TEA21	STP - STATE FLEXIBLE - TEA21	31,208,934
MASSACHUSETTS	BR REP & REH 20% ON/OFF-TEA21	STP - STATE FLEXIBLE - TEA21	27,000,000
PENNSYLVANIA	BR REPL - 65% ON SYS - TEA21	STP - STATE FLEXIBLE - TEA21	90,000,000
PENNSYLVANIA	BR REP & REH 20% ON/OFF-TEA21	NATL HIGHWAY SYS - TEA21	25,000,000
PENNSYLVANIA	BR REP & REH 20% ON/OFF-TEA21	STP - STATE FLEXIBLE - TEA21	10,000,000
VIRGINIA	BR REPL - 65% ON SYS - TEA21	STP - STATE FLEXIBLE - TEA21	28,039,807
VIRGINIA	BR REPL - 65% ON SYS - TEA21	STP - STATE FLEXIBLE - TEA21	34,953,259
VIRGINIA	BR REPL - 65% ON SYS - TEA21	STP - STATE FLEXIBLE - TEA21	16,405,227
VIRGINIA	BR REP & REH 20% ON/OFF-TEA21	STP - STATE FLEXIBLE - TEA21	10,430,956
VIRGINIA	BR REP & REH 20% ON/OFF-TEA21	STP - STATE FLEXIBLE - TEA21	10,754,849
VIRGINIA	BR REP & REH 20% ON/OFF-TEA21	STP - STATE FLEXIBLE - TEA21	9,415,902
TOTAL FOR FISCAL YEAR:			478,039,708

\* This report shows funds which were transferred from the Highway Bridge Program (HBP) to other Federal-aid Highway Programs. Transfers into HBP are not listed. Source: FHWA-FMIS L11A as of August 15, 2010

United States Government Accountability Office

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**GAO**

Testimony  
Before the Subcommittee on Highways  
and Transit, Committee on Transportation  
and Infrastructure, House of  
Representatives

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For Release on Delivery  
Expected at 10:00 a.m. EDT  
Wednesday, July 21, 2010

## HIGHWAY BRIDGE PROGRAM

### Condition of Nation's Bridges Shows Limited Improvement, but Further Actions Could Enhance the Impact of Federal Investment

Statement of Phillip R. Herr, Director  
Physical Infrastructure Issues



July 21, 2010

**GAO**  
Accountability Integrity Reliability  
**Highlights**

Highlights of GAO-10-930T, a testimony before the Subcommittee on Highways and Transit, Committee on Transportation and Infrastructure, House of Representatives.

**Why GAO Did This Study**

One in four bridges in the United States is either structurally deficient and in need of repair, or functionally obsolete and is not adequate for today's traffic. The Highway Bridge Program (HBP), the primary source of federal funding for bridges, provided about \$7 billion to states in fiscal year 2010. This testimony addresses (1) the current state of the nation's bridges and the impacts of the HBP and (2) the extent to which the HBP aligns with principles GAO developed to guide the re-examination of surface transportation programs. This testimony is based on prior GAO reports, updated with bridge data and information provided by agency officials.

**What GAO Recommends**

GAO is not making any new recommendations. In 2008, GAO recommended that the Secretary of Transportation work with Congress to (1) identify and define national goals for HBP, (2) develop and implement performance measures, (3) identify and evaluate best tools and practices, and (4) review and evaluate HBP funding mechanisms to align funding with performance. DOT generally agreed with these recommendations and has taken some actions to work with Congress to address issues GAO raised regarding the HBP, but much work remains.

GAO provided a draft of this testimony to FHWA for review. We incorporated FHWA comments, as appropriate.

View GAO-10-930T or key components. For more information, contact Phillip R. Herr at (202) 512-2834 or herrp@gao.gov.

**HIGHWAY BRIDGE PROGRAM**

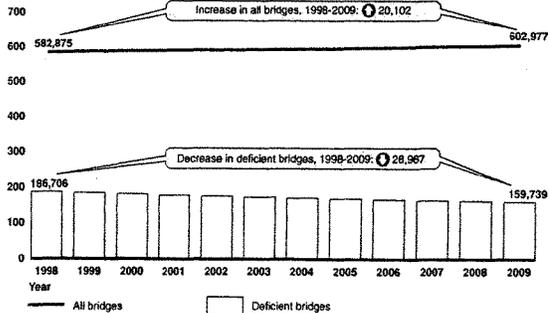
**Condition of Nation's Bridges Shows Limited Improvement, but Further Actions Could Enhance the Impact of Federal Investment**

**What GAO Found**

There are over 600,000 bridges on the nation's roadways, of which one in four is deficient in some sense. Data indicate that the total number of deficient bridges has decreased over the past 12 years, even as the total number of bridges has increased, because of a reduction in the number of structurally deficient bridges. However, the impact of the federal investment in the HBP is difficult to measure, in part because there are no comprehensive and complementary data for state and local bridge spending. The lack of comprehensive information on state and local spending makes it impossible to (1) distinguish the impact of HBP funding from other funding to improve bridge conditions and (2) determine the extent to which states may be substituting increased HBP funding for state and local funds that they would otherwise have spent on bridges. Evaluating the impact of the HBP is important not only to understand the outcome of past spending but also to determine how to sensibly invest future federal resources.

The HBP does not fully align with GAO's principles for re-examining surface transportation programs in that the program lacks focus, performance measures, and fiscal sustainability. The program's statutory goals are not focused on a clearly identified national interest but rather have expanded from improving deficient bridges to supporting preventive maintenance and many other projects, thus expanding eligibility to include almost any bridge. In addition, the program lacks measures linking funding to performance and does not utilize new tools such as bridge management systems. Fiscal sustainability also remains a challenge given the nearly \$30 billion in additional revenues added to the Highway Account since fiscal year 2008.

**Trends in Number and Condition of Bridges, 1998 through 2009**  
Number of bridges (in thousands)



Source: GAO analysis of 2009 FHWA data.

Note: Deficient bridges include both structurally deficient and functionally obsolete bridges.

United States Government Accountability Office

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Dear Mr. Chairman and Members of the Subcommittee:

I am pleased to be here today to participate in this hearing on federal efforts to address the condition of our nation's bridges. Bridges are critical elements of the nation's transportation network, which supports commerce, economic vitality, and personal mobility. According to the Federal Highway Administration (FHWA), it is authorized through the Highway Bridge Program (HBP) to provide approximately \$7 billion to states in fiscal year 2010. This program provides funding to states for a variety of activities that improve the condition of their bridges.<sup>1</sup> In addition to HBP funding, the American Recovery and Reinvestment Act of 2009 (Recovery Act) provided \$26.7 billion to the highway infrastructure investment to restore, repair, and construct highways and bridges and for other eligible uses, such as maritime industry projects.

Since the collapse of the I-35W bridge in Minneapolis, Minnesota, on August 1, 2007, there have been calls for increased federal investment in bridge infrastructure. Calls for increased investment coincide with strains on traditional funding for infrastructure projects, as evidenced by recent shortfalls and subsequent infusions of additional revenues into the Highway Trust Fund, which funds the HBP and other highway programs. Surface transportation funding has been on our high-risk list for several years.<sup>2</sup> We have also recently called for a fundamental re-examination of surface transportation programs and commitments to address emerging needs by eliminating outdated or ineffective programs, more sharply defining the federal role in relation to state and local governments, and modernizing certain programs.<sup>3</sup>

My testimony today addresses (1) the current state of the nation's bridges and impacts of the HBP and (2) the extent to which the HBP aligns with principles we developed to guide the re-examination of surface

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<sup>1</sup>States may use HBP funds for seven types of bridge-related activities, including replacement, rehabilitation, painting, seismic retrofitting, systematic preventive maintenance, installation of scour countermeasures (to address the effects of sediment erosion around bridge piers and abutments), and anti-icing or deicing activities.

<sup>2</sup>GAO, *High-Risk Series: An Update*, GAO-09-271 (Washington, D.C.: January 2009).

<sup>3</sup>GAO, *Surface Transportation: Restructured Federal Approach Needed for More Focused, Performance-Based, and Sustainable Programs*, GAO-08-400 (Washington, D.C.: Mar. 6, 2008).

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transportation programs.<sup>4</sup> My testimony is based on prior GAO work, including our 2008 report and testimony on the HBP, as well as updated data and information.<sup>5</sup>

For our prior reports, we interviewed a range of federal, state, and local transportation officials, including officials in six states that we visited (California, Missouri, New York, Pennsylvania, Texas, and Washington); analyzed data in FHWA's National Bridge Inventory (NBI), the primary source of information on the nation's bridges; and compared HBP practices to re-examination principles identified in our previous work. Those principles include identifying clear federal goals and roles, incorporating performance and accountability into funding decisions, using best tools and approaches, and ensuring fiscal sustainability. More detail on scope and methodology is available in each prior report. To update this report, we analyzed FHWA data and interviewed relevant officials. GAO provided a draft of this testimony to FHWA for review and comment. FHWA provided technical comments, which were incorporated, as appropriate. We conducted all our work 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.

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## Background

Bridges vary significantly in their size and use, including daily traffic volumes. In 2009, there were 602,977 bridges in the United States, which carried the nation's passenger car, truck, bus transit, and commercial vehicle traffic over waterways, highways, railways, and other road obstructions. The number of bridges owned is fairly evenly split between

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<sup>4</sup>These principles were developed in our earlier work on twenty-first century challenges and were based on our institutional knowledge, our extensive program evaluation and performance assessment work for the Congress, and federal laws and regulations. See *GAO, 21st Century Challenges: Reexamining the Base of the Federal Government*, GAO-05-325SP (Washington, D.C.: Feb. 1, 2005) and *High-Risk Series: An Update*, GAO-07-310 (Washington, D.C.: January 2007).

<sup>5</sup>GAO, *Highway Bridge Program: Clearer Goals and Performance Measures Needed for a More Focused and Sustainable Program*, GAO-08-1043 (Washington, D.C.: Sept. 10, 2008) and *Highway Bridge Program: Clearer Goals and Performance Measures Needed for a More Focused and Sustainable Program*, GAO-08-1127T (Washington, D.C.: Sept. 10, 2008).

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states (48 percent) and local government agencies (50 percent). State agencies are responsible for 77 percent of the nation's bridge deck area, which carry 88 percent of the average daily traffic crossings. The federal government owns less than 2 percent of the nation's bridges, primarily on federally owned land.

Bridge safety emerged as a high-priority issue in the United States in the 1960s, following the collapse of the Silver Bridge between Ohio and West Virginia, which killed 46 people. That collapse prompted national concerns about bridge condition and safety and highlighted the need for timely repair and replacement of bridges. Congress responded by establishing the National Bridge Inspection Program (NBIP) to ensure periodic safety inspection of bridges and what is now known as the HBP to provide funding and assist states in replacing and rehabilitating bridges. Both of these programs generally define eligible bridges as publicly owned, over 20 feet in length, and located on public roads.<sup>6</sup> Although the NBIP and HBP are separate programs, they are linked by the data collected through bridge inspections.

The NBIP establishes the National Bridge Inspection Standards, which details how bridge inspections are to be completed, by whom, and with what frequency. For example, state departments of transportation (state DOT) carry out the federal-level policies, procedures, and requirements for inventory, inspection, bridge load ratings, quality assurance, and reporting. Routine bridge inspections are generally conducted every 2 years by state bridge inspectors, but with FHWA approval, the inspection interval may be extended to 4 years on certain bridges. Bridges also may be inspected more often than every 2 years, when past inspection findings justify an increase. Inspectors must report bridge condition information to the NBI, maintained by FHWA headquarters.<sup>7</sup>

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<sup>6</sup>The NBIP and the HBP generally apply to both Federal-aid highway and non-Federal-aid highway bridges located on public roads. The NBIP standards do not apply to pedestrian or railroad bridges, bridges on private roads, or tunnels. FHWA encourages states to require private organizations to inspect privately owned bridges according to those standards. States are not responsible for the inspection of bridges owned by federal agencies.

<sup>7</sup>In January 2010, the U.S. Department of Transportation (DOT) Inspector General reported on inconsistencies in FHWA's enforcement of bridge inspection standards and found that FHWA has little assurance that states receiving Federal-aid highway funds comply with bridge inspection standards. See DOT Inspector General, *Assessment of FHWA Oversight of the Highway Bridge Program and the National Bridge Inspection Program*, MH-2010-039 (Washington, D.C., Jan. 14, 2010).

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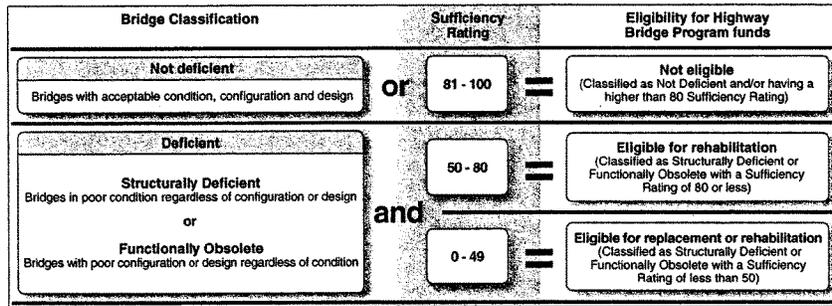
Based on information gathered during inspections and reported to the NBI, the HBP classifies bridge conditions as deficient or not, assigns a sufficiency rating, and uses that information to provide funding to states. A bridge may be classified as deficient for one of two reasons: a structurally deficient bridge has one or more components in poor condition, while a functionally obsolete bridge has a poor configuration or design that may no longer be adequate for the traffic it serves.<sup>8</sup> Bridge sufficiency ratings are calculated using a formula that reflects structural adequacy, safety, serviceability, and relative importance. Each bridge is assigned a sufficiency rating between 0 and 100. Bridges that are deficient and have a sufficiency rating of 80 or less may be eligible for rehabilitation and bridges that are deficient and have a sufficiency rating of less than 50 may be eligible for replacement or rehabilitation (see fig. 1).<sup>9</sup> However, the HBP allows other activities to be funded with program funds, regardless of a bridge's eligibility. These activities include seismic retrofitting, scour countermeasures, and systematic preventive maintenance projects.

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<sup>8</sup>For purposes of counting, functionally obsolete bridges that are also structurally deficient are recorded in the NBI as structurally deficient.

<sup>9</sup>Bridges that are newly constructed, have been replaced, or had major rehabilitation within the past 10 years are also not eligible. This is referred to as the "10-year rule."

**Figure 1: FHWA's Process for Designating Bridges as Eligible for HBP Funding**



Sources: GAO and FHWA.

The HBP gives states three key flexibilities in determining how to use their HBP resources. First, as mentioned above, states have the flexibility to use HBP funds not only for bridge replacement and rehabilitation, but also for a broad array of purposes regardless of bridge eligibility. Second, states have flexibility in determining how to split HBP resources between state and locally owned bridges. Aside from a requirement to distribute funds equitably, the only HBP requirement applicable to states' allocation of program funds is that states must set aside a minimum (15 percent) on non-Federal-aid highway bridges.<sup>10</sup> Third, states may also spend HBP funds on other, nonbridge transportation priorities by transferring up to 50 percent of their annual HBP funding to other core Federal-aid highway programs, though a penalty is invoked by reducing the state's HBP funds in the succeeding year by the amount transferred.<sup>11</sup> Planning for how HBP funds are spent is generally under the control of state DOTs: once states select bridge projects, they apply to FHWA to obligate funding to cover the

<sup>10</sup>Non-Federal-aid highway bridges are generally located on local or rural roads that carry lower volumes of traffic.

<sup>11</sup>The majority of Federal-aid highway infrastructure funding is distributed through seven major programs, often referred to as core highway programs. These programs are the National Highway System Program, Surface Transportation Program, Interstate Maintenance Program, HBP, Congestion Mitigation and Air Quality Improvement Program, Highway Safety Improvement Program, and the Equity Bonus Program.

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federal share of the costs, which is generally 80 percent of the project cost.<sup>12</sup>

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**Bridge Conditions Have Improved, but the Impact of the HBP Is Difficult to Determine**

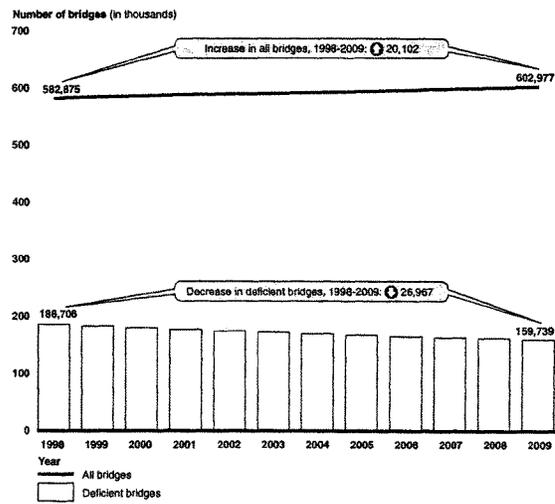
**Bridge Conditions Have Improved but a Significant Number of Bridges Remain in Poor Condition**

Of the 602,977 bridges on the nation's roadways, one in four is classified as deficient. Data indicate that the total number of deficient bridges has decreased since 1998, even as the total number of bridges has increased. From 1998 to 2009, the number of deficient bridges declined by over 14 percent, from 186,706 to 159,739, even with the addition of more than 20,000 new bridges to the NBI (see fig. 2).

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<sup>12</sup>The federal share for bridge projects on the Interstate System is 90 percent.

**Figure 2: Trends in Number and Condition of Bridges, 1998 through 2009**



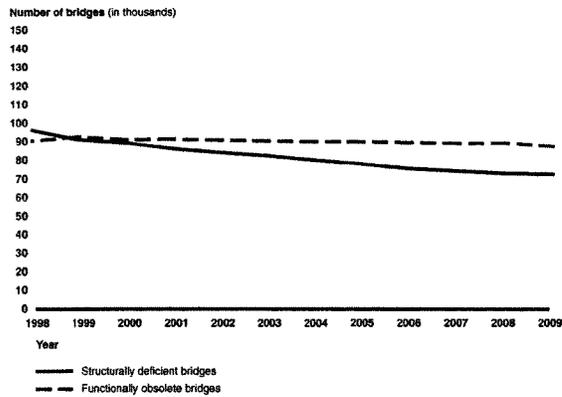
Source: GAO analysis of 2009 FHWA data.

Note: Deficient bridges include both structurally deficient and functionally obsolete bridges. These data include bridges subject to the "10-year rule," which limits bridge eligibility for HBP funds.

The decline in the overall number of deficient bridges—which includes structurally deficient and functionally obsolete bridges—is primarily attributable to a reduction in the number of structurally deficient bridges. Specifically, from 1998 through 2009, the number of structurally deficient bridges decreased by 25 percent, from 96,263 to 72,388 (see fig. 3). During that same period, the number of functionally obsolete bridges decreased by 3 percent, from 90,443 to 87,351. The reduction in the number of structurally deficient bridges may reflect state efforts to address deterioration or damage. Although reducing or eliminating structurally deficient bridges may not always be a state's highest priority, structurally deficient bridges often require maintenance and repair to remain in service. In contrast, functionally obsolete bridges do not necessarily

require repair to remain in service and therefore are unlikely to be state transportation officials' top priority for rehabilitation or replacement.

**Figure 3: Number of Structurally Deficient and Functionally Obsolete Bridges, 1998 through 2009**



Source: GAO analysis of 2009 FHWA data.

Note: These data include bridges subject to the "10-year rule," which limits bridge eligibility for HBP funds.

Additionally, in our prior work, we found that the average sufficiency rating of all bridges—including both deficient and not deficient bridges—also improved slightly. Specifically, the average sufficiency rating for all bridges increased from 75 to 79 on the sufficiency rating's 100-point scale from 1998 to 2007. Further, while structurally deficient bridges generally have lower sufficiency ratings (average rating of 42 in 2007) than functionally obsolete bridges (average rating of 69 in 2007), the average sufficiency ratings of both types of deficient bridges improved slightly since 1998. In updating our prior work, FHWA officials indicated that bridge sufficiency ratings have continued to improve (average rating of 80 in 2009).

In our Recovery Act work, a number of states have reported plans to use highway infrastructure investment funds to improve bridge conditions.<sup>13</sup> Some of these plans include improvements to deficient bridges. For example, Pennsylvania is using some Recovery Act funds to reduce the number of structurally deficient bridges in the state, in part because a significant percentage (about 26 percent, as of 2008) of the state's bridges is rated structurally deficient. As of June 30, 2010, 29 percent of Recovery Act funds in Pennsylvania were obligated for bridge improvement and replacement. Nationally, about \$3.2 billion of the \$26.7 billion in highway Recovery Act funds were obligated for bridge projects as of June 30, 2010. This includes funding for 61 new bridge construction projects (\$719 million), 644 bridge replacement projects (\$1.3 billion), and 554 bridge improvement projects (\$1.2 billion).

**HBP's Impact Is Difficult to Determine Due to Incomplete Information on Spending, Expansion of Bridge Project Eligibility, and Limitations in Bridge Condition Data**

The impact of the federal investment in the HBP is difficult to measure in part because there are no comprehensive and complementary data for state and local spending on bridges. For example, while FHWA tracks a portion of bridge capital spending on a state-by-state basis, the data do not include (1) state spending on bridges located on local roads and (2) most local government spending on bridges, thus making it difficult to determine the HBP contribution to overall bridge expenditures. Also, while FHWA generates a single, national-level estimate for total bridge expenditures at all government levels, this estimate cannot be used to determine the impact of the HBP by state or by bridge. In addition, while two of the state DOTs we visited as part of our prior work had data on state bridge spending, none was able to provide comprehensive data on total state and local investment in bridges.<sup>14</sup> Some officials we interviewed estimated that, in their states, such spending ranged from the minimum match amount—generally 20 percent of the HBP apportionment amount—to more than four times the state's apportioned HBP funds. The lack of comprehensive information on state and local spending makes it impossible to (1) distinguish the impact of HBP funding from other funding to improve bridge conditions and (2) determine the extent to which states may be substituting increased HBP funding for state and local

<sup>13</sup>GAO, *Recovery Act: States' Use of Highway and Transit Funds and Efforts to Meet the Act's Requirements*, GAO-10-312T (Washington, D.C.: Dec. 10, 2009) and *Recovery Act: States' and Localities' Uses of Funds and Actions Needed to Address Implementation Challenges and Bolster Accountability*, GAO-10-604 (Washington, D.C.: May 26, 2010).

<sup>14</sup>GAO-08-1043.

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funds that they would otherwise have spent on bridges. Our previous work has shown that although the federal investment in HBP and other Federal-aid highway programs has increased over time, this investment has not resulted in commensurate increases in the nation's federal, state, and local government spending on the highway system.<sup>15</sup> More specifically, we found in our previous work that as the level of federal funding has increased since the mid-1990s, states have not maintained their level of effort in highway spending, and federal funds have increasingly been substituted for state funds. This suggests that increased federal highway funding influences states and localities to substitute federal funds for state and local funds they otherwise would have spent on highways and bridges.

The impact of the HBP is also difficult to measure because available bridge condition data cover only some of the improvements funded by the program. As discussed earlier, states can and do use HBP funds for a variety of activities in addition to rehabilitating and replacing their deficient bridges. Therefore, simply measuring changes in the number of structurally deficient or functionally obsolete bridges does not reflect the full impact of the program, since these measures do not capture the impact of the HBP investment in the other eligible activities—such as preventive maintenance—that do not necessarily result in an immediate reduction in the number of deficient bridges. Without quantifiable performance measures to track the full range of outcomes for the HBP, it is difficult to measure the program's impact across the range of activities funded and determine the extent to which the program is serving its stated purposes.

Another difficulty in determining the impact of the HBP funding occurs because the NBI does not readily permit changes in the condition of bridges to be tracked across time. Each bridge in the NBI is assigned an identifying number by the relevant state DOT. However, the identifying number for a bridge at a specific location may change over the life of that bridge. Such a change may occur when a state renumbers, replaces, or closes and subsequently reopens a bridge. As a result, it is difficult to track changes in the condition of any specific bridge to determine if, for example, the same bridges that were deficient in 1998 are still deficient today, to see how many bridges have been replaced, or to determine the impact of new bridges added to the inventory—which may not be funded

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<sup>15</sup>GAO, *Federal-Aid Highways: Trends, Effect on State Spending, and Options For Future Program Design*, GAO-04-802 (Washington, D.C.: Aug. 31, 2004).

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by the HBP—on the overall condition of the nation's bridges. In our Recovery Act work, we have found that DOT is not currently assessing the impact of Recovery Act funds used on highway transportation projects—including funds that are being used to improve bridge conditions—but is considering ways to better understand and measure impacts. For example, the NBI could be used to help FHWA study the impact of Recovery Act funds on the condition and performance of the nation's bridges, including whether these funds improved the state of repair.<sup>16</sup>

Evaluating the impact of the HBP is important not only to understand the outcomes of past spending, but also to determine how to sensibly invest future federal resources. The number of bridges in need of repair or rehabilitation is expected to increase as a large share of the nation's bridges built in the 1960s and early 1970s age. In our prior work, we reported that the average age of bridges in 2007 in the NBI was approximately 35 years, the average age of bridges with a sufficiency rating of 80 or less was 39 years (a deficient bridge with this rating becomes eligible for rehabilitation), and the average age of bridges with a sufficiency rating less than 50 was 53 years (a deficient bridge with this rating becomes eligible for replacement).<sup>17</sup> This suggests that as the age of bridges in this group rises, so will the number of HBP-eligible bridges. As a result, states and local agencies may see a spike in their need for bridge rehabilitation and replacement funding over the next 15 years. In our work to update this report, FHWA officials indicated that bridge conditions are continuing to improve despite the aging of bridges and noted that other factors in addition to age—such as the original type of design, maintenance, and climate—contribute to bridge conditions. Also, the reduction in deficient deck area is an important measure of the overall condition of the nation's bridges. According to FHWA data, the structurally deficient deck area of bridges on all highway systems has decreased by about 11 percent between 1998 and 2009. Nevertheless, FHWA officials indicated that they expect these trends in bridge conditions to continue as long as historical investment trends are sustained. In this environment of increasing demand for limited resources, it is especially important for FHWA and Congress to be able to evaluate HBP's impact to ensure that the program is providing an acceptable return on investment and addressing national transportation needs.

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<sup>16</sup>GAO-10-604.

<sup>17</sup>See GAO-08-1043. The age of a bridge is based on the number of years since it was built or reconstructed.

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### The HBP Lacks Focus, Performance Measures, and Sustainability

As we reported in 2008, the HBP does not fully align with our principles for re-examining surface transportation programs in that the bridge program lacks focus, performance measures, and sustainability. These principles, which are based on our prior work and federal laws and regulations, include

- ensuring program goals are well defined and focused on the federal or national interest;
- incorporating performance and accountability into funding decisions;
- employing the best tools and approaches to emphasize return on targeted federal investment; and
- ensuring fiscal sustainability.

First, HBP's goals are not focused on a clearly identified federal interest. Over the years, the program's statutory goals have expanded from improving deficient bridges to supporting activities like seismic retrofitting and preventive maintenance, thus expanding eligibility for HBP funds to include almost any bridge in the country. Our previous work has emphasized the importance of identifying clear areas of federal interest as a first step in determining program goals. For example, if mobility is determined to be a key federal interest and a primary goal, the HBP could be targeted toward heavily congested bridges or ones that are important for economic competitiveness and carry higher levels of freight than bridges that may serve relatively few people or businesses each day. If rehabilitating and reducing deficient bridges is determined to be a key federal interest, then the program could be further targeted toward that goal.<sup>18</sup> The federal interest may also be greater in mega-bridge projects that are too expensive for states to undertake without additional federal assistance or in projects that cross state lines.<sup>19</sup> Under the current HBP structure, the federal share is generally 80 percent of the total project costs. The cost-sharing arrangement could be structured so that the level and share of federal funding reflects the benefits the nation receives from investment in a bridge project; however, in reality, this cost-sharing appears to reflect historical levels of funding for many surface

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<sup>18</sup>DOT's Inspector General found that FHWA can not link expenditures of HBP funds to improvements made to deficient bridges and recommended that FHWA develop a data-driven, risk-based approach to bridge oversight to strengthen its oversight of states' use of HBP funding. DOT Inspector General, *National Bridge Inspection Program: Assessment of FHWA's Implementation of Data-Driven, Risk-Based Oversight*, MH-2009-013 (Washington, D.C., Jan. 12, 2009).

<sup>19</sup>Mega-bridge projects are projects with an estimated total cost greater than \$500 million.

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transportation programs without reference to whether the cost share should vary by project or whether state and local governments could assume more responsibility. Once the federal interest has been determined, our principles suggest basing the federal share of the cost of the bridge project on the level of federal interest.

Second, there is no clear tie between HBP funding and performance. HBP funds are apportioned to states without regard to program performance because the HBP formula is based on a calculation of needed repairs to deficient bridges, but the formula does not consider a state's efforts or effectiveness in reducing its inventory of deficient bridges or controlling costs. Because the federal formula does not factor in other eligible program activities, such as systematic preventive maintenance, there is no link between the apportionment formula and the states' performance of these activities. Without performance measures to link funding to performance, states lack an incentive to improve the return on the federal investment and are not held accountable for the results of their investments. Further, a bridge's deficiency status and sufficiency rating may not be the best proxy for bridge safety or risk. For example, states we visited in our prior work and officials we spoke with identified other priorities for bridge projects, such as seismic retrofitting, that are a greater safety concern for their bridge programs. Also, as states reduce the number of deficient bridges, they could become eligible for less HBP funding, which has created a potential disincentive for states to eliminate deficient bridges. Our work has shown that an increased focus on performance and accountability for results can help the federal government better target limited federal resources.

Third, the HBP generally lacks sufficient tools to determine the results of the federal investment in bridges. In this regard, bridge management systems, which are currently used by many states but not required by law, may be useful for prioritizing projects and making funding decisions to improve results and emphasize return on investment. We have previously reported that states use bridge management systems for gathering and analyzing bridge data to help manage their bridge assets and more efficiently allocate limited HBP resources among competing priorities. For example, states use these systems to predict future bridge conditions, estimate maintenance and improvement needs, determine optimal policies for rehabilitation and replacement, and recommend projects and schedules within budget and policy constraints. As previously mentioned, the HBP affords state DOTs discretion in using their HBP funds, and as a result, states select bridge projects and use HBP funds in a variety of ways.

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Finally, HBP's fiscal sustainability remains a challenge in light of aging bridge infrastructure, coupled with the declining purchasing power of funding currently available for bridge maintenance, rehabilitation, and replacement. Although transportation revenues have, until recently, increased in nominal terms, the federal and state motor fuel tax rates have not kept up with inflation. As a result, according to federal DOT and FHWA data, the purchasing power in real terms of revenues generated by federal and state motor fuel taxes have been declining since 1990.<sup>20</sup> To cover the shortfall in the Highway Trust Fund, from fiscal years 2008 through 2010 Congress transferred a total of \$34.5 billion in additional revenues into the Highway Trust Fund, including \$29.7 billion into the Highway Account. FHWA identified a bridge investment backlog of \$98.9 billion in 2006, and projected that eliminating this backlog and addressing future deficiencies as they arise would cost an estimated \$17.9 billion per year (in 2006 dollars). FHWA projects that maintaining the backlog at its 2006 level would cost an estimated \$11.1 billion annually. Federal funding levels provided in the most recent authorization were much lower than what FHWA estimated is necessary to maintain that backlog, although state and local governments provide additional funds for bridges. One tool that could possibly improve the sustainability of the HBP is a maintenance-of-effort requirement. The potential substitution of federal funds for state and local funds under the HBP and other federal transportation programs may be reduced by establishing a maintenance-of-effort requirement, whereby state or local grantees would be required to maintain their own level of funding for bridges in order to receive federal funds. Such a requirement could discourage states and local governments from substituting federal support for funds they themselves would have spent. The Recovery Act contained a maintenance-of-effort requirement for states and, as we reported, there have been some challenges implementing it. The maintenance-of-effort provision required DOT to invest a significant amount of time and work closely with the states to ensure consistency across states on how compliance with the act would be certified and reported. As a result, much of the work—such as developing compliance and oversight processes, reporting requirements, and identifying data for tracking purposes—has been done that should ensure smoother implementation of similar requirements.<sup>21</sup> Addressing the HBP's future fiscal sustainability is critical, given the overall fiscal

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<sup>20</sup>GAO, *Surface Transportation: Strategies Are Available for Making Existing Road Infrastructure Perform Better*, GAO-07-920 (Washington, D.C.: July 26, 2007).

<sup>21</sup>GAO-10-604.

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imbalance facing the nation and the lack of assurance that HBP funding is allocated to projects that are in the federal interest and provide the best return on investment.

Since our 2008 report, FHWA reports that it has taken a number of steps to work with Congress to address our recommendations. According to FHWA, efforts are under way to incorporate the underlying principles we developed to guide the re-examination of surface transportation programs, such as the need for specific national goals and performance measures to gauge progress toward national goals, encouraging states to use and share best tools and practices, and aligning funding mechanisms to support program goals. Specifically, FHWA initiated a program to collect information on the states' use of bridge management systems and encourage states to share information concerning bridge management practices. According to FHWA officials, FHWA is continuing to work with Congress and the administration to ensure that HBP or other bridge funding mechanisms align funding with performance and support a targeted and sustainable federal program in the next surface transportation reauthorization cycle. Without addressing these issues, the fiscal sustainability of the future transportation program will continue to be a challenge and the impact of federal investments could be diminished.

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Mr. Chairman, this concludes my prepared statement. I would be happy to respond to any questions that you or Members of the Subcommittee may have.

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**GAO Contact and  
Staff  
Acknowledgments**

For further information on this statement, please contact Phillip R. Herr at (202) 512-2834 or herrp@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this statement. Individuals making key contributions to this testimony were Heather MacLeod, Assistant Director; Jonathan Carver; Bert Japikse; Delwen Jones; SaraAnn Moessbauer; Josh Ormond; and John Stambaugh.

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**Post-Hearing Questions for the Record  
For Phillip R. Herr, Government Accountability Office  
From Chairman Peter A. DeFazio**

**July 21, 2010 Hearing:  
“Oversight of the Highway Bridge Program and the National Bridge  
Inspection Program”**

There have been questions raised about the “culture of partnership” that exists between FHWA and State DOTs.

- 1. To what degree, if any, do you believe that this culture might serve as an obstacle to a move toward a more accountable and performance-driven surface transportation program?**

GAO Response: We believe that FHWA’s long-standing culture of partnership with state DOTs, along with other factors, may pose obstacles to a more accountable and performance-driven surface transportation program. As we have previously reported, FHWA and state officials believe this partnership has helped to build trust and respect between the state transportation agencies and FHWA and has ensured that priorities such as safety and the environment are addressed. However, there can also be a down-side to such partnerships. When a project overseer becomes too involved in a project, an arms-length independent perspective can be lost. As we have previously reported, many surface transportation programs have numerous and conflicting goals, and the federal role in achieving the goals is not always clear. Many of these programs have no link to the performance of either the transportation system or the grantees receiving federal funds, and do not use the best tools and approaches to ensure effective investment decisions. The absence of such a link makes it difficult for FHWA to define its role and the purpose of its oversight of state DOTs.

- 2. What, if anything, would you recommend that this Committee do to begin to transform this culture to increase the accountability and oversight of states’ federal-aid highway programs?**

GAO Response: In order to increase the accountability and oversight of states’ federal-aid highway programs, we have made a number of specific recommendations to DOT. For example, we recommended that FHWA improve its oversight of states’ estimates of project

costs, financial management systems, and financial plans for major projects. In addition, we have recommended that DOT work with FHWA division offices in targeting their oversight activities to give appropriate consideration to risk related to the increased use of consultants and contractors who are carrying out a variety of highway activities. Moreover, we have recommended that Congress consider incorporating performance and accountability for results into surface transportation investment and policy decisions. Incorporating performance and accountability for results into transportation decisions is critical for improving results. In our June 2010 report on the Highway Trust Fund, we also noted that the federal-aid highway program distributes funding through a complicated process that yields a largely predetermined outcome—namely, returning revenues to their state of origin. Moreover, once the funds are apportioned, states have considerable flexibility to reallocate them among highway and transit programs. This flexibility essentially means that the federal-aid highway program functions, to some extent, as a general-purpose grant program. This approach poses considerable challenges to introducing performance orientation and accountability for results into highway investment decisions. For three programs, we have suggested that Congress consider a competitive, criteria-based process for distributing funds which could help ensure that investments meet national and regional transportation priorities.

Reauthorizing the surface transportation program provides an opportunity to more closely examine the statutory underpinnings of FHWA's culture of partnership. At the hearing, Mr. Gee, the FHWA witness, was asked what authority FHWA would have to act if it found that states were not addressing the most critically deficient bridges. He referred to a provision of law that says that authorization of federal funds "shall in no way infringe on the sovereign rights of the States to determine which projects shall be federally financed" and that the law provides for a "federally-assisted state program." In general, we have observed in the course of our work over many years that FHWA personnel are widely familiar with this provision of law, and that it can sometimes affect how FHWA approaches its oversight responsibilities. We would be pleased to discuss this matter further with you and your staff.



**TESTIMONY OF**

**MALCOLM T. KERLEY, P.E.**  
**CHIEF ENGINEER**  
**VIRGINIA DEPARTMENT OF TRANSPORTATION**

**ON BEHALF OF**

**THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND  
TRANSPORTATION OFFICIALS**

**REGARDING**

**OVERSIGHT OF THE HIGHWAY BRIDGE PROGRAM AND THE  
NATIONAL BRIDGE INSPECTION PROGRAM**

**BEFORE THE**

**COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE  
SUBCOMMITTEE ON HIGHWAYS AND TRANSIT  
U.S. HOUSE OF REPRESENTATIVES**

**JULY 21, 2010**

**Introduction**

The State Departments of Transportation consider bridge safety and preservation to be one of our highest priorities, and a responsibility we take very seriously.

However, as we all know, the transportation system is aging. The bulk of bridges built during the Interstate era – the largest construction period on record – are aging rapidly toward their useful life. The average bridge is now 43 years old. Truck traffic has nearly doubled in the past 20 years, and the trucking industry is pushing for heavier loads. Many Interstate bridges are reaching the end of their useful lives. And traffic keeps increasing.

At the same time, the buying power of the construction dollar has decreased dramatically. Costs for such staples as asphalt, diesel fuel, steel, concrete, and earthwork have risen by over 50% in the past 6 years.

Preserving the nation's investment in our transportation infrastructure needs to be a top priority of the federal government as well. Of the 590,000 bridges in our country, roughly 74,000 (or 12.4%) are classified as "structurally deficient." This means that one or more aspects of a bridge's structural condition requires attention.

But current funding levels are not adequate for the job at hand. A huge backlog of bridge needs remains. According to the U.S. DOT's 2006 *Conditions and Performance Report*, needed repairs on National Highway System bridges alone total over \$32 billion, which includes over \$19 billion needed on Interstate Highway System bridges.

If we had all the funding we needed, states could immediately reconstruct or rehabilitate all the structurally deficient bridges in the country – or, more simply put, they could address the *worst* bridges *first*. But since we don't have the necessary funding, states must take a more strategic approach to dealing with their vast systems of bridges. Working to reduce the significant number of deficient bridges in our nation, while simultaneously working to prevent an even larger number of "cusp" bridges – those that are just about to become deficient if they don't obtain needed maintenance or rehabilitation – from slipping into this category is a simplified description of an asset management system. Federal funding eligibility needs to recognize and encourage asset management approaches as valid methods for addressing this national crisis.

Finally, reports alleging a diversion of federal bridge funding are misleading because they focus only on federal Bridge Program data and fail to look at the total picture of all the resources states commit to bridge improvements. The fact is that states are spending dramatically more money on bridges than is provided under the Highway Bridge Program. For example, in 2004 FHWA reported that a total of \$10.5 billion was invested in bridge rehabilitation by all levels of government, which is more than twice the \$5.1 billion allotted by the Highway Bridge Program that year. Transfers between federal programs are simply a project management tool, and do not reflect actual levels of state bridge spending.

### **A New Vision for the Federal Highway Bridge Program (HBP)**

For 50 years, the federal interest was focused on building the interstate system. While 50 years ago the nation faced an historic period of bridge construction, today we face an historic period of bridge repair and reconstruction. We need to work to preserve the \$3-trillion investment we have made in our infrastructure. Where the current focus of the HBP is to drive down the number of SD bridges, the new focus should be to preserve the health of *all* bridges through asset management strategies.

“Preservation” is more than just preventative maintenance, more than simply funding bridge projects because they meet some criteria for being “structurally deficient” or “functionally obsolete.” Preservation is accomplished by better managing all of the assets in the system, and covers a wider range of strategies than simple preventive maintenance, thus helping to improve the health of the entire transportation system.

Federal funding for bridges should be combined with long-term, data-driven management practices to give states the flexibility necessary to maintain their bridges in the best possible health. States need federal funding to reduce the slippage of bridges into the “structurally deficient” category – And we all get more bang for our taxpayer buck by preserving a bridge early in its life rather than by having to completely replace it later on down the road. In order to accomplish this, however, states need to be able to fund a wider range of projects than just their lowest-rated bridges.

GAO notes in their report that bridges categorized as “deficient” are not necessarily unsafe, and that their work has raised some questions in their minds about the tendency to focus only on deficient bridges, as some deficient bridges do not need immediate repairs to carry traffic safely. Being categorized as “structurally deficient” means that one or more structural aspects of a bridge requires attention, which can range from simple deck repairs to reinforcement of support structures. It means that work needs to be done. However, classifying a bridge as “structurally deficient” does not mean that it is unsafe – it does not indicate the safety or strength of a bridge – it is a description created for the purpose of allocating federal bridge funds.

It is time to refocus the federal interest in bridges toward overall system health.

### **Realigning How We Manage Bridges through Asset Management**

GAO’s report states that HBP funds can, in some cases, be used for a variety of bridge projects without regard to a bridge’s deficiency status or sufficiency rating, thus not necessarily resulting in an immediate reduction in the number of deficient bridges.

But this is actually OK. As economists will tell you, with a system of bridges as large as ours, focusing on the “worst first” does not work.

When funding is limited – which we all know it is – fixing the worst bridges first is an inefficient use of money. By focusing on the structurally deficient bridges, we are allowing other bridges that are not yet structurally deficient to deteriorate into this category. And since there is not

enough money to fix all the deficient bridges before others deteriorate into this category, it becomes a constant game of "catch up."

Just like with the human body, getting regular check-ups and making minor fixes during your life is a lot less expensive (and less catastrophic) than letting yourself go until you have a major heart attack or stroke, which lands you in the hospital where you need major surgery and run up huge medical bills. Focusing narrowly on deficient bridges restricts money from being used until a bridge has a "heart attack," when instead the bridge could have been prevented from deteriorating to this point – using a lot less money – by performing strategically-timed fixes earlier in its life.

Using an asset management approach to attack the problem from all sides – fixing deficient bridges while simultaneously preventing new ones from becoming deficient – is the most efficient and effective way to improve the health of the nation's bridges with the limited funding that is available. One way that several states are accomplishing these dual objectives is by focusing on the "cusp" bridges – those with National Bridge Inventory ratings on the edge of the "structurally deficient" category" – that are close to slipping into the "deficient" category.

For example, Oregon has three times more "cusp" bridges than structurally deficient (SD) bridges, so in their DOT's bridge program they are concentrating on keeping the cusp bridges out of the SD category. It would be useful if federal funding were flexible enough to accommodate this strategy instead of reserving it for when the bridges actually become structurally deficient. Virginia is in a similar situation, with 1,778 structurally deficient bridges (8.5% of the total inventory) and an additional 4,531 "cusp" bridges (21.7% of the total inventory). If federal aid cannot be used to help with this potential problem, then we are all going to be in a big mess, and very soon.

California's program is based on a "red/yellow/green" system for evaluating their bridges – currently, 86% of their bridges are in the "green" category, 9% are "yellow," and 5% are "red." To manage their system, they have a two-pronged approach: work on the "red" bridges, while simultaneously concentrating on preventing the "yellow" bridges from slipping into the "red" category. This process has a side-effect of increases the overall number of green bridges, too, as some move from yellow to green. Working to keep bridges out of the red category means that California is catching maintenance and rehabilitation issues earlier, while the cost of repairs is more reasonable.

As these examples demonstrate, we need to move away from the focus on just structurally deficient and functionally obsolete bridges and move toward other, risk-based considerations that must logically be taken into account when prioritizing bridge needs.

### **Prioritizing Projects**

The prioritization of bridge rehabilitation and replacement projects must begin with bridge management and must be carefully vetted by state transportation professionals to ensure that a balanced approach to managing all transportation assets is being implemented. As noted in GAO's study, states said that the measures used to apportion federal funds—bridge deficiency status and sufficiency ratings—are not necessarily good proxies for the safety or risk associated

with specific bridges. FHWA uses sufficiency ratings primarily to determine HBP eligibility and apportion funds – and while states may consider these sufficiency ratings in their prioritization processes, they generally do not rely on these ratings to prioritize their bridge projects.

The data collected on bridge conditions is critical to developing systematic, long-term approaches to managing the bridge inventory. The goal is finding the right balance between fixing immediate problems, conducting preventive maintenance, and periodically replacing a reasonable number of old bridges to keep the health of its bridge population stable. This asset management approach produces stable, long-term conditions for the entire inventory of bridges for the lowest life-cycle cost. Computerized or other systematic forecasts help to develop optimum strategies combining preventive maintenance, reactive maintenance to short-term deficiencies, and the periodic replacement of bridges that are no longer economical to repair.

States use a number of different methods to prioritize their bridge needs. While there is no single approach to prioritizing bridge program candidates, all approaches consider safety, then preservation and serviceability. Many states use a priority type of formula or a ranking system. These formulas and rankings take into account a combination of variables of many different types. Some of the common considerations, in addition to the sufficiency ratings, are load ratings, field conditions, available funding, importance (criticality) of the bridge, average daily traffic, and alternate or detour route length. In addition to asset management programs and rankings, projects are scrutinized and approved through the normal Statewide Transportation Improvement Program (STIP) process that includes approvals from the Regions, Executive Leaders, and the Transportation Commission.

Some states have developed tools and approaches for selecting potential bridge projects that go beyond those required by the HBP—such as bridge management systems, highly detailed inspections of bridge elements, state-specific bridge condition ratings, and various prioritization processes—to help them better gauge bridge conditions and further inform their selection of bridge projects for funding.

One example of prioritization is Oregon's project selection method. Their method integrates inspection data from the *Pontis* bridge management software program with other bridge condition data, specifically non-deterioration-based needs, including, as examples, seismic, scour, and functional deficiencies. Oregon links the various data to identify projects in twelve categories. Data primarily from *Pontis* is used to select problem bridges in the substructure, superstructure, and deck condition categories. Data outside *Pontis* is used to select problem bridges in the seismic, scour, bridge rail, deck width, load capacity, vertical clearance, paint, coastal bridge (cathodic protection), and movable bridge categories.

Another example is Nevada DOT, which is working to optimize its scarce dollars to sustain the highest level of conditions over time. Nevada DOT is fortunate to have had a history of sound maintenance practices and a relatively young bridge inventory because of its more recent "Sun Belt" development. But the DOT is taking a forward look by using its bridge management system to develop a mix of funding strategies to keep its \$1.7 billion worth of bridge assets in good condition indefinitely. It has adopted the following strategies to sustain its bridge conditions: 1) replace or rehabilitate structurally deficient bridges before they become hazardous or need to be posted for load limits to a point they inconvenience the user; 2) replace or rehabilitate functionally obsolete bridges before they become an impediment to

users; 3) seismically retrofit bridges that do not meet earthquake resistance standards; and 4) apply timely repairs to structures as deficiencies are identified.

Nevada has followed the path of many states and laid out a logical, long-term series of options for how it can manage its bridge inventory given various financial scenarios. This example illustrates how one state DOT manages the invaluable asset of a state's bridge inventory, once the state has the necessary resources to pay for preventive maintenance, repair, rehabilitation, and replacement as they are needed.

Another example is Michigan DOT, which has a well-developed asset management program that preserves their bridges through a balanced approach of doing capital preventive maintenance, rehabilitation, and replacement. Michigan uses a forecasting tool called Bridge Condition Forecast System to determine the best implementable strategy of the three types of work. Their current mix of fixes is 18% preventive maintenance, 30% rehabilitation, and 48% replacement. They also use AASHTO CoRe elements and *Pontis* smart flags to make project-level decisions, as well as track deterioration rates of bridge elements (transition probabilities). They monitor progress each year toward defined state condition goals, and modify strategies as needed. By slowing the deterioration rate of their fair bridges (keeping them from becoming structurally deficient) and concentrating on rehabilitating (first option) and replacement of their SD bridges, Michigan has been able to make good progress at eliminating structurally deficient bridges.

While doing this, however, Michigan DOT found the federal regulations regarding the Highway Bridge Program (HBP), although improving, are still too restrictive. These restrictions have resulted in transferring money out of the HBP program into other, less restrictive programs. These transfers give a false impression that bridge money is not needed, which is very misleading. In fact, Michigan DOT actively manages their bridge network, slowing deterioration with capital preventive maintenance, and invests \$190 million annually in bridges – \$100 million in federal funds and \$90 million in state funds. Through their asset management approach, Michigan DOT has reduced their percentage of bridges in the “poor” category in the past 10 years from 21 percent to 14 percent – a 30 percent improvement during a time when many of our interstate bridges are turning 50.

The highway bridge program is becoming more flexible with the allowance to use HBP funds for painting bridges and preventive maintenance; however, it is still built upon the framework of the 30-year-old sufficiency rating formula that assigns a rating (and, ultimately, funding) based upon structural deficiency and functional obsolescence. The rules that govern federal Highway Bridge Program funding are not yet compatible with a comprehensive asset management approach. Many states find the funds so restrictive that they transfer some of their federal bridge apportionment to other, more flexible, programs, or use apportionments from other programs on bridges.

AASHTO recommends that the federal highway bridge program be revised to allow full expenditure of bridge funds under a comprehensive management approach. In addition, AASHTO recommends that each agency determine both its goals and targets for their bridge systems based on their asset management systems and the available funding.

### **Maintenance of Effort**

GAO has suggested that instituting a "maintenance of effort" requirement within the HBP could reduce the potential substitution of federal funds for state and local funds. However, the premise that DOTs are supplanting state funds with federal funds is faulty. States may be transferring federal money into other federal-aid programs, but they are still using significant amounts of federal funding on bridges – and using their own state money on bridges, too. Often, money is transferred because of the restrictiveness of the Highway Bridge Program or because it is easier to use a single pot of funds on a larger project, of which a deficient bridge replacement or rehabilitation may be a part. In addition, the largest and most critical bridges carrying interstate commerce can be too expensive to be funded by the HBP and thus require other funding sources to be replaced or rehabilitated.

Reports alleging a diversion of federal bridge funding are misleading because they focus only on federal Bridge Program data and fail to look at the total picture of all the resources states commit to bridge improvements. The fact is that states are spending dramatically more money on bridges than is provided under the Highway Bridge Program. For example, in 2004, the federal Highway Bridge Program provided \$5.1 billion to the states. States actually spent \$6.6 billion in federal aid for bridge rehabilitation. State and local funding added another \$3.9 billion for bridge repairs. Thus, as FHWA reports, a total of \$10.5 billion was invested in bridge rehabilitation by all levels of government.

Transfers between federal programs are simply a project management tool, and do not reflect actual levels of state bridge spending.

A maintenance-of-effort provision would also hamstring states in this economy, reducing funding in an already strained time.

### **What is AASHTO Doing?**

AASHTO recently conducted a domestic "scan" focusing on practices among State DOTs for identification, prioritization, and execution of programs for the management of highway bridges. The scan included reviews of DOT manuals, guidelines, and policy statements, and the collection of detailed information from 13 DOTs that participated in meetings with the scan team. The team's key observations and findings are divided into three main categories: the bridge management process, preventive maintenance, and agency support. The first of these categories, the bridge management process, further touches upon four elements of an effective process: identification of maintenance needs, performance measures, prioritization, and verification.

The scan team's key recommendations for state-level bridge management decision-making are as follows:

- Adopt element-level bridge inspection programs and establish standard condition states, quantities, and recommended actions (i.e., maintenance, preservation, rehabilitation, and replacement) to match the operational characteristics of the agency maintenance and or preservation program.

- Establish national performance measures for all highway bridges for comparisons among bridge owners.
- Use owner-specific performance measures to allocate funding levels for the full range of actions (i.e., maintenance, preservation, rehabilitation, and replacement) to optimize highway bridge conditions.
- Determine bridge needs and a proposed multi-year treatment program based on owner-specific objectives. Use the proposed program to develop a needs-based funding allocation, using all types of funding within the state's prerogative for each of the recommended action types (i.e., maintenance, preservation, rehabilitation, and replacement).
- Establish standards for preventive maintenance programs that are funded at levels set by analysis of performance measures. Programs must include the preservation needs of "cusp" bridges to keep them from becoming deficient bridges. In other words, do the right activity at the right time, keeping good bridges in good condition and moving away from the "worst first" approach. Experience in scan states has shown that preventive and minor maintenance must be a significant portion of bridge programs that optimize bridge conditions within limited budgets.
- Develop work programs for maintenance and preservation at the lowest level of management or supervision when supervisors with extensive field maintenance knowledge and experience staff those positions. Avoid blind use of work programs from bridge management systems (BMSs), and work programs dictated by goals to maximize performance measures (although both BMSs and performance measures do provide useful information to maintenance crews).

AASHTO is also developing comprehensive performance measures for the entire transportation system, including bridges. It should be noted that the performance measures used to evaluate the transportation system on a national level are different from the performance metrics used by owner agencies to optimally manage their systems. Performance measures are intended to provide an overall indication of asset conditions, not for use as a tool for prioritizing work or as a replacement for bridge management systems.

The AASHTO Subcommittee on Bridges and Structures published a new element-level bridge inspection manual this year, which is an improvement over NBIS procedures and is a good step toward better performance measurement.

Finally, AASHTO is very supportive of efforts to identify and evaluate tools and practices that can be used as part of the HBP, including technologies and processes, such as bridge management systems.

### **Rethinking "Structurally Deficient"**

AASHTO is supportive of the study, proposed by Congressman Oberstar in his reauthorization proposal, of the effectiveness of the current bridge rating system, including the definition of the terms "structurally deficient" and "functionally obsolete." As mentioned previously, "deficiency," as defined by the HBP, is not an effective way to determine bridge needs or priorities, so any analysis relating the use of federal funds to the number of bridges that fall into these categories

(or increases/decreases thereof) is inherently flawed. For example, in a given year, replacing a significant (i.e., large/expensive) bridge structure that is in poor condition may be more important from a risk and safety perspective than rehabilitating several smaller, less-traveled bridges that are just slipping into the "deficient" category. However, the resulting increase in the number of deficient bridges would lead you to believe that this is not an appropriate or prudent expenditure of federal funds.

Thus, while we await the results of Congressman Oberstar's proposed study, AASHTO recommends a two-phased approach: 1) in the short term, focusing on both structurally deficient and cusp bridges now, while making allowances for the strategies that come out of a state's asset management system; and 2) reviewing the effectiveness study and revamping how bridges are categorized and funded.

#### **National Bridge Inspection Program**

The Inspector General's report states that additional reporting is necessary because FHWA's accounting system is unable to determine how much Federal aid goes toward improving the condition of deficient bridges. AASHTO feels that additional reporting requirements would simply divert funding away from needed projects. As mentioned previously, the current Highway Bridge Program is geared toward a "worst first" approach for managing the bridge system because it focuses on the deficient bridges while ignoring an even larger segment of the bridge system that is on the "cusp" of being deficient. These "cusp" bridges are a heartbeat away from becoming a tsunami of structurally deficient bridges, two to three times the size of the current inventory of SD bridges. Dealing with the deficient bridges is certainly an important part of an asset management approach, but should not be the sole focus of our efforts. The key to improvement is measuring the overall health of the system, and any outcomes that are measured and reported at the national level need to look at a broader set of issues than simply the total number of quote-unquote "deficient" bridges, which in fact may or may not be in need of any immediate action to ensure the safety of the traveling public.

#### **Conclusion**

We continue to make progress in addressing bridge replacement and rehabilitation needs, but there just isn't enough money to close the gap. And each year, as bridges continue to age and deteriorate, it is an uphill battle to keep up with the demands.

AASHTO and the State DOTs stand ready to help Congress address the needs for transportation infrastructure in America.

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Responses to Questions for Mr. Malcolm T. Kerley  
Chief Engineer  
Virginia Department of Transportation

Highways and Transit Subcommittee Hearing  
July 21, 2010

Questions from Chairman DeFazio

1. *In January 2010 the Inspector General reported that FHWA's accounting system does not have the capability to track federal-aid spending on structurally-deficient bridges. You also testified that your State financial system has difficulty tracking between various elements of projects (e.g., identifying spending on a bridge that was part of a larger project that also included non-bridge components). Similarly, in its 2008 report, GAO found that none of the States that it visited was able to provide comprehensive data on total State and local investment in bridges.*
  - a. *Are States able to reliably track the amount of Federal-aid funding spent on bridges (deficient or otherwise)?*
  - b. *Are States able to reliably track the amount of State or local funding spent on bridges (deficient or otherwise)?*
  - c. *[If no on (b)] Please explain the basis for the figures that you cited in your testimony regarding total State and local spending on bridges (i.e., \$5.4 billion in State and local spending on bridges in 2004).*

Funding used within the Highway Bridge Program can be tracked to determine expenditures on structurally-deficient bridges, but when funding is transferred to another program, such as STP, the bridge components of a larger project are not tracked separately from the rest of the project. With effort, the funding spent specifically on the bridges within a larger highway reconstruction or rehabilitation project could be tracked, but since there is no requirement to do so now, states have not set up these tracking systems.

As noted in the table on the following page, the figures cited in the testimony – \$10.5 billion total spent on bridge preservation versus \$5.1 billion apportioned from the Highway Bridge Program – come from USDOT's 2004 *Status of the Nation's Highways, Bridges and Transit: Conditions and Performance, Report to Congress*. The recently released 2008 report states that the federal apportionment in 2006 for bridge replacement and rehabilitation work totaled \$4.6 billion, with a total estimated capital outlay for bridge system rehabilitation by all levels of government of \$10.1 billion. In each case, as in previous years when the C&P Report was produced, the total outlays for bridge preservation across the country were more than double what was provided through the Federal Highway Bridge Program. The report states that the distribution of funds for other jurisdictions is estimated based on state arterial and collector data.

**Bridge Program Spending<sup>1</sup> (\$ billions)**

	1997	2002	2004	2006
<b>Federal Bridge Program Apportionment<sup>2</sup></b>	<b>\$2.5</b>	<b>\$4.5</b>	<b>\$5.1</b>	<b>\$4.6</b>
<b>Total Capital Outlay for Bridges on All Systems<sup>1</sup></b>	<b>\$7.1</b>	<b>\$12.4</b>	<b>\$12.1</b>	<b>\$11.3</b>
<i>System Preservation</i>	\$6.1	\$11.3	\$10.5	\$10.1
<i>System Expansion</i>	\$1.0	\$1.1	\$1.6	\$1.2
<b>Percent Difference – Total Bridge Outlay vs. Federal Bridge Apportionment</b>	<b>280%</b>	<b>276%</b>	<b>236%</b>	<b>244%</b>

<sup>1</sup> USDOT Conditions and Performance Report

<sup>2</sup> Revised final apportionment including Equity Bonus, SPR, and other adjustments

2. In your testimony you describe the ability to transfer funds between Federal programs as simply a project management tool that doesn't reduce the actual level of bridge spending.

- a. What impact has Virginia's legal prohibition of such transfers had on your ability to manage the State's highway program?

Virginia's Code states the following:

*2010 Virginia Acts of Assembly – Chapter 874 – Item 436.8.b:* Federal funds apportioned as the Highway Bridge Program shall be allocated and obligated as required by federal law to eligible projects across the Commonwealth. The Commonwealth Transportation Board shall consider the sufficiency and deficiency ratings of such eligible projects in making their allocations.

Virginia's Commonwealth Transportation Board has established the improvements of deficient pavements and bridges as a high priority. Due to the normal issues in project development, there is always a concern that there will be a sufficient number of bridge projects to obligate funds. Virginia has been able to obligate all its federal funds as required by federal law each year.

- b. Are you aware of any requirements in other States that prohibit the transfer of Highway Bridge Program (HBP) funds to other programs for use on purposes unrelated to bridges?

AASHTO is not aware of any requirements in other states that prohibit the transfer of Highway Bridge Program (HBP) funds to other programs for use on purposes unrelated to bridges. However, it should be noted that while most states do not prohibit transfers from the HBP to other federal-aid programs, very few states have made such transfers within the last several years. In fact, only 6 states transferred funding from the HBP to other programs in 2009, and only 2 states transferred funding in 2008. Over the past 10 years, an average of 4.4 states per year transferred funding from HBP to other programs, which means that, on average, more than 90% of states use their HBP funding intact within the highway bridge program. From a funding perspective, only about 7% of HBP funding has been transferred to other programs during the 5 years of

SAFETEA-LU. (Note: these calculations do not include Equity Bonus funds, which would effectively lower the percentage of funds transferred from HBP.) As stated previously, we know that a significantly greater amount of money is spent on bridges with state and local funding to make up for the 7% that has been transferred out of HBP.

Details on Highway Bridge Program transfers can be found on FHWA's web site at: <http://www.fhwa.dot.gov/bridge/transfer.cfm>

- c. *Are you aware of any instances in which Virginia has transferred HBP funds to another program and then used them on projects unrelated to bridges?*

Prior to the Code language above, as allowed by and in accordance with federal law, I am aware that Virginia transferred HBP funds to other programs in managing its total program. I have not tracked these fund transfers but I believe you can assume that some of these funds were used on projects unrelated to bridges. It should also be noted Virginia uses program funds outside HBP funds in its bridge program.

- d. *Would either you personally, or AASHTO as an organization, be supportive of a change in Federal law that required any funding transferred between Federal-aid highway programs to be used for projects/purposes consistent with the original program from which the funding was transferred?*

I, personally, believe that states need flexibility to manage their programs to maximize the use of the federal funds they receive. AASHTO as an organization also believes that states need flexibility to effectively and efficiently manage their programs. When funding transfers are made, they are typically done to manage larger programmatic issues, not simply to switch the pot of funds from which a bridge project would be funded. Thus, to restrict the use of transferred funds to the same purpose as the original program would nullify the advantage of making the transfer in the first place. Funding transfers are allowed in law because each state and each local area has different needs and varying circumstances from what might be considered the "national average," or the amount of funding each state receives within each Federal-aid program. Some states have more bridges than others, some states have newer bridges than others, some have large mega-structures – add to these the variations in geography (mountainous versus flat) and climate (sun-belt versus snow-belt) – and it is easy to see that shifting funds among programs is necessary to achieve the best and most effectively balanced transportation program for each state.

With regard to whether AASHTO would support a change in Federal law requiring transferred funds to be used for the same purpose as the original program, a specific policy recommendation such as this would need to be reviewed and approved by the AASHTO Board of Directors.

3. *GAO has recommended that Congress consider a maintenance-of-effort (MOE) requirement on States that receive Federal-aid highway funding. In your written testimony you state that an MOE provision would "reduce funding in an already strained time."*

- a. *Please explain what you mean by this statement. Wouldn't an MOE increase, rather than reduce, highway spending?*

State DOTs are not voluntarily reducing their state-level spending for highways. Other interests, such as teachers, public safety, veterans, etc., are competing for the same dollars, and in this time of economic strife these competing interests have greater public support. According to *The Fiscal Survey of States, 2010*, published by the National Governors Association and the National Association of State Budget Officers, 21 states cut their transportation programs in FY2010, and 11 states have proposed transportation program cuts for FY2011. Ensuring maintenance of state efforts with regard to transportation funding has been and continues to be difficult for the states and, under GAO's proposed MOE scenario, would additionally lead to a loss of federal funds when their state funds are reduced.

In addition, a maintenance-of-effort provision would likely be a snapshot in time, and each state is in a different place with regard to the peaks and valleys of transportation funding at the state level. Thus, those states that are currently doing well with regard to state funding for transportation could be "penalized" in the future by having to keep their program up to that level to ensure continued federal funding, whereas a state that is currently at a low point would have an easier time maintaining their level of funding in the future. These peaks and valleys vary over time and greatly influence the inherent fairness of a maintenance-of-effort approach.

- b. *Do you believe that States would reduce their State-level highway spending even if this required them to leave Federal funds on the table? Are you aware of any instance in which this has previously occurred?*

State DOTs would not voluntarily leave money on the table. However, in the current economy and with other publicly-supported interests competing for limited state dollars, transportation may not always receive the state political support it needs to fulfill a federal maintenance of effort requirement. A reduction in federal funding on top of the shortfall in state funds would add insult to injury to a State DOT's program.

Since there is currently no MOE provision for transportation funding, AASHTO does not know of any instance where a state has left Federal funds on the table with an MOE provision in place.

- c. *How is an MOE fundamentally different than a required non-Federal share (which is a core aspect of almost all Federal-aid highway programs today)?*

The non-Federal share required for transportation projects varies by type of project (for example, Interstate highways versus other Federal-aid highways), but is typically a relatively small percentage of the overall cost of a project. Depending on the financial situation a state finds itself in, the non-Federal share can come from funding originally designated for such purpose, or can come from funding previously designated for state-funded projects. As long as the match comes from something other than Federal funds, it is OK to use.

An MOE requirement, on the other hand, requires that the total amount of funding provided by the state for transportation projects remains steady, or possibly increases as a percentage of federal funding.

**Questions from Ranking Member Duncan**

1. *Where do you think most State DOT officials would rank bridge deficiency as one of their problems? Would it be one of their top three problems?*

Ensuring bridge sufficiency is a fundamental and integral part of maintaining the nation's transportation system. Overall, AASHTO feels confident that the State DOTs would rank safety as their first priority, followed by (not in any particular order) maintenance of the transportation system, congestion and mobility needs, and minimizing environmental impacts. Preserving and protecting our bridge infrastructure is inherent in three of these top priorities: 1) keeping bridges well designed and well maintained helps ensure the safety of the traveling public; 2) maintaining the transportation helps protect the tremendous investment we have already made in our bridge infrastructure and works to minimize the funding needed to replace and rehabilitate; and 3) providing a system that minimizes "choke points," which are often located at bridges that are outdated and in need of replacement or expansion, helps to ensure mobility and reduce congestion to keep our economy strong.

2. *How much State funding and how much local funding goes towards repairing deficient bridges on the Federal-aid system? How much State funding and how much local funding goes towards repairing deficient bridges that are not on the Federal-aid system?*

According to the USDOT's 2008 *Status of the Nation's Highways, Bridges and Transit: Conditions and Performance, Report to Congress*, highway capital outlays in 2006 on bridge replacement and rehabilitation work totaled \$6.4 billion, with a total estimated capital outlay for bridge system rehabilitation on all systems of \$10.1 billion. The report states that the distribution of funds for other jurisdictions is estimated based on state arterial and collector data.



**Testimony of the American Road & Transportation Builders  
Association**

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

**House Committee on Transportation and Infrastructure, concerning a  
hearing of the Subcommittee on Highways and Transit**

July 21, 2010

The federal government has a long history of leadership in developing and maintaining the nation's bridges. There are few structures that so distinctly reinforce the federal role in transportation as bridges, which frequently link two neighboring states and enable interstate commerce. One only has to look a short way from the Capitol to the Woodrow Wilson Bridge for a shining example of the federal role in bridges.

It is clear, however, that with a quarter of our nation's bridges classified as deficient, we are in need of a focused plan to address this growing problem. As we saw with the I-35W bridge collapse in Minnesota, we cannot afford to wait and address the needs of some of our most critical bridges. Furthermore, bridges are vital to our national mobility and goods movement. Although the Highway Bridge Program (HBP) has been a great success in many ways, now is the time to challenge the status quo. In that regard, ARTBA created the Bridge Policy and Promotion Council which consists of leaders from transportation design and construction firms across the United States. Our testimony reflects those individuals' years of experience and leadership in the bridge industry. As we focus on bridge inspection as a section of these recommendations, overall we believe that the HBP should link funding to performance to provide a level of assurance that the funds are being applied cost effectively to improve and preserve the nation's bridges. This is similar to recent findings of the United States Government Accountability Office (GAO). In September 2008, the GAO issued a report evaluating the HBP, entitled "Clearer Goals and Performance Measures Needed for a More Focused and Sustainable Program". One of the findings stated that "the program lacks measures linking funding to performance and is not sustainable, given the anticipated deterioration of the nation's bridges and the declining purchasing power of funding currently available for bridge maintenance, rehabilitation, and replacement."<sup>1</sup>

To address these challenges, the focus of the HBP must evolve to prioritize urgent bridge needs. A new level of accountability is needed to ensure that states are investing in replacement and

rehabilitation of those bridges that are most critical to public safety. The ARTBA Bridge Policy and Promotion Council proposes that, 1) a “National Risk Index” needs to be created in order to apportion bridge funding to the states according to a risk-based methodology; 2) an effective, consistent and accurate bridge inspection program is critical to ensuring that the nation’s bridges are safe and reliable; and, 3) an incentive mechanism be created that rewards states for achieving certain bridge condition performance standards.

### **Risk Based Prioritization**

#### **National Risk Index**

Bridge condition and load capacities have historically served as the primary performance measures of bridge safety. Many catastrophic bridge failures in the United States have highlighted the need to adopt a more comprehensive safety assessment program for existing bridges, including risk factors such as: age, loads, environmental conditions, type of design, design details, level of redundancy, etc. Accordingly, it is critical that the Federal Highway Administration (FHWA) implement a data driven risk based methodology to prioritize funding for bridges most in need of remediation. Risk assessment should be the foundation used for apportionment of HBP funds and also for determining bridge inspection program practices (see below). This approach will ensure that investment and resource decisions are based on overall risk so that safety and reliability of state owned bridge inventories will be improved.

Terms such as “Structurally Deficient,” “Functionally Obsolete,” and “Sufficiency Rating,” have been used by the FHWA to establish eligibility for federal bridge funds and to apportion those funds to the states. These terms have been increasingly viewed as inadequate and inconsistent indicators of bridge performance. This risk-based methodology we propose would prioritize bridges based on their individual performance measures and whether they meet minimum acceptable standards to remain in service without immediate rehabilitation or replacement. The risk based methodology should use available as well as new data. A target (threshold) “National Risk Index” shall be established as part of this process and those bridges below the target index should be eligible for funding under HBP.

HBP funding should be apportioned based on each state’s share of the total U.S. bridge rehabilitation and replacement investment requirements necessary to comply with the “National Risk Index.” The goal is to rehabilitate or replace as many bridges that fall below the “National Risk Index,” within available funding limits. States would have the flexibility and discretion to select bridges from the eligible pool of bridges for improvement and to decide on project alternatives. Steady progress demonstrated by the states toward achieving the national standard for bridge performance for all bridges and the elimination of bridges below the “National Risk Index” in the inventory would be a direct measure of the effectiveness of the HBP funding in achieving overall improvements in bridge safety and serviceability. In essence, we are suggesting that federal funds should be aligned with documented bridge needs in the future.

#### **Limited Transfer of Bridge Funds**

Under the existing federal highway program, states are generally allowed to transfer up to 50 percent of the funds apportioned for one categorical program to another. For example, a state

could transfer a portion of its bridge funds to Interstate Maintenance activities. In fact, 11 states transferred \$634 million in FY 2006 bridge funds to other highway improvement initiatives.

Certainly, states should be provided sufficient flexibility to meet their own unique needs. However, that flexibility should not lead to critical needs going unaddressed. Consistent with our goal of linking investment to needs, a standard level of bridge performance should be established before funds can be redirected to other activities. This would preclude states from transferring bridge funds to other federal-aid highway programs, unless the state can demonstrate to the U.S. Transportation Secretary that the state does not have any bridges on federal-aid highways that are at a high risk level according to the "National Risk Index" (as established by the FHWA).

#### **Recommended Approach for the National Bridge Inspection Program**

The risk-based methodology outlined above should be used to modify our current bridge inspection practices. This will allow states to target inspection methodology and resources according to safety risk. The following key elements of the National Bridge Inspection Standards (NBIS) should be reevaluated based on the risk methodology:

- 1) **Bridge Inspection Intervals:** Current NBIS requires routine inspections every two years with possibility to extend to four years with FHWA approval. Fracture critical bridges (those that are arranged so that if one member fails, the bridge could collapse) require in-depth inspections every two years. These inspection intervals are equally applied to the entire bridge inventory and do not consider a bridge's overall safety risk. For example, a new bridge may have the same inspection interval as a bridge that is 50 years old and in advanced stages of deterioration. The bridge inspection interval should be based on the bridge's risk index, described earlier, which considers age, type of design and details, materials, loading etc. Bridges that have a very low risk index should automatically be considered for inspection intervals up to perhaps four years or even greater.
- 2) **Bridge Inspection Personnel:** NBIS currently sets minimum qualifications for project managers and team leaders. Here again this requirement is generally used across the entire bridge inventory. In the future, the bridge inspections team qualifications should be aligned with the risk index of the bridge to be inspected. Bridges that have a high risk index should require the project manager and team leader to be professional engineers with inspection and relevant design experience to the type of bridge being inspected. Bridges with a low risk index may not require the project manager and team leader to be professional engineers, but they should have a certain level of bridge inspection experience and have attended bridge inspection training.
- 3) **Bridge Inspection Methodology, Evaluation and Recording:** Consistent and uniform inspection methodologies should be better established and also tied to the National Risk Index. Use of non-destructive inspection methods and new

technologies should be evaluated and encouraged for bridges that have a high risk index.

#### **Incentive-Based Investments**

Although there are several categories of federal-aid highway and bridge improvement initiatives designed for specific purposes, such as maintaining the Interstate Highway System and upgrading bridges, there are no performance standards or monitoring to assure these specific goals are being achieved. The HBP currently receives roughly \$4 billion per year. The ARTBA Bridge Policy and Promotion Council proposes that \$500 million (or an appropriate share of total bridge funds) be set-aside for the U.S. Transportation Secretary's use as a "bonus pool" for states that document improvements in their bridge infrastructure network.

The U.S. Transportation Secretary would develop a process to evaluate state efforts to decrease their number of bridges that fall below the "National Risk Index" and maintain bridges in good condition. By August 1 of each year, the Secretary would divide the "bonus pool" among the states that decreased their number of bridges that fall below the "National Risk Index" and maintain the status of other bridges from the previous FHWA reporting period. The bonus funds would be awarded commensurate with the state's progress in improving and maintaining its bridges (i.e., the state with the largest decrease would get the largest share of bonus funds and the state with the smallest decrease would get the smallest share of bonus funds).

#### **Concluding Remarks**

In order to ensure that states are investing in replacement and rehabilitation of those bridges that are most critical to public safety, the ARTBA Bridge Policy and Promotion Council proposes revisions to the HBP that would link funding to performance. This would be achieved by implementing a risk-based methodology for bridge classification and the National Bridge Inspection Standards, as well as creating an incentive mechanism that rewards states for achieving certain bridge condition performance standards. The result of these new structural reforms would be a new federal bridge program that emphasized accountability over all other considerations. States would have substantial flexibility to maintain their inventory of bridges, but they would be required to demonstrate progress in addressing their most urgent needs. For the traveling public, this would ensure the safety of our nation's critical bridges while demonstrating wise stewardship of limited public resources.

Thank you for the opportunity to present these views to the committee, and we are happy to provide further details at your request.

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<sup>i</sup> United States Government Accountability Office. Report to Congressional Committees. *HIGHWAY BRIDGE PROGRAM Clearer Goals and Performance Measures Needed for a More Focused and Sustainable Program*. September 2008.