

**STATEMENT OF  
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BEFORE THE  
COMMITTEE ON ENVIRONMENT & PUBLIC WORKS  
U.S. SENATE  
HEARING ON IMPROVING THE FEDERAL BRIDGE PROGRAM:  
INCLUDING AN ASSESSMENT OF S. 3338 AND H.R. 3999**

**SEPTEMBER 10, 2008**

Chairman Boxer, Ranking Member Inhofe, and Members of the Committee, I am honored to be here today to discuss the Federal Highway Administration's (FHWA) Highway Bridge Program (HBP).

It has been a little over a year since the tragic collapse of the I-35W bridge in Minneapolis. We lost 13 lives that day when the State's busiest bridge collapsed for reasons that remain uncertain. To date, the National Transportation Safety Board's (NTSB's) investigation has indicated only that the collapse may have originated at locations of undersized gusset plates and that there was significant loading on the bridge from construction equipment and material at the time of the collapse. We will continue to support the NTSB in its investigation and will continue to issue guidance to all State transportation agencies and bridge owners as information becomes available.

The Department of Transportation (DOT) has remained focused on working with the City of Minneapolis and the State of Minnesota to rebuild this vital connection in the heart of the city. These efforts have included an expedited release of Emergency Relief Federal-aid Highway funding to the State of Minnesota to initiate recovery operations; providing continuous on-site support and expertise in bridge engineering and construction, environmental assessments and planning, transit programs, and Federal contracting; and assisting State and local officials in the recovery, debris removal, temporary traffic rerouting, and restoration of transportation services.

Last week, I had the opportunity to visit the I-35W bridge. I am pleased to report that the project to replace the bridge is going very well. I was impressed by the innovations, technologies, creativity, and the dedication of the staff at the Federal, State and local level that are permitting the bridge to reopen ahead of schedule, perhaps in the next three to four weeks. Yet while the replacement bridge is nearly complete, the memory of August 1, 2007 will never fade.

In the aftermath of this tragedy, a necessary national conversation has begun concerning the state of the Nation's bridges and highways and the financial model used to build, maintain and operate them. We agree that the condition of our infrastructure requires on-going attention, but it is important to understand that we do not have a broad transportation infrastructure "safety" crisis. The current condition of our Nation's

highways and bridges does not represent a safety problem, and we will not allow public safety to be put at risk by poorly maintained infrastructure.

As DOT Secretary Mary E. Peters has said, a more accurate description of the current and broader problem is that we have an increasingly flawed investment model for transportation infrastructure. Federal transportation funding is not linked to specific performance-related goals and outcomes, and is not producing the kinds of improvements in highway conditions and performance that give the public confidence that their tax dollars are being spent wisely. Performance-based management can help establish and maintain accountability. The use of performance measures, by helping to identify weaknesses as well as strengths, can improve the transportation project selection process and the delivery of transportation services.

### **The Federal Highway Bridge Program**

The Federal Highway Bridge Program 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 and the leadership of the program by FHWA, 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 12.4 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 2007, bridges on the National Highway System (NHS) totaled 116,025, or about one-fifth of the 600,000 bridges inventoried nationwide. Of those NHS bridges, 6,375, or 5.5 percent, were considered structurally deficient. That represents a reduction of 2.2 percent from 1997, when 9,930 out of 128,432, or 7.7 percent, of NHS bridges inventoried were structurally deficient.

The infrastructure quality numbers for bridges should, and can, be improved, but it is inaccurate to conclude that the Nation's transportation infrastructure is unsafe. 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. We will ensure that any findings and lessons that come out of the investigation into the I-35W bridge collapse are learned quickly and that appropriate corrective actions are institutionalized to prevent any future occurrence.

Bridge Inspections. With an aging infrastructure and limited resources, it is vitally important to continuously monitor 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 national bridge inspection program is maintained at the highest level and that funds are used effectively. Thousands of well-trained and dedicated bridge inspectors work every day to ensure the safety of the bridges in the National Bridge Inventory (NBI). Through these inspections, critical safety issues are identified and acted upon to protect the traveling public.

The national bridge inspection program 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), prepared a bridge inspector's training manual, and developed a comprehensive training course, based on the manual, to provide specialized training. To address varying needs and circumstances, State and local standards are often even more restrictive than the national standards.

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 83 percent of

bridges are inspected once every 24 months, 12 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 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 revised the NBIS most recently in January 2005.

With the help of the NBIS and the 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. Registration as a licensed professional engineer is also a criterion that satisfies, in part, the qualification requirements to serve as a bridge inspection Program Manager or Team Leader. 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 National Bridge Inventory; 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. FHWA's Resource Center is a central location for obtaining highway technology deployment assistance. 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. Demonstration projects that provide hard quantitative data can influence stakeholders to try, and eventually regularly use, innovative technologies.

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 Highway Bridge Program 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 current expenditures on bridges are above the level needed to maintain bridge conditions. The results of these investments are reflected in improved bridge conditions being reported in the NBI.

Bridge Management Systems. As an increasing number of States have implemented an asset management approach to managing transportation infrastructure, the use of bridge management systems 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® product. Pontis 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 and, as noted, not all States use Pontis. All States, however, have some form of bridge management software, at least for keeping inventories of bridges and bridge conditions.

Sustainability. We believe that, to the extent feasible, users should finance the costs of building, maintaining and operating our country's highways and bridges. It is increasingly clear that directly charging for road use (similar to the way we charge for electricity, water, and telecommunications services) holds enormous promise to both generate large amounts of revenues for re-investment and to cut congestion. Equally important, however, prices send better signals to State DOTs, planners, and system users about where capacity expansion is most critical. Prices are not simply about demand management—they are about adding the right supply.

## **A New Transportation Approach for America**

Last month, Secretary Peters announced a policy framework to comprehensively refocus, reform, and renew our surface transportation program. The proposal has six central themes:

- *Adding clarity and focus to the Federal role in transportation*, with an emphasis on areas of the greatest Federal interest: (1) transportation safety, (2) the Interstate Highway System plus other highway facilities of national interest and (3) major metropolitan areas;
- *Taking a data- and technology-driven approach to safety* that recognizes the diversity of safety challenges across the U.S. and builds on the successes of the existing State-level Strategic Highway Safety Plans;
- *Increasing State and municipal flexibility* by consolidating stove-piped highway and transit programs, then allowing States and metropolitan areas broad eligibility to invest in the projects likely to yield the greatest returns;
- *Supporting rationality and accountability in investment decisions* through an increased use of performance management and benefit-cost analysis;

- *Encouraging more efficient pricing and leveraging of Federal resources by facilitating additional private investment in transportation infrastructure and allowing States and metropolitan areas to price their transportation networks in a manner that improves performance, enhances air quality and generates revenues; and*
- *Improving the efficiency and effectiveness of our environmental stewardship.*

The Secretary's plan would consolidate over 102 Federal highway and transit programs into eight core intermodal programs that would help focus our infrastructure investments. Bridge maintenance, inspections, rehabilitation, and replacement would be eligible for funding under the Federal Interest Highway, Metro Mobility, and Mobility Enhancement Programs. The Mobility Enhancement Program would encourage States to use funding to maintain and improve off-system bridges. The bridge inspection program and the NBI, both vital to the overall bridge program, would remain firmly in place. Since States routinely dedicate Interstate Maintenance, National Highway System, Surface Transportation Program (STP), and other Federal-aid funds to bridges, a separate category of funding is not necessary to ensure proper bridge maintenance.

Refocus. Ensuring that metropolitan transportation networks are well-maintained, safe, and uncongested must be a key Federal priority. We must confront the fact that virtually all over the U.S., our major metropolitan regions are choking on traffic congestion. This congestion represents a huge obstacle to moving goods efficiently and stifles the U.S. economy. The Secretary's reform plan strives to refocus the Nation's transportation programs by providing ways to target Federal investments more effectively. State and local governments would no longer have to slice and dice every Federal dollar into niche programs that do little to improve commutes or to enable freight and goods to move more smoothly and reliably across the system. Instead, the Secretary's reform proposal would enable States and cities to make investments based on what works best for them—locally and regionally—to get people where they need to go.

Of course, even as we strive to make our system more reliable through strategic investments, we must continue our strong commitment to making our roads and bridges as safe as possible. Our reform proposal pursues a data-driven approach to improving highway safety while affording States maximum flexibility so they can tackle their toughest safety challenges.

Reform. We propose pilot programs designed to streamline the Federal review process so that it would not take an average of 13 years to design and build new highway and transit projects like it does today.

Moving people and protecting the environment should not be mutually exclusive. We are finally beginning to take serious steps to wean ourselves from reliance on fossil fuels, and that is good news. But we must also reduce the extent to which our transportation funding mechanisms contradict our national objectives to promote a cleaner environment and achieve energy independence. The gasoline tax that we are so

heavily dependent on to fund our surface transportation programs is no longer sustainable. We need to start thinking more broadly and innovatively about how to fund our transportation systems. So our reform proposal makes it easier for States to create infrastructure banks, expands the use of Federally backed transportation loans, and expands the availability of tax-exempt financing for private investments in transportation projects. This makes it easier for States to take advantage of the billions of dollars available for infrastructure investments from the private sector.

Renew. Ultimately, our plan would renew the Nation's critical transportation infrastructure because this new approach would focus Federal resources on those investments having the greatest national interest while providing flexibility for State and local governments to invest in transportation improvements that meet their interests without having to meet burdensome Federal requirements. And, as noted above, the Secretary's reform proposal would encourage greater levels of private sector investment to add capacity where congestion is worst and where users value those improvements the most. It would lead to more efficient roads and new transit systems in the Nation's cities. It would bring easier and quicker commutes. And it would cut shipping times in an economy where every minute of delay can make the difference between success and failure for our businesses.

The Secretary's plan lays out a framework to overhaul the way U.S. transportation decisions and investments are made, and we believe it would renew America's confidence in our transportation network.

### **S. 3338 and H.R. 3999**

The Administration supports a risk-based approach to identifying and prioritizing highway bridge replacement, rehabilitation, preservation, and inspection. While we agree with some of the provisions in S. 3338 and H.R. 3999, we object to those provisions that run counter to this objective. For example, the bills specify increased inspection frequencies without regard to any rationally-based criteria. If enacted, the frequency of inspections of structurally deficient bridges and fracture critical members would be increased from 24 months to 12 months. The increase to the frequency of inspections of fracture critical members alone could require bridge owners to more than double their level of effort on bridges that may not require this degree of attention.

We understand the objective behind these provisions and agree that minimum requirements for inspection intervals are desirable. However, instead of a one-size-fits-all approach, we support a risk-based, rational determination of inspection practices for bridges that takes into account such factors as structure type, age, condition, importance, environment, loading, and performance history. In cooperation with AASHTO, the FHWA is supporting a new National Cooperative Highway Research Program project titled "Developing Reliability-based Bridge Inspection Practices." The objective of the project is to develop recommended bridge inspection practices for consideration and possible adoption by AASHTO and FHWA. The practices are to be based on rational

methods to ensure bridge safety, serviceability, and effective and strategic use of resources.

The bills would also require States to use existing inspection technology without regard to future developments. Specifically, the provisions that specify crack testing allude to specific crack monitoring technology that is currently being researched. If use of this technology were mandated, bridge owners could be precluded from using more suitable technology that is available now, or that may become available in the future. The current law and regulations do not prohibit the use of state-of-the-art technologies for bridge inspection and monitoring, and we believe that it is imperative that bridge managers be afforded the flexibility to select technology on a case-by-case basis.

We would support installation of effective structural health monitoring systems in some major bridges, as the bill proposes. However, special funds would not be required because use of the technology is already eligible for funding under the Highway Bridge Program.

Finally, the Administration supports maximum flexibility for States to determine and address their highest priorities and most critical needs and objects to provisions in the bill that restrict such flexibility.

## **Conclusion**

As we near the end of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (P.L. 109-59), we need to continue to maintain the safety and integrity of bridges while improving system performance and reliability and evaluating the transportation funding structure to ensure sustainability. We look forward to continued work with this Committee, the States, and our partners in the transportation community to improve the Federal Highway Bridge Program.

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