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

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# Federal Highway Administration's Oversight of Structurally Deficient Bridges


**Statement of**

**The Honorable Calvin L. Scovel III**

**Inspector General**

**U.S. Department of Transportation**



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Chairman Oberstar, Ranking Member Mica, and Members of the Committee:

Thank you for the opportunity to testify today on the National Bridge Inspection Program, particularly the Federal Highway Administration's (FHWA) oversight of structurally deficient bridges within the National Highway System. This hearing follows closely the collapse on August 1 of the Interstate 35W bridge in Minneapolis, which spanned the Mississippi River. I personally visited the site of this tragedy and saw how cars, buses, trucks, and tons of concrete and twisted metal were sent into the water. Like you, I mourn the lives that were lost. As you know, under the current National Bridge Inspection Program, the states, with oversight by FHWA, are responsible for inspecting bridges on public roads. The primary purpose is to identify and evaluate bridge deficiencies in order to ensure public safety. I will assist the Committee and the Secretary of Transportation in any way I can in determining whether the current program delivers the highest level of bridge safety and, if not, how it can be improved.

My testimony today is based on work carried out by our audit and engineering staff concerning bridge safety over the past 3 years. We have also utilized the engineering expertise of the U.S. Army Corps of Engineers. In March 2006, we issued a report on FHWA's oversight of load ratings and postings on structurally deficient bridges on the National Highway System.[1] We have also performed audit work on other bridge issues, including bridges destroyed by Hurricane Katrina, the Zakim Bridge on Boston's Central Artery/Tunnel Project, and the San Francisco–Oakland Bay Bridge. Today, I will discuss our previous work dealing with structurally deficient bridges and make several observations regarding FHWA's actions to address our prior recommendations to improve its oversight of bridges. Specifically:

- Federal oversight of bridge inspections and funding for bridge rehabilitation and replacement constitute significant issues for the U.S. Department of Transportation (DOT).

- FHWA needs to develop a data-driven, risk-based approach to bridge oversight to better identify and target those structurally deficient bridges most in need of attention.

- Action can be taken now to strengthen the National Bridge Inspection Program and FHWA's oversight.

[1] 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 reports are available on our website: www.oig.dot.gov.

## Federal Oversight of Bridge Inspections and Funding for Bridge Rehabilitation and Replacement Constitute Significant Issues for DOT

Federal oversight of bridge inspections and funding of bridge rehabilitation and replacement have been significant issues for DOT for years. The safety of the Nation's bridges depends upon a complex web of Federal, state, and local activities, including such items as maintenance and rehabilitation, inspections and reviews, and load ratings and postings. While states are ultimately responsible for ensuring that bridges within their jurisdictions are safe, FHWA is responsible for overseeing the states in this effort, and for providing technical expertise and guidance in the execution of bridge inspection, repair and maintenance, and remediation activities.

The National Bridge Inventory comprises data on 599,976 bridges, including 116,086 bridges on the National Highway System, as well as bridges maintained and operated by various state and local entities. Many bridges require enhanced attention: nationwide, almost 80,000 bridges are considered functionally obsolete and nearly 72,500 are structurally deficient. In five states, more than 20 percent of the bridges are considered structurally deficient. The term "structurally deficient" refers to bridges that have major deterioration, cracks, or other deficiencies in their structural components, including decks, girders, or foundations. Regular inspections that check for corrosion, decay, and other signs of deterioration are important tools for ensuring that bridges are safe. In some cases, structurally deficient bridges require repair of structural components, or even closure. But most bridges that are classified as structurally deficient can continue to serve traffic safely if they are properly inspected, the bridges' maximum load ratings are properly calculated, and, when necessary, the proper maximum weight limits are posted.

Of the National Highway System's bridges, 6,149, or 5.3 percent, are categorized as structurally deficient. National Highway System bridges carry over 70 percent of all bridge traffic. The price of repair or remediation of these bridges is high. An FHWA report issued in January of this year estimated that about $65 billion could be invested immediately to address current bridge deficiencies.

Bridge safety first emerged as a high-priority issue in the United States in the 1960s. In 1967, corrosion caused the Silver Bridge on the Ohio River between Ohio and West Virginia to collapse, killing 46 people. In 1968, in hopes of avoiding further catastrophes, Congress responded by holding hearings on bridge design, inspection, and maintenance, determining that serious safety concerns and problems of lost investment and replacement costs "elevate bridge inspection and maintenance problems to national priority." In 1971, FHWA issued standards for

identifying, inspecting, evaluating, and acting upon bridge deficiencies to ensure that bridges are safe for the traveling public. However, disaster struck again with further bridge collapses, including those of the Mianus River Bridge in Connecticut in 1983 (with 3 deaths), the Schoharie Creek Bridge in New York in 1987 (10 deaths), the Hatchie River Bridge in Tennessee in 1989 (8 deaths), and the Arroyo Pasajero Bridge (sometimes called Twin Bridges) in California in 1995 (7 deaths). Investigations showed that these collapses were caused at least in part by structural deficiencies created by the elements. The loss of lives, injuries, and significant economic impact resulting from these collapses, as well as the recent Minneapolis bridge collapse, underscore the significance of bridge safety as a major issue for DOT.

**National Bridge Inspection Standards.** According to current inspection standards, when bridge inspectors identify deficiencies that pose safety problems, a bridge should either be repaired to correct the deficiencies, posted with signs to restrict the size and weight of vehicles allowed, or, if the deficiencies are serious enough, closed to vehicular traffic.

While FHWA provides the oversight of state bridge inspections and programs, the states themselves are responsible for performing actual bridge inspections on public roads. The inspection standards provide a definition of bridges (greater than 20 feet long) and outline requirements regarding the frequency of inspections, qualifications of inspection personnel, and data to be collected. According to the standards:

- Most bridges are to be inspected at 2-year intervals.[2]
- Each state is required to have a bridge inspection organization capable of performing inspections, preparing reports, and determining bridge ratings in accordance with the American Association of State Highway and Transportation Officials (AASHTO) standards and provisions in the Code of Federal Regulations.
- Each bridge shall be rated as to its safe load-carrying capacity. If the calculated load rating is less than the state's maximum legal load, the bridge must have signs posted as to the maximum permitted load, or be closed.
- The findings and results of bridge inspections, including safe load ratings, shall be recorded by state inspectors on standard paper or electronic forms, and submitted to the National Bridge Inventory.

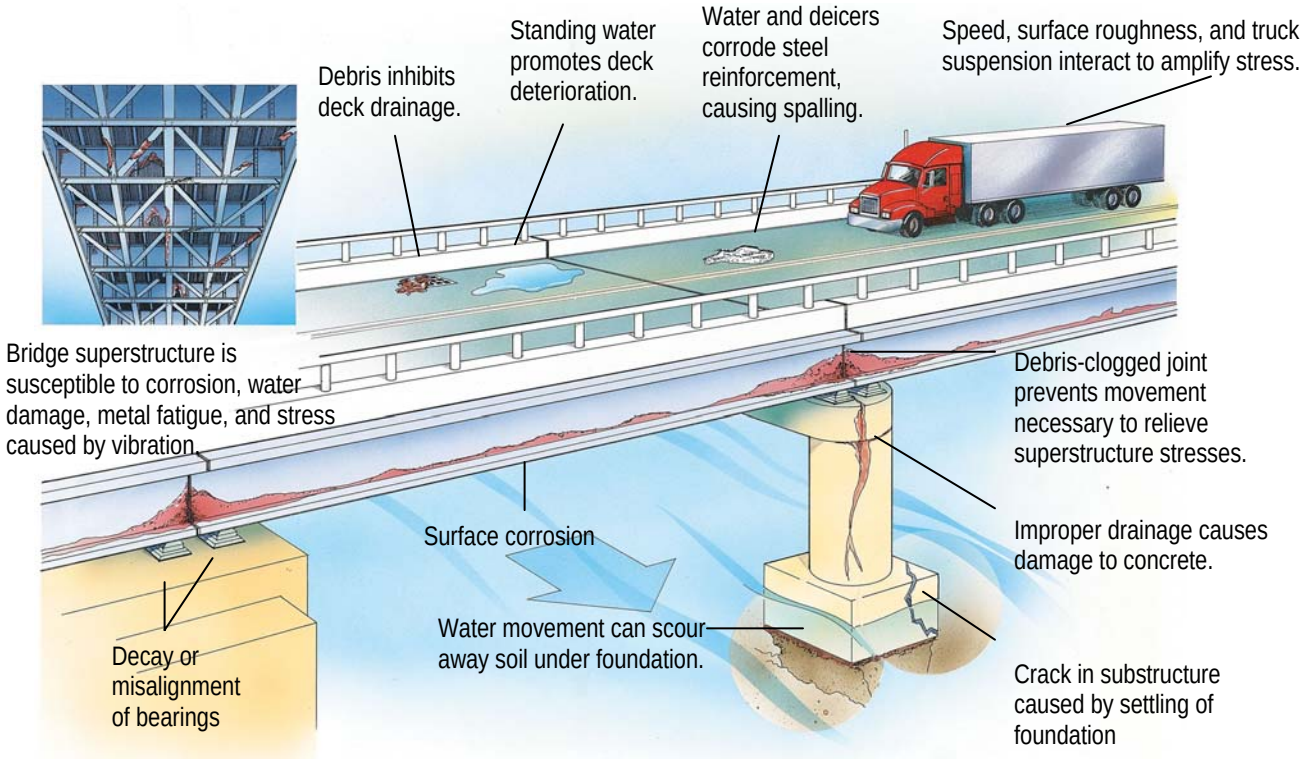
Each year, FHWA's Office of Bridge Technology collects bridge inventory data from the states for use in updating its inventory. Along with maintaining the

[2] States determine when more frequent inspections are required based on the specific needs of a bridge.

inventory of public highway bridges, FHWA is responsible for submitting a biennial report to Congress on the conditions of all bridges in that inventory. FHWA also performs an annual review of each state's bridge inspection program and compliance with inspection standards. Bridge inventory data provide important information on bridge location, age, ownership, and condition.

**Structurally Deficient Bridges, Load Ratings, and Postings.** A total of 6,149 National Highway System bridges (of the 116,086 National Highway System bridges in the inventory) were classified as structurally deficient as of last month. Figure 1 depicts how a bridge can become structurally deficient.

***Figure 1: Water, Salt, Stress, and Corrosion Can Make a Bridge Structurally Deficient***




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

Table 1 shows the top ten states with the highest proportion of structurally deficient bridges on the National Highway System in the United States. Table 2 shows the highest average daily traffic (ADT) traveling over structurally deficient bridges on the National Highway System. The three attachments to my testimony provide additional details on structurally deficient bridges by state.

### *Table 1: Ten States[a] with the Highest Proportions of Structurally Deficient Bridges on the National Highway System (NHS)*

| State | Total Number of NHS Bridges | Total Number of Structurally Deficient NHS Bridges | Percentage of State's NHS Bridges that are Structurally Deficient |
|---|---|---|---|
| Rhode Island | 272 | 55 | 20.2% |
| Pennsylvania | 3,831 | 571 | 14.9% |
| California | 7,467 | 1,030 | 13.8% |
| Vermont | 477 | 56 | 11.7% |
| Alaska | 389 | 40 | 10.3% |
| Michigan | 2,541 | 261 | 10.3% |
| Oklahoma | 2,733 | 280 | 10.2% |
| West Virginia | 1,137 | 108 | 9.5% |
| Massachusetts | 2,020 | 187 | 9.3% |
| Puerto Rico | 580 | 50 | 8.6% |

[a] Includes the District of Columbia and Puerto Rico.

Source: National Bridge Inventory, August 28, 2007.

### *Table 2: Ten States with the Most Average Daily Traffic (ADT) over Structurally Deficient NHS Bridges*

| State | Total Number of NHS Structurally Deficient Bridges | Total ADT over NHS Structurally Deficient Bridges (vehicles) |
|---|---|---|
| California [a] | 1,030 | 64,470,654 |
| Pennsylvania | 571 | 14,568,954 |
| New York | 227 | 8,923,614 |
| New Jersey | 175 | 7,630,571 |
| Massachusetts | 187 | 7,301,293 |
| Illinois | 297 | 7,226,804 |
| Kentucky | 113 | 6,900,153 |
| Michigan | 261 | 6,432,596 |
| Oklahoma | 280 | 5,034,530 |
| Ohio | 178 | 4,791,339 |

[a] Two bridges in California had no reported ADT in the National Bridge Inventory.

Source: National Bridge Inventory, August 28, 2007.

Proper reviews of the calculations of a bridge's maximum safe load ratings are important because as a bridge ages, corrosion and decay can decrease its capacity to support vehicles.

The practice of calculating the load rating of structurally deficient bridges and, if necessary, posting signs to keep heavier vehicles from crossing them, serves to protect structurally deficient bridges from powerful stresses caused by loads that exceed a bridge's capacity. The load rating is a calculation of the weight-carrying capacity of the bridge and is critical to its safety. A load rating is performed separately from the bridge inspection, but is based upon design capacities supplemented with data and observations of the bridge's physical condition provided by a bridge inspector. The load rating, expressed in tons, serves as the basis for posting signs noting the vehicle weight limit restriction, which can be referred to more simply as the bridge's maximum weight limit. Some bridges are weakened to the point that signs must be posted to bar vehicles heavier than the calculated maximum load.

**Federal Funding for the Nation's Bridges.** Congress has long recognized the vital national interest of assisting states in improving the condition of bridges. In 1978, Congress passed legislation authorizing the Highway Bridge Replacement and Rehabilitation Program and the Discretionary Bridge Program to provide states with funds needed to correct structural deficiencies. In 2005, Congress replaced the Highway Bridge Replacement and Rehabilitation Program and the Discretionary Bridge Program with the Highway Bridge Program, and broadened the scope to include systematic preventive maintenance.[3] Overall, a total of $21.6 billion was authorized for the Highway Bridge Program through 2009.

For fiscal year 2007, states were allocated more than $5 billion to be used for bridge construction, repair, and remediation under the Highway Bridge Program. According to FHWA officials, while the agency tracks all Federal bridge funding, its financial management system does not differentiate between spending on structurally deficient bridges and other bridge-related expenditures. As a result, FHWA is unable to tell how much of the funding it provides to the states is actually spent on structurally deficient bridges. As part of our comprehensive audit of FHWA's oversight of the bridge program, we will be evaluating this issue and will report back to the Secretary of Transportation.

[3] Safe, Accountable, Flexible, Efficient Transportation Equity Act—A Legacy for Users, Public Law No. 109-59 (2005).

## FHWA Needs to Develop a Data-Driven, Risk-Based Approach to Bridge Oversight to Better Identify and Target Those Structurally Deficient Bridges Most in Need of Attention

Our March 2006 report found that FHWA could improve its oversight of the states to ensure that maximum weight limit calculations and postings are accurate. The need for improved oversight was evidenced by our finding that, based on a statistical projection, the load ratings for as many as 10.5 percent of the structurally deficient bridges on the National Highway System are inaccurate.[4]

To address deficiencies in its oversight, we recommended that FHWA develop a risk-based, data-driven approach with metrics to target the bridge problems most in need of attention. Since last year, FHWA has taken steps to address these deficiencies. In April 2006, for example, FHWA convened a working group to evaluate options and make recommendations for action.[5] Based on the work of this group, FHWA has initiated several specific efforts to improve oversight of structurally deficient bridges, including load ratings and posting. However, more action is needed. In the coming months, we plan to continue our evaluation of these initiatives.

**FHWA did not require its Division Offices to analyze bridge inspection data to better identify and target those structurally deficient bridges most in need of load limit recalculation and posting.** FHWA's Division Offices in the three states we reviewed in depth—Massachusetts, New York, and Texas—did not ensure that the states' bridge load ratings were properly calculated and corresponding postings performed. Our statistical sample showed similar problems nationwide. The FHWA working group identified the agency's risk management process as one way to address our findings:

- For the most recent risk management cycle, the FHWA's Associate Administrator for Infrastructure directed Division Offices, in a memorandum dated February 22, 2007, to incorporate an assessment of bridge load rating and posting practices into the evaluation of risk for their program areas. As of August 23, ten Division Offices had submitted the results of this assessment. However, FHWA representatives informed us that they have just begun their review and do not know the extent to which Division Offices identified load ratings and postings or other potential risks related to bridges.

[4] Derived from a statistical projection based on an analysis of a random sample performed by the U.S. Army Corps of Engineers of 67 bridges drawn from all 50 states, the District of Columbia, and Puerto Rico. The margin of error is +/- 5.3 percent.

[5] The working group included representatives from the Office of Bridge Technology, Division Offices, and the Resource Centers.

- The February 2007 memorandum also directed Division Offices to conduct an in-depth review of bridge load rating and posting practices within the next 3 years as a supplement to the annual compliance review for the National Bridge Inspection Standards. If load rating and posting practices are identified as a high risk as part of the risk assessment process, Division Offices must conduct the in-depth review within 1 year. Upon completion of an in-depth review, according to the February 2007 memorandum, Division Offices must continue to monitor load rating and posting procedures as part of the annual review of compliance with National Bridge Inspection Standards and the annual risk assessment process, and to implement response strategies as warranted.

Going forward, FHWA needs to ensure the effectiveness of these new risk management initiatives:

- As part of FHWA's risk management process, Division Offices are given the latitude to analyze, prioritize, and manage identified risks across their program areas. FHWA needs to take aggressive action to ensure that the Division Offices are conducting a rigorous and thorough assessment of potential risks associated with load rating and posting practices of structurally deficient bridges as part of the risk assessment process. FHWA should also ensure that these evaluations are completed by Division Offices and done in a rigorous and thorough manner.

- Further, FHWA needs to ensure that, if a high-risk area is identified, the Division Office follows up with an in-depth review and conducts it in a timely and rigorous manner. The recent bridge collapse in Minneapolis has increased the urgency of making sure that any potential risks are identified and corrective actions taken expeditiously.

**The time that FHWA engineers have available for bridge oversight is limited.** An FHWA Division Office exists in every state as well as the District of Columbia and Puerto Rico. Each FHWA Division Office has a bridge engineer, in some cases assisted by additional engineering staff, designated to handle Federal bridge program oversight responsibilities. In addition, FHWA bridge engineers perform other activities. We found that time constraints restricted bridge engineers' reviews to only a small percentage of the total number of bridges in the state. For example, one FHWA engineer in a large state informed us that he spent only about 15 percent of his time on oversight of the bridge inspection program. The majority of his time was spent providing technical assistance, construction inspection, and in committee meetings, among other tasks. FHWA needs to examine whether bridge engineers are devoting sufficient time and effort to

examining the structurally deficient bridges most in need of attention, including those requiring load rating recalculations and postings. Based on the results of this assessment, FHWA should make the necessary resource decisions to strengthen oversight in this area.

**FHWA would benefit from an oversight program that makes substantially greater use of data and metrics to target bridge inspections for its compliance reviews.** Given the thousands of bridges that FHWA oversees and the limited time its engineers have available, a data-driven approach would help FHWA bridge engineers focus on inspections and compliance reviews. That is, they could address the bridge problems most in need of attention. FHWA has undertaken several initiatives to make greater use of such an approach, although more aggressive action must be taken going forward. Specifically, FHWA has:

- *Modified the Bridge Program Manual*[6] *to provide better guidance to Division Office bridge engineers conducting the annual compliance reviews.* The FHWA Bridge Program Manual has been revised to specifically define FHWA's expectations for the bridge engineers' reviews of load ratings and postings, including defining the minimum level of review. In particular, the revised manual states that bridge engineers should independently review Federal and state bridge data to determine how well load rating policies and procedures are being implemented. The manual is currently under review by FHWA's legal staff in accordance with the Office of Management and Budget's Good Guidance Practices. It is critical that this manual be finalized and distributed to Division Offices as quickly as possible to ensure that FHWA engineers have the guidance necessary to make greater use of existing bridge data.

- *Implemented new National Bridge Inventory reports that are intended to identify problem areas in load rating data.* The National Bridge Inventory database, which is the official source of nationwide bridge information, contains several reporting tools for data analysis, as well as a new module that allows the generation of eight different standard load rating and posting reports that can, for example, identify bridges that have been reconstructed but that have no updated load rating. Problem areas identified through these reports should be addressed during the annual compliance review. FHWA has proactively distributed these reports to Division Offices. For example, according to FHWA, its Illinois Division Office has used the reports to resolve data discrepancies with the Illinois Department of Transportation. FHWA

[6] The manual is a collection of all of the basic program and technical information needed by FHWA bridge engineers to perform their duties in an efficient and effective manner.

needs to continue to ensure that these reports are actually being used as a tool for identifying and correcting data errors, and not just viewed as a data-collection exercise.

- *Agreed to promote greater use of computerized bridge management systems.* According to FHWA officials, the agency will continue to provide the states with technical assistance and training related to the use of automated bridge management systems. For example, FHWA and AASHTO developed two computerized bridge management programs (Pontis and Virtis) to help states better manage bridge inspections.

  To its credit, FHWA's Office of Asset Management also promised to continue to provide technical and program assistance to other FHWA offices, partners, and customers in the development and implementation of comprehensive bridge management systems. FHWA also maintains a Bridge Management Information Systems Laboratory to identify and analyze causes and trends of deficiencies within the nation's bridge inventory. To fully implement a risk-based, data-driven approach, FHWA must aggressively promote the use of these computer-based resources going forward. We will assess initiatives such as these as we conduct further work on FHWA's National Bridge Inspection Program.

## Action Can Be Taken Now to Strengthen the National Bridge Inspection Program and FHWA's Oversight

The bridge collapse in Minneapolis has focused attention on FHWA's oversight of the Nation's bridges and underscores the importance of vigilant oversight of states' efforts to inspect and repair structurally deficient bridges. FHWA must be more aggressive in implementing the initiatives it has already identified as being critical to improving its oversight of structurally deficient bridges, as well as identifying any other needed changes. As we evaluate the National Bridge Inspection Program, we will make recommendations where appropriate to improve the program and how it is implemented by FHWA.

**FHWA Needs to Take Aggressive Action Going Forward.** The implementation of FHWA's recent initiatives to improve oversight of structurally deficient bridges is the responsibility of its 52 Division Offices. It is too early to tell the extent to which each Division Office has started to implement these new initiatives, or whether they are working effectively. FHWA needs to ensure that it carefully monitors the progress of implementing these initiatives in its Division Offices, systematically evaluates their effectiveness, and shares lessons learned about what is working well or not working well in each state. The Minneapolis bridge

collapse increases the urgency of making sure that these new initiatives are being fully implemented in a timely manner and working as intended.

FHWA can take action immediately to improve oversight of the nation's bridges. Specifically, FHWA should:

- Identify and target those structurally deficient bridges most in need of recalculation of load ratings and postings, using a data-driven, risk-based approach.

- Finalize and distribute the revised Bridge Program Manual to the Division Offices as quickly as possible and ensure that FHWA engineers make greater use of existing bridge data as part of the annual compliance review process.

- Ensure that each of the 52 Division Offices conducts rigorous and thorough assessments of any potential risks associated with structurally deficient bridges, as directed in February 2007, and define how it will respond to any specific high-priority risks that Division Offices have identified.

**We Are Undertaking a Comprehensive Audit of the National Bridge Inspection Program.** Shortly after the Minneapolis bridge collapse, the Secretary of Transportation asked us to undertake an audit of the National Bridge Inspection Program. Our work will be separate and distinct from the National Transportation Safety Board's investigation, which will focus specifically on the events and conditions that led to the Minneapolis bridge collapse.

Our audit work will proceed in three concurrent phases, with sequential reporting dates. Specifically, our audit work will focus on the following efforts.

- An assessment of the corrective actions that FHWA has taken to address the recommendations we made in our March 2006 report on structurally deficient bridges. We have already initiated this effort and plan to issue a report later this year.

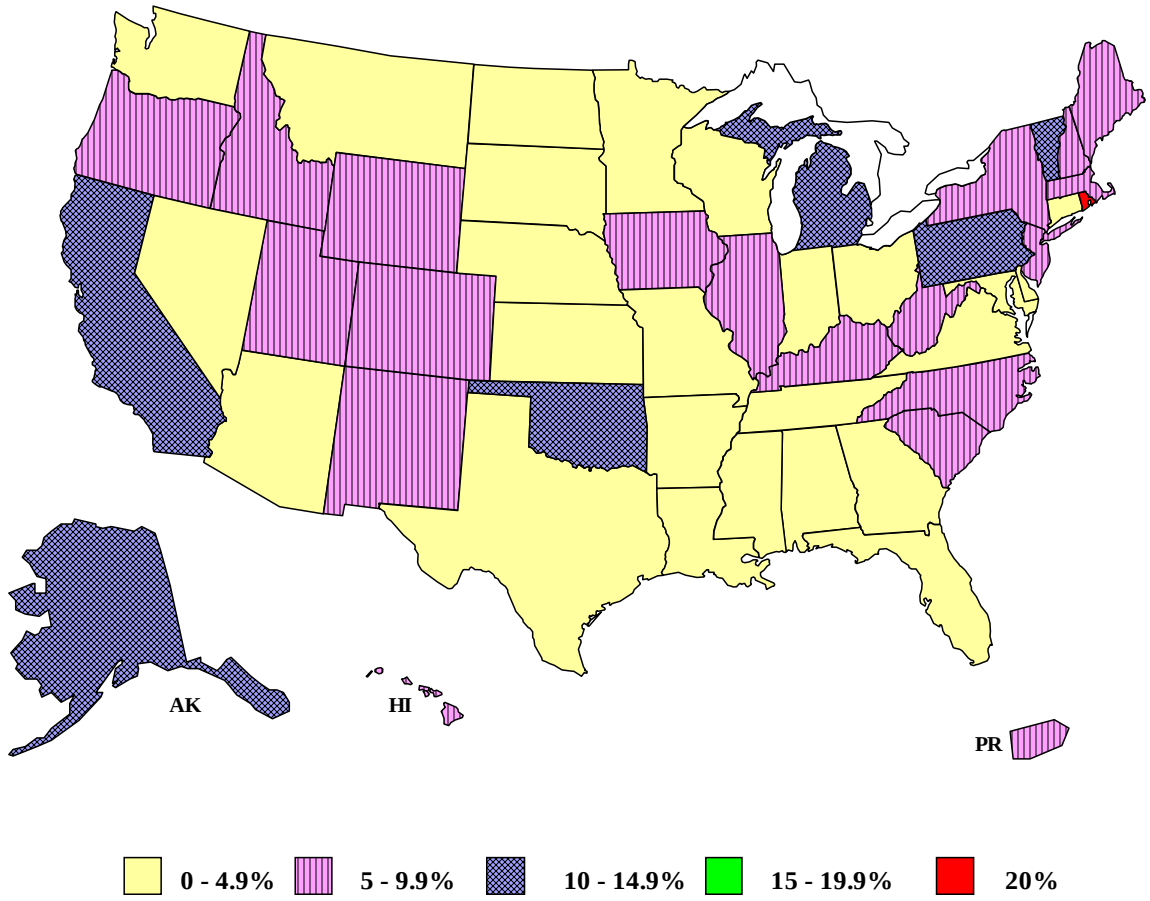
- A study of Federal funding provided to states for bridge rehabilitation and repair. We will assess FHWA's management and tracking of such funding, the extent to which states effectively and efficiently use these funds to repair or replace structurally deficient bridges, and whether states are using bridge funding for other purposes.

- A comprehensive review of FHWA's oversight activities to ensure the safety of National Highway System bridges across the country.

Going forward, our overall objective is to evaluate FHWA's implementation of the National Bridge Inspection Program and make recommendations for improvement in order to provide assurance that FHWA is doing everything that should be done to ensure bridge safety. We will report back to the Committee and the Secretary of Transportation as we identify additional steps that could be taken to improve the National Bridge Inspection Program.

Mr. Chairman, this concludes my statement. I would be happy to answer any questions that you or other members of the Committee may have at this time.

## *Percentage of National Highway System Bridges that Are Structurally Deficient within Each State*




Source: National Bridge Inventory, August 28, 2007.

Note: No states are within the 15-19.9 percent range. The state with 20 percent is Rhode Island. For the District of Columbia, which is not shown on the map, the percentage of National Highway System bridges that were structurally deficient is 7.8 percent.

## *Structurally Deficient Bridges on the National Highway System (NHS), by State*

| State | Total Number of NHS Bridges | Total Number of NHS Structurally Deficient Bridges | Percentage of NHS Bridges that are Structurally Deficient |
|---|---|---|---|
| Alabama | 2,776 | 108 | 3.9% |
| Alaska | 389 | 40 | 10.3% |
| Arizona | 2,631 | 26 | 1.0% |
| Arkansas | 1,929 | 43 | 2.2% |
| California | 7,467 | 1,030 | 13.8% |
| Colorado | 2,212 | 136 | 6.1% |
| Connecticut | 1,571 | 66 | 4.2% |
| Delaware | 250 | 0 | 0.0% |
| District of Columbia | 115 | 9 | 7.8% |
| Florida | 4,109 | 22 | 0.5% |
| Georgia | 2,529 | 33 | 1.3% |
| Hawaii | 414 | 31 | 7.5% |
| Idaho | 740 | 41 | 5.5% |
| Illinois | 3,627 | 297 | 8.2% |
| Indiana | 2,447 | 108 | 4.4% |
| Iowa | 1,848 | 122 | 6.6% |
| Kansas | 2,397 | 41 | 1.7% |
| Kentucky | 1,802 | 113 | 6.3% |
| Louisiana | 2,676 | 90 | 3.4% |
| Maine | 448 | 28 | 6.3% |
| Maryland | 1,472 | 47 | 3.2% |
| Massachusetts | 2,020 | 187 | 9.3% |
| Michigan | 2,541 | 261 | 10.3% |
| Minnesota | 1,659 | 47 | 2.8% |
| Mississippi | 2,166 | 32 | 1.5% |
| Missouri | 2,768 | 125 | 4.5% |
| Montana | 1,264 | 27 | 2.1% |
| Nebraska | 1,270 | 39 | 3.1% |
| Nevada | 788 | 7 | 0.9% |
| New Hampshire | 684 | 46 | 6.7% |
| New Jersey | 2,503 | 175 | 7.0% |
| New Mexico | 1,782 | 105 | 5.9% |
| New York | 3,580 | 227 | 6.3% |
| North Carolina | 2,638 | 160 | 6.1% |
| North Dakota | 528 | 9 | 1.7% |
| Ohio | 4,148 | 178 | 4.3% |
| Oklahoma | 2,733 | 280 | 10.2% |
| Oregon | 1,520 | 99 | 6.5% |
| Pennsylvania | 3,831 | 571 | 14.9% |
| Puerto Rico | 580 | 50 | 8.6% |
| Rhode Island | 272 | 55 | 20.2% |
| South Carolina | 1,375 | 107 | 7.8% |
| South Dakota | 811 | 29 | 3.6% |
| Tennessee | 3,075 | 74 | 2.4% |
| Texas | 15,302 | 184 | 1.2% |

| State | Total Number of NHS Bridges | Total Number of NHS Structurally Deficient Bridges | Percentage of NHS Bridges that are Structurally Deficient |
|---|---|---|---|
| Utah | 1,104 | 69 | 6.3% |
| Vermont | 477 | 56 | 11.7% |
| Virginia | 3,306 | 112 | 3.4% |
| Washington | 2,325 | 89 | 3.8% |
| West Virginia | 1,137 | 108 | 9.5% |
| Wisconsin | 2,720 | 102 | 3.8% |
| Wyoming | 1,330 | 108 | 8.1% |
| **Totals** | **116,086** | **6,149** | **5.3%** |

Source: National Bridge Inventory, August 28, 2007.

## *Total Average Daily Traffic (ADT) over Structurally Deficient National Highway System Bridges, by State*

| State | Total Number of NHS Structurally Deficient Bridges | Total ADT over NHS Structurally Deficient Bridges |
|---|---|---|
| Alabama | 108 | 1,843,479 |
| Alaska | 40 | 195,084 |
| Arizona | 26 | 330,523 |
| Arkansas | 43 | 693,481 |
| California | 1,030 | 64,470,654 |
| Colorado | 136 | 3,904,935 |
| Connecticut | 66 | 2,631,506 |
| Delaware | 0 | 0 |
| Dist. of Columbia | 9 | 465,950 |
| Florida | 22 | 826,229 |
| Georgia | 33 | 720,480 |
| Hawaii | 31 | 903,595 |
| Idaho | 41 | 630,490 |
| Illinois | 297 | 7,226,804 |
| Indiana | 108 | 1,893,712 |
| Iowa | 122 | 1,299,190 |
| Kansas | 41 | 493,375 |
| Kentucky | 113 | 6,900,153 |
| Louisiana | 90 | 1,681,910 |
| Maine | 28 | 244,650 |
| Maryland | 47 | 2,508,885 |
| Massachusetts | 187 | 7,301,293 |
| Michigan | 261 | 6,432,596 |
| Minnesota | 47 | 1,698,025 |
| Mississippi | 32 | 217,600 |
| Missouri | 125 | 3,280,648 |
| Montana | 27 | 165,610 |
| Nebraska | 39 | 275,749 |
| Nevada | 7 | 91,221 |
| New Hampshire | 46 | 1,297,756 |
| New Jersey | 175 | 7,630,571 |
| New Mexico | 105 | 961,623 |
| New York | 227 | 8,923,614 |
| North Carolina | 160 | 3,396,600 |
| North Dakota | 9 | 35,555 |
| Ohio | 178 | 4,791,339 |
| Oklahoma | 280 | 5,034,530 |
| Oregon | 99 | 1,223,689 |
| Pennsylvania | 571 | 14,568,954 |
| Puerto Rico | 50 | 2,689,250 |
| Rhode Island | 55 | 2,340,137 |
| South Carolina | 107 | 1,609,250 |
| South Dakota | 29 | 127,840 |
| Tennessee | 74 | 3,178,830 |
| Texas | 184 | 3,391,248 |

| State | Total Number of NHS Structurally Deficient Bridges | Total ADT over NHS Structurally Deficient Bridges |
|---|---|---|
| Utah | 69 | 1,535,767 |
| Vermont | 56 | 428,464 |
| Virginia | 112 | 3,300,043 |
| Washington | 89 | 1,426,717 |
| West Virginia | 108 | 1,287,250 |
| Wisconsin | 102 | 2,220,266 |
| Wyoming | 108 | 255,185 |
| **Totals** | **6,149** | **190,982,305** |

Source: National Bridge Inventory, August 28, 2007.
Note: Two bridges in California had no reported ADT in the National Bridge Inventory