

CRS Report for Congress

Highway Bridges: Conditions and the Federal/State Role

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Highway Bridges: Conditions and the Federal/State Role

Summary

The sudden failure and collapse of the I-35W Interstate System bridge in Minneapolis has raised policy concerns in Congress regarding the condition of the nation's transportation infrastructure in general, and in particular the federal role funding, building, maintaining, and ensuring the safety of roads and especially bridges in the United States. Highway bridges are of particular interest both because of the recent tragedy in Minneapolis and the catastrophic results of a major bridge failure, in terms of loss of life and economic impact.

Of the 600,000 public road bridges listed in the National Bridge Inventory, roughly 12%, or 74,000, are classified as structurally deficient. This is, however, roughly half the number classified as deficient in 1990. Given the I-35W collapse, however, even this lower number of deficient bridges leaves Americans potentially exposed to what some might consider an unacceptable level of risk. A policy question is how fast can and should the remaining deficient bridges be replaced or improved. At current annual spending levels, roughly \$10.5 billion (2004 dollars at all levels of government), the bridge investment backlog (in dollar terms) would be reduced by roughly half by 2024. Reducing the backlog to near zero during the same period would require an estimated annual spending rate of roughly \$12.4 billion (in 2004 dollars).

The Emergency Relief Program (ER), administered by the Federal Highway Administration (FHWA), provides funding for bridges damaged in natural disasters or that were subject to catastrophic failures. The program provides funds for emergency repairs immediately after the failure to restore essential traffic, as well as for longer-term permanent repairs. Most, if not all, the funds for both the initial cleanup and traffic adjustment, as well as for the replacement of the I-35W bridge, will come from this program, although most of these funds will have to be provided through a supplemental appropriation.

In the broader context, most federal funding for bridge reconstruction, replacement, or repair of structurally deficient or functionally obsolete bridges is provided through the FHWA's Highway Bridge Program (HBP). Many credit this program as being an important reason for the decline in the number of deficient bridges over the last 15 or so years. Although ER and HBP are federal programs, as is true with virtually all FHWA programs, most of the money provided is under the control of the states. The state departments of transportation let the contracts, oversee the project development and construction process, and, in particular, provide for the inspection of bridges.

Among the congressional issues regarding the nation's highway bridge infrastructure are whether to increase spending on deficient bridges and accordingly modify the federal-aid highway programs; whether to enlarge the federal role in bridge inspection; and, within the context of large projected deficits in highway trust fund revenues, how to fund potential increased spending on highway bridges.

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Highway Bridges: Conditions and the Federal/State Role

The sudden failure and collapse of the I-35W Interstate System bridge in Minneapolis has raised policy concerns in Congress regarding the condition of the nation's transportation infrastructure in general, and in particular the federal role funding, building, maintaining and assuring the safety of roads and especially bridges in the United States. Highway bridges are of particular interest both because of the recent tragedy in Minneapolis and the catastrophic results of a major bridge failure, in terms of loss of life and economic impact. Both the federal government's response to catastrophic bridge failures and its role in helping states address structurally deficient bridges have come under increased public scrutiny since the August 1, 2007, bridge collapse.

This report examines the federal and state roles in the maintenance, inspection, reconstruction, and replacement of the nation's highway bridge infrastructure, as well as the emergency response and reconstruction role of the Department of Transportation (DOT). The report first describes what is known about the condition of the nation's bridges and whether the problem of structural deficiency is improving or worsening. It then briefly describes the programmatic and budgetary context, including federal efforts to reduce the number of deficient bridges, and examines highway bridge spending. Finally, the report discusses issues Congress may face in light of the I-35W bridge collapse and the emergence of questions of the appropriateness and effectiveness of related federal infrastructure policies, programs, and spending.

Background

Bridge Characteristics

There are nearly 600,000 public road bridges in the United States, as documented in the National Bridge Inventory (NBI), that are subject to the National Bridge Inspection Standards.¹ Almost all of these bridges are owned by either state or local government, 48% and 51% respectively. Only 1% are owned by the federal government (these are primarily on federally owned land). About 40% of bridges serve local roads, 33% serve Interstate or other arterial highways, and 27% serve collectors.² Interstate bridges comprise about 9% of all bridges, with about half in

¹ Bridges that are 20 feet (6.1 meters) in length or longer.

² Arterials, including Interstates, are roads designed to provide for relatively long trips at (continued...)

urban areas and half in rural areas. Interstate and other arterial bridges carry almost 90% of average daily traffic (ADT). Urban Interstate bridges alone carried 35% of ADT in 2004.³

Bridge Conditions

Federal law requires states to periodically inspect public road bridges and to report these findings to the Federal Highway Administration (FHWA). This information permits FHWA to characterize the existing condition of a bridge compared with one newly built and to identify those that are deficient, either structurally or functionally. 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, 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.⁴

A bridge classified as structurally deficient is not necessarily unsafe, but may require the posting of a vehicle weight restriction.

A functionally obsolete bridge, on the other hand, is one where its current geometric characteristics — deck geometry (such as the number and width of lanes), roadway approach alignment, and underclearances — are deficient compared with current design standards and traffic demands. A bridge can be both structurally deficient and functionally obsolete, but structural deficiencies take precedence. As a result, a bridge that is structurally deficient and functionally obsolete is classified in the FHWA NBI as structurally deficient. About half of structurally deficient bridges are also functionally obsolete.⁵

Overall, in 2006, about 26% of bridges were classified as either structurally deficient, functionally obsolete, or both. About 12% of bridges in that year, approximately 74,000, were classified as structurally deficient. This is much lower than the number and share of bridges classified as structurally deficient in 1990 (see **Figure 1**). Indeed, over that period, the number of structurally deficient bridges has been cut almost in half.⁶

² (...continued)

high speed and usually have multiple lanes and limited access. Collectors are typically two-lane roads that provide for shorter trips at lower speeds and collect and distribute traffic between arterials and local roads.

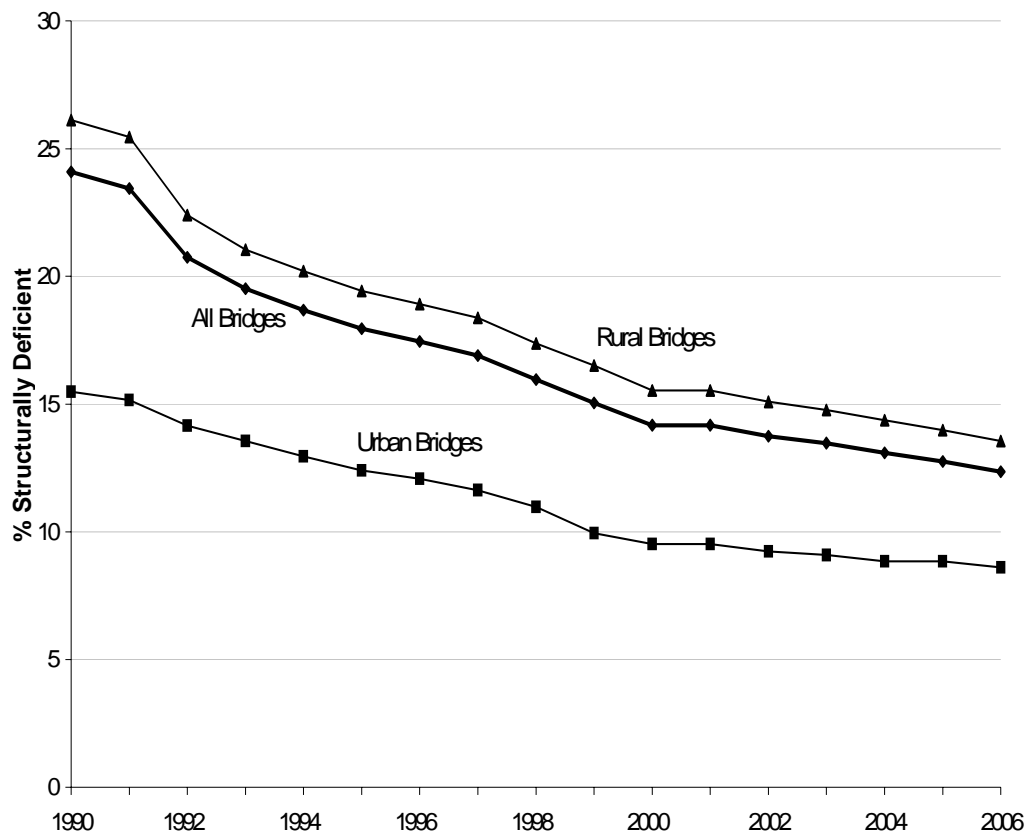
³ U.S. Department of Transportation, Federal Highway Administration and Federal Transit Administration, *2006 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance* (Washington, DC, 2007), chapter 2, at [<http://www.fhwa.dot.gov/policy/2006cpr/index.htm>].

⁴ *Ibid.*, pp. 3-14.

⁵ *Ibid.*, pp. 3-16.

⁶ U.S. Department of Transportation, Research and Innovative Technology Administration, (continued...)

Figure 1. Structurally Deficient Bridges in the United States, 1990-2006 (in percent)



Source: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, *National Transportation Statistics* (Washington, DC), table 1-27.

Bridges on the most heavily traveled roads, such as Interstates and other arterials, are less likely to be classified as structurally deficient than bridges on more lightly traveled routes. Despite the fact that traffic has grown markedly on Interstate and other arterials over the past decade, structural deficiencies have declined. The one exception to this trend is rural Interstate bridges. In 2004, FHWA classified about 5% of Interstate bridges and 8% of bridges serving other arterials as structurally deficient, compared with 12% serving collectors and 19% serving local roads. Between 1994 and 2004, the share of structurally deficient Interstate bridges declined from 6.0% to 5.1%, with the share of deficient Interstate bridges in rural areas increasing slightly from 4.0% to 4.2% and the share in urban areas declining from 8.3% to 6.0%. Over the same period, the share of structurally deficient other

⁶ (...continued)

Bureau of Transportation Statistics, *National Transportation Statistics* (Washington, DC), table 1-27, at [http://www.bts.gov/publications/national_transportation_statistics/].

arterial bridges in rural areas declined from 9.5% to 6.9% and the share of those in urban areas declined from 12.7% to 8.6%.⁷

Future Bridge Funding Needs

Every two years, the U.S. Department of Transportation (DOT) assesses the condition and performance of the nation's highways, bridges, and transit systems; documents current spending by all levels of government; and estimates future spending needs to either maintain or improve current conditions and performance.⁸ As with any attempt to forecast future conditions, there are a host of simplifying assumptions, omissions, and data problems that influence the results of the estimates of future funding needs. Among other things, the estimates of future needs rely on a forecast of travel demands and assumes that the most economically productive projects (i.e., projects with the highest benefits relative to costs) will be implemented first. Despite such uncertainties and assumptions, these estimates provide a way to assess the level of current spending compared with what will be needed in the future under different scenarios.

The most recent needs assessment shows that in 2004, \$70.3 billion was spent on capital improvements to the nation's highways and bridges.⁹ Of that amount, \$58.3 billion was spent on roadways and \$12.0 billion was spent on bridges. The expenditures on bridges are composed of \$10.5 billion on the rehabilitation of existing bridges and \$1.6 billion on the building of new bridges. Because of the modeling involved, DOT's future needs estimates for bridges are limited to fixing deficiencies in existing bridges, thus are comparable with the \$10.5 billion figure. With that in mind, DOT estimates that it would cost a total of \$65.3 billion to fix all existing bridge deficiencies (in 2004 dollars), which is called the existing bridge investment backlog.¹⁰ This figure includes dealing with bridges classified as structurally deficient and functionally obsolete as well as other deficiencies, if the benefits outweigh the costs.

Of course, fixing all deficient bridges overnight, whatever the cost, is not possible. FHWA, therefore, estimates how this investment backlog will change at various levels of spending over the next 20 years, 2005 through 2024, taking into account the deterioration of existing bridges over that period. The results of this analysis can be seen in **Table 1**. All dollar figures are adjusted for inflation and expressed in 2004 dollars. To maintain the existing level of bridge deficiencies over the next 20 years (i.e., to keep the backlog at the current level in total dollar terms) would require \$8.7 billion annually, less than the level of spending in 2004. Investment at the maximum economically justified level would be \$12.4 billion

⁷ U.S. Department of Transportation, Federal Highway Administration and Federal Transit Administration, 2007, exhibit 3-18.

⁸ The "improve" scenario is the level of spending in which the investment is made in all projects where the economic benefits are equal to or greater than the economic costs.

⁹ These spending figures do not include routine maintenance costs.

¹⁰ U.S. Department of Transportation, Federal Highway Administration and Federal Transit Administration, 2007, pp. 9-13.

annually, approximately 20% per year more than spending in 2004. At this level, the backlog of deficiencies would be entirely eliminated. Spending between the level needed to maintain current conditions, \$8.7 billion per year, and the maximum economically justifiable level, \$12.4 billion per year, would improve the conditions of the nation's bridges but would not entirely eliminate the economic backlog. At the level of spending in 2004, \$10.5 billion per year, the total dollar cost of deficiencies would be halved over the next 20 years. If spending is less than \$8.7 billion per year, the economic backlog will grow.¹¹ Funding to build new bridges, \$1.6 billion in 2004, would be in addition to these spending estimates.

DOT does not report in a comparative way on the federal share of all bridge capital expenditures, but instead reports on the share of capital spending on roadways and bridges as a whole. Of the \$70.3 billion capital expenditures on roads and bridges, the federal share was 43.8%, amounting to \$30.8 billion. The federal share of capital expenditures has hovered around 40% since the mid-1980s.¹²

Table 1. Projected Changes in 2024 Bridge Investment Backlog Compared with 2004 Levels for Different Possible Funding Levels

Average Annual Investment (billions of 2004 Dollars)	2024 Backlog (billions of 2004 dollars)	Percentage Change from 2004	Funding Level Description
12.4	0	-100.0%	Maximum economic investment scenario
11.1	21.4	-67.2%	
10.5	34.5	-47.2%	2004 spending on existing bridges
9.4	53.6	-17.8%	
8.7	65.3	0.0%	Maintain investment backlog
8.2	75.2	15.2%	
7.0	97.8	49.8%	
5.9	120.7	84.9%	

Source: U.S. Department of Transportation, Federal Highway Administration and Federal Transit Administration, *2006 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance* (Washington, DC, 2007), exhibit 9-8.

¹¹ Ibid., pp. 9-12, 9-13.

¹² Ibid., exhibit 6-8.

Bridge Infrastructure: The Federal/State Role

The Federal Highway Administration (FHWA) is the main federal player in regard to the maintenance and safety of highway bridges, as well as in the emergency response to reestablish mobility and reconstruct bridges after a catastrophic failure. The National Transportation Safety Board (NTSB), however, is the entity that usually investigates the causes of bridge failures, and when a navigable waterway is involved, the Coast Guard and the Army Corps of Engineers may be involved in clearing and reopening the waterway.

A number of characteristics of the FHWA's Federal-Aid Highway Program need to be kept in mind during a discussion of the federal role in maintaining and improving the nation's highway bridge infrastructure. To begin with, although the federal-aid highway program provides federal money to highways and highway bridges, the money itself is normally under the control of the states. The state departments of transportation (state DOTs), within the federal programmatic framework, determine, for the most part, where and on what the money is spent (but have to comply with detailed federal planning guidelines as part of the decision making process). The state DOTs let the contracts, oversee the project development and construction process, and provide for the inspection of bridges. Most of the federal-aid highway program money provided to the state DOTs is apportioned to them through several large "core" formula-driven programs, including the Interstate Maintenance program (IM), the National Highway System (NHS), the Surface Transportation Program (STP), the Congestion Mitigation and Air Quality Improvement program (CMAQ), and the Highway Bridge Replacement and Rehabilitation program (HBRR). These programs were designed to meet certain policy goals. Over time, the state DOTs have been given increasing flexibility to shift funds from one program to another to help fulfill their state transportation plans. The HBRR is the primary source of federal funds for highway bridge replacement, reconstruction, and capital maintenance, but if a state wishes, it can also "flex" funds from other federal-aid highway programs to increase spending on bridges. States may also flex bridge program funds to certain non-bridge programs under certain conditions.

Also, a number of smaller discretionary programs nominally under the control of the FHWA were designed to provide funds to projects chosen through competition with other projects. In recent years, however, most of the discretionary program funding has been earmarked by Congress. This has been true of the \$100 million discretionary bridge program set-aside provided under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU; P.L. 109-59).

The Federal-aid Highway program is funded from the Highway Account of the Highway Trust Fund (HTF). This Highway Account is experiencing financial difficulties and may go into deficit in FY2009. Consequently, an increase in federal spending for highway bridge repair would require a decrease in other highway spending, an increase in revenues to the trust fund (tax or fee increases), or appropriations from the Treasury's general fund.

The Highway Bridge Program (HBP).¹³ The main federal source of funding for highway bridges is the HBP, also referred to as the Highway Bridge Replacement and Rehabilitation program (HBRR). The HBP is the primary federal program to fund the replacement or rehabilitation of structurally deficient or functionally obsolete bridges. The program received \$4.1 billion for FY2007. As mentioned earlier, the plans for the spending of these funds are under the control of the state DOTs. These funds are usually not to be spent on new bridges, but are available for

- the total replacement of a structurally deficient or functionally obsolete highway bridge on any public road with a new facility constructed in the same general traffic corridor;
- rehabilitation to restore structural integrity of a bridge on any public road or to correct major safety defects;
- replacement of certain ferryboat operations and bridges destroyed before 1965, low-water crossings, and bridges made obsolete by certain Corps of Engineers (COE) projects and not rebuilt with COE funds;
- bridge painting, seismic retrofitting, anti-scour measures, and de-icing applications; and
- systematic preventative maintenance (eligibility was recently expanded to include such maintenance).

HBRR funds are apportioned to the states by formula based on each state's relative share of the total cost to repair or replace deficient highway bridges. Each state is guaranteed at least 1/4% of total program allocation, and no state may receive an allocation greater than 10%. The federal share under HBP is 80%, except that for Interstate bridges, the federal share rises to 90%.

The most recent authorization act, SAFETEA-LU, provides on average \$4.1 billion annually for HBP. Over the life of the Act, the program was to receive roughly 11% of all the contract authority apportioned by formula. Over the last 20 years, the percentage of actual annual HBP apportionments has varied roughly within the range of 11% to 14% of total annual apportionments.¹⁴

As with other federal-aid highway programs, the states have a great deal of control over how, where, and on what the HBP funds allocated to their state transportation programs are spent. In addition, the states have the option of not spending all of HBP on bridge projects. The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA; P.L. 102-240) included a provision to allow up to 40% of a state's bridge program apportionment to be transferred, or "flexed," to the

¹³ 23 U.S.C. 144. See also the FHWA website at [<http://www.fhwa.dot.gov/federalaid/projects.cfm?progProj=c29>].

¹⁴ Based on FHWA data.

National Highway System (NHS) or the Surface Transportation Program (STP); this authority continues to exist.

On the other hand, states may also, if they wish, spend funds from other large “core” formula program apportionments on their state’s bridges. In addition, there is nothing preventing a state from spending its own funds on bridge projects beyond the minimum local matching share.

Bridge Inspection. Under the National Bridge Inspection Program (NBIP), all bridges longer than 20 feet (6.1 meters) are inspected and reported on by state inspectors, based on federally defined data requirements, and data from these inspections are reported by the states and federal agencies to the Federal Highway Administration. This program sets up a mechanism to identify the nation’s deficient or functionally obsolete bridges, to evaluate the overall conditions of bridges nationwide, and to form the statistical basis for developing the cost-to-repair estimates that are used in the HBP apportionment formula.¹⁵

The federal government sets the standards for bridge inspection through the National Bridge Inspection Standards (NBIS; 23 CFR 650 subpart C), which is the basis for the Bridge Inspectors Reference Manual used by federal, state, and contractor personnel for guidance in bridge inspection. The Manual sets forth how, with what frequency, and by whom bridge inspection is to be completed. Characteristics of the NBIP include the following:

- States are responsible for the inspection of all public highway bridges within the state (except for those owned by the federal government or that are tribally owned). Although the state may delegate some bridge inspection responsibilities to smaller units of government within the state, the responsibility for having the inspections done in conformance with federal requirements remains with the state.
- The vast majority of inspections are done by state employees or by certified inspectors employed by consultants under contract to a state DOT.
- Inspections of federally owned bridges are the responsibility of the federal agency that owns the bridge.
- The NBIS sets the standards for the qualification and training of bridge inspection personnel.
- In general, the required frequency of inspection is every 24 months. States are to identify bridges that require less than a 24-month frequency. States can also, however, request FHWA approval to

¹⁵ The National Bridge Inspection Program was initiated in 1968 following the 1967 collapse of the Silver Bridge over the Ohio river. The National Bridge Inspection Standards were first implemented in 1971.

inspect certain bridges on an up to 48-month frequency. Frequency of underwater inspection is generally 60 months but may be increased to 72 months with the permission of the FHWA Division Office.

- The most common on-site inspection is a visual inspection by trained inspectors, one of whom must meet the requirements of a Team Leader. Damage and special inspections do not require the presence of a Team Leader.
- Load rating of a bridge must be under the responsibility of a registered professional engineer. Structures that cannot carry legal loads must be posted.
- The vast majority of inspections are done by state employees or consultants working for the states. FHWA inspectors do, at times, conduct audit inspections to assure that states are complying with the bridge inspection requirements.
- FHWA provides on-site engineering expertise in the examination of the reasons for a catastrophic bridge failure.

FHWA's Emergency Relief Program. The Emergency Relief Program (ER) provides funding for bridges damaged in natural disasters or that were subject to catastrophic failures.¹⁶ The program provides funds for emergency repairs immediately after the failure to restore essential traffic, as well as for longer-term permanent repairs.

ER is authorized at \$100 million per year, nationwide. Funding beyond this is generally provided for in supplemental appropriations acts. ER also has a \$100 million cap on the amount that can be spent in any one state, for any one disaster or catastrophic failure. In the case of most large disasters, additional funds are provided for in an appropriations bill (usually a supplemental appropriations bill) to meet the needs for additional ER funding. Usually, the \$100 million state cap is waived legislatively in the same bill. In the past, this funding often came from the HTF, but with the HTF facing financial problems, any supplemental funding, under ER, for the Minneapolis Bridge would probably have to come from the Treasury's general fund. Secretary of Transportation, Mary Peters, announced that FHWA is providing \$5 million in immediate ER funding for "clearing debris, setting up detours, and making repairs." On August 8, President Bush signed legislation providing \$250 million for rebuilding the bridge.¹⁷

¹⁶ For a more detailed discussion of the ER program, see CRS Report RS22268, *Repairing and Reconstructing Disaster-Damaged Roads and Bridges: The Role of Federal-Aid Highway Assistance*, by Robert S. Kirk.

¹⁷ H.R. 3311 authorizes \$250 million in ER funding for rebuilding the I-35W bridge. The bill also eliminates the \$100 million state limitation, authorizes ER funds for transit, and lifts the federal share for reconstruction to 100%.

The federal share for the emergency repairs to restore essential travel during the first 180 days following a disaster is 100%. Later repairs, as well as permanent repairs such as reconstruction or replacement of a collapsed bridge, are reimbursed at the same federal share that would normally apply to the federal-aid highway facility. Recently, Congress has often legislatively raised the federal share under the ER program to 100%.

The ER program is considered by most in the transportation community to have a good track record in getting traffic alternatives (detours, transit, or ferryboat service) in place and using innovative contracting to accelerate the rebuilding of damaged federal-aid highway facilities. As is true with other FHWA programs, the ER program is administered through the state DOTs in close coordination with FHWA's division offices (there is one in each state). Most observers see this as a strength of the program, in that FHWA staff at the state level have established and ongoing relationships with their state counterparts, which facilitates a quick, coordinated response to disasters.

National Transportation Safety Board (NTSB) Investigation of Bridge Collapse.¹⁸ The NTSB has deployed a seven-person team to the site of the August 1, 2007, interstate 35W bridge collapse in Minneapolis, MN. The NTSB team is being accompanied by NTSB Chairman Mark Rosenker, who will serve as the principal on-scene spokesman regarding the ongoing federal investigation of this event.

The National Transportation Safety Board (NTSB) has the general authority under 49 U.S.C. § 1131 to investigate selected highway accidents in cooperation with state authorities. The provision stipulates that NTSB investigations carried out under this authority shall have priority over any investigation by any other component of the federal government. However, the NTSB must provide for appropriate participation by other departments, agencies, or instrumentalities in the investigation. If, however, the Attorney General, in consultation with the NTSB chairman, were to determine that circumstances of an accident reasonably indicate that the event was caused by a criminal act, then the Federal Bureau of Investigation would assume investigative priority.

The statute allows the NTSB to select highway accidents to investigate. The NTSB selects those highway accidents it chooses to investigate based on a variety of factors and considerations, such as the severity of the incident, the suspected role of key transportation safety concerns or issues, media and public interest in the event, and stated or perceived congressional concern or interest in the event and its possible implications for public safety.

The NTSB uses a "party" process in conducting its investigations, allowing entities that can contribute technical expertise and specific knowledge regarding the circumstances of an accident to participate in the fact-finding phase of an investigation. Parties to an investigation of a highway infrastructure failure or collapse may include, for example, structural engineers and other technical experts

¹⁸ This section regarding the NTSB was written by Bart Elias, Specialist in Aviation Policy.

from state transportation departments and construction engineers or other technical specialists from private firms contracted to build or maintain the infrastructure involved in the event. As previously noted, the NTSB must accommodate participation from other federal entities, including components of the Department of Transportation (DOT), and does so by granting these federal entities status as a party to the investigation. While the various entities or parties, including federal, state, local, and private industry participants, are directly involved in the fact-gathering portion of the investigation, the NTSB retains sole responsibility for the analysis, investigative findings, and determination of probable cause.

Other major NTSB investigations of highway infrastructure damage, collapses, and failures since 1987 include the following:

- Ceiling Collapse in the Interstate 90 Connector Tunnel, Boston, Massachusetts, July 10, 2006 (NTSB Report HWY-06-MH-024).
- Highway Accident Brief — Passenger Vehicle Collision with a Fallen Overhead Girder Eastbound on Interstate 70 at the Colorado State Route 470 Overpass, Golden, Colorado, May 15, 2004 (NTSB Report HAB-06-01).
- Highway-Marine Accident Report — U.S. Towboat Robert Y. Love Allision with the I-40 Highway Bridge near Webbers Falls, Oklahoma, May 26, 2002 (NSTB Report HAR-04-05).
- U.S. Towboat Chris Collision with the Judge William Seeber Bridge, New Orleans, Louisiana, May 28, 1993 (NTSB Report HAR-94-03).
- Tractor-Semitrailer Collision with Bridge Columns on Interstate 65, Evergreen, Alabama, May 19, 1993 (NTSB Report HAR-94-02).
- Collapse of the Harrison Road Bridge Spans, Miamitown, Ohio, May 26, 1989 (NTSB Report HAR-90-03).
- Collapse of the Northbound U.S. Route 51 Bridge Spans over the Hatchie River near Covington, Tennessee April 1, 1989 (NTSB Report HAR-90-01).
- Collapse of the S.R 675 Bridge Spans over the Pocomoke River near Pocomoke City, Maryland August 17, 1988 (NTSB Report HAR-89-04).
- Collapse of New York Thruway (I-90) Bridge over the Schoharie Creek, Near Amsterdam, New York, April 5, 1987 (NTSB Report HAR-88-02).

United States Coast Guard and Army Corps of Engineers Activities.¹⁹ The I-35W bridge is located just down river from St. Anthony Falls lock and dam (the first lock on the Mississippi River) and about six miles upriver from the second lock and dam (which is actually designated as Lock and Dam No. 1 by the Army Corps of Engineers). The Coast Guard has closed a nine mile section of the river between these two locks. These locks are half the width of the standard Mississippi lock, and the vast majority of commercial barge traffic begins downstream from these locks. The Army Corps of Engineers is the agency responsible for clearing federal navigation channels and is assisting in the removal of river debris with a barge-based crane operation. The Coast Guard is the authority that will declare the river safe for navigation once river debris have been removed.

Issues for Congress

Some see the I-35W bridge collapse as an example not only of the problem of structurally deficient bridges but for a purported infrastructure crisis in general. Ironically, as is indicated by the *Conditions and Performance Report*, the typical and aggregate condition of bridges has actually improved since 1990. However, the condition of roads has not experienced the same degree of improvement.²⁰

Condition of the Nation's Bridges

The number of deficient bridges in the United States has fallen to less than half the number identified in 1990. Some would argue that this casts doubt on the need for a major policy response to eliminate or more rapidly reduce the roughly 74,000 remaining deficient bridges. In light of the I-35W collapse, however, even that lower number of deficient bridges leaves Americans exposed to what some might consider an unacceptable level of risk. That level of risk may be clarified when the actual cause of the collapse is determined, which may take many months. The policy question is how fast can or should the remaining deficient bridges be replaced or repaired. Some would argue that Congress should consider the spending levels (described in **Table 1**) that would more quickly reduce or even eliminate the nation's deficient bridges by 2024.

A related issue is one of terminology. The terms *structurally deficient* and *functionally obsolete* are not synonymous with unsafe. The goal of eliminating all structurally deficient bridges quickly could lead to inefficient spending, if a significant percentage of these bridges do not actually have significant safety issues. Congress might, therefore, consider challenging FHWA to come up with a rating system more directly tied to risk.

¹⁹ This section on U.S. Coast Guard and Army Corps of Engineers Activities was written by John Frittelli, Specialist in Transportation Policy.

²⁰ For a more broadly defined discussion of trends on infrastructure, see Congressional Budget Office, *Trends in Public Spending on Transportation and Water Infrastructure, 1956 to 2004*, by Nathan Musick, August 2007, p. 29.

Providing More Money for Bridges

Given that the Highway Trust Fund (HTF) may go into deficit in FY2009, Congress may consider a number of financing options should increasing spending on bridges be under policy consideration.

- Provide a special treasury general fund transfer to the HTF dedicated to acceleration of the repair of the remaining structurally deficient bridges.
- The fuel taxes that provide the vast majority of revenues to the HTF were last raised in 1993. Some have proposed raising the fuel taxes to support the HTF generally, others have suggested an increase just for the bridge program.
- Some observers have suggested redirecting existing earmarked funds to the bridge program.
- Tighten the flexibility rules on the spending of HBP funds to require that all apportioned funds be spent on bridges and not flexed to other uses.
- The Equity Bonus distribution could be rewritten to favor the bridge program. This could, however, also require a change in the rate-of-return guarantee for the whole program.
- Some have mentioned using public private partnerships (PPPs) as a mechanism to help reduce the number of structurally deficient bridges. Many are skeptical of the use of PPPs because it would probably require the conversion of most of these bridges from free to toll facilities.
- Require the states to pay more of the costs. A GAO study found that since the mid-1990s, states had not maintained their level of effort in highway spending.²¹

Oversight

Congress could require more FHWA oversight of the composition and priorities inherent in the state transportation implementation plans (STIPs) that direct program funding and require that states meet certain bridge deficiency benchmarks before states could flex any of their core formula funds to any program other than the HBP.

²¹ Government Accountability Office, *Federal-Aid Highways: Trends, Effect on State Spending, and Options for Future Program Design* (August 2004), available at [<http://www.gao.gov/new.items/d04802.pdf>].

Inspection Auditing

FHWA could be directed to take a more active role in ensuring that inspections done by the states or their contractors are done in conformance with the National Bridge Inspection Standards, including on-site audits of state inspections.

Emergency Relief Issues

The Emergency Relief Program's costs related to the I-35W bridge are uncertain at this time but will certainly be well above the \$100 million authorized annually. Because of the condition of the highway trust fund, the additional funding will probably have to be drawn from the Treasury's general fund. Because these funds will not be trust-funded contract authority, they must be appropriated prior to their obligation. This means that supplemental funding will be required in the near term. Otherwise, the reimbursements for repair work to the state of Minnesota may be delayed.

Some have expressed interest in obtaining waivers of certain federal requirements that would normally apply to any federally funded construction project. Davis-Bacon wage rate requirements apply to all ER contracts. These requirements may not be waived by the FHWA but can be suspended by executive order (ref. 40 U.S.C. 276a-5). President Bush did this in response to Katrina; however, he reimposed the requirements almost immediately thereafter. "Buy American" regulation waivers may be granted by FHWA based on a public interest rationale under 23 CFR635.4109(c)(1)(I).

For some disasters, Congress has legislatively raised the federal share for ER projects to 100%. The Government Accountability Office has called for a reexamination of this increasingly common occurrence.²² Others argue that because the maintenance of the bridge was the responsibility of the state, the state should shoulder some of the cost of the bridge's replacement.

Legislative Initiatives

Before leaving for its Summer District Work Period, Congress enacted legislation to provide the aforementioned funding authorization for the reconstruction of the I-35W bridge. When Congress returns in September, it is expected to consider the bridge situation in the larger congressional policy context. The House Committee on Transportation and Infrastructure (T&I), for example, has stated that it will hold hearings on the state of the nation's bridges in September.

When the T&I Committee holds its hearings, it will also be considering a legislative proposal put forward by Committee Chairman Oberstar that would create a special multi-element initiative to repair structurally deficient bridges on the

²² GAO, *Highway Emergency Relief: Reexamination Needed to Address Fiscal Imbalance and Long-Term Sustainability*, GAO-07-245, at [<http://www.gao.gov/new.items/d07245.pdf>].

national highway system (NHS), of which the interstate highways are a part.²³ Chairman Oberstar's proposal would create a separate trust fund for this effort funded by an increase in the federal motor fuels tax (5 cents per gallon) and/or a tax on each barrel (\$1 barrel) of imported oil refined into motor fuels. These taxes, which could raise approximately \$25 billion over five years, are viewed as temporary, as is the initiative. The proposal, which must be translated into legislation, would distribute funding to the states on a needs basis.

President Bush reacted to the proposal by stating that he opposes any increase in the fuels tax at this time and suggested instead that Congress revisit the funding priorities in existing transportation legislation, especially as regards to earmarking.²⁴ The Ranking Member of the T&I Committee, Representative Mica, has also suggested that Congress needs to revisit its transportation spending priorities, stating that the existing program lacks "a true comprehensive transportation strategy."²⁵

Several other Members of Congress have also expressed an interest in seeing federal spending for bridge infrastructure increased. Among them are Senator Clinton, who has suggested establishment of an emergency \$10 billion repair fund, and Senator Murray, who has announced her intention to amend FY2008 transportation appropriations legislation by adding \$1 billion for bridge repair and replacement. Additional Members are likely to add their own proposals in the weeks ahead, and it is likely that House and Senate committees, in addition to House T&I, will hold hearings on the bridge issue this fall.²⁶

²³ See [http://transportation.house.gov/Media/File/Full%20Committee/NHS_Bridge_Reconstruction_Initiative.pdf].

²⁴ Rutenberg, Jim, "Bush Opposes Raising Gas Tax for Bridge Repairs," *The New York Times*, August 9, 2007.

²⁵ See [<http://republicans.transportation.house.gov/News/PRArticle.aspx?NewsID=218>].

²⁶ "Bridge Collapse Continues to Spur Legislative Proposals, Funding Discussion," *Daily Report for Executives*, August 10, 2007, p. A-11.